

# jamaica architect

ISSUE 7 · 1970

A REVIEW OF ARCHITECTURE IN THE TROPICS

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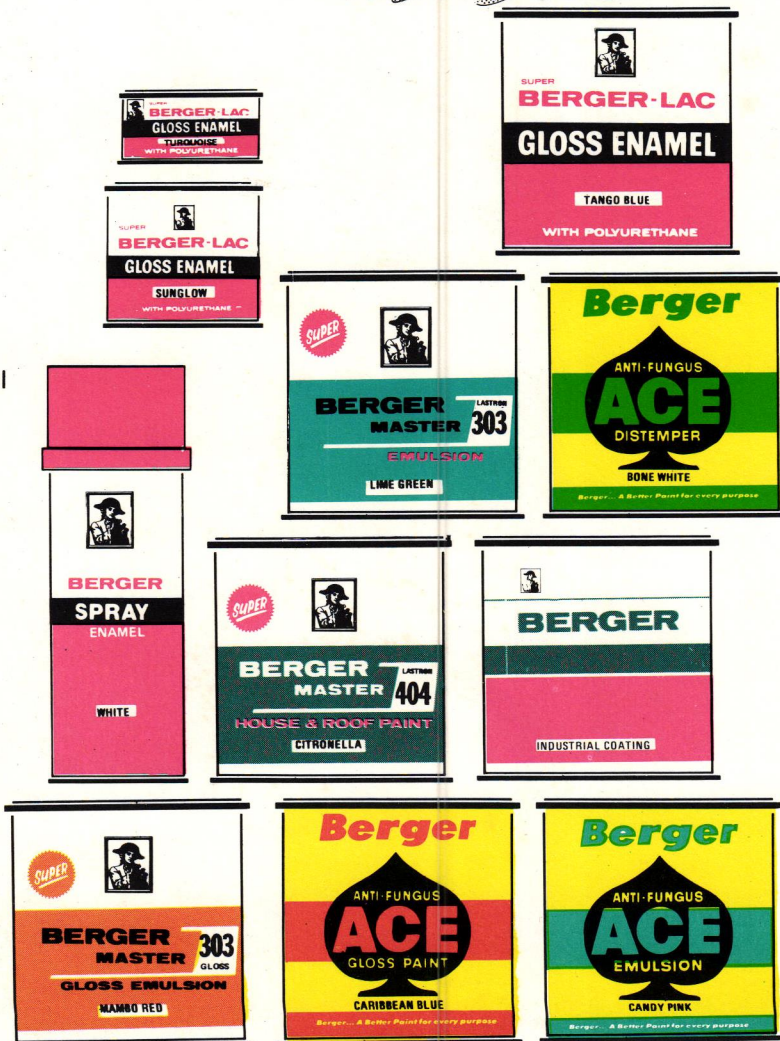


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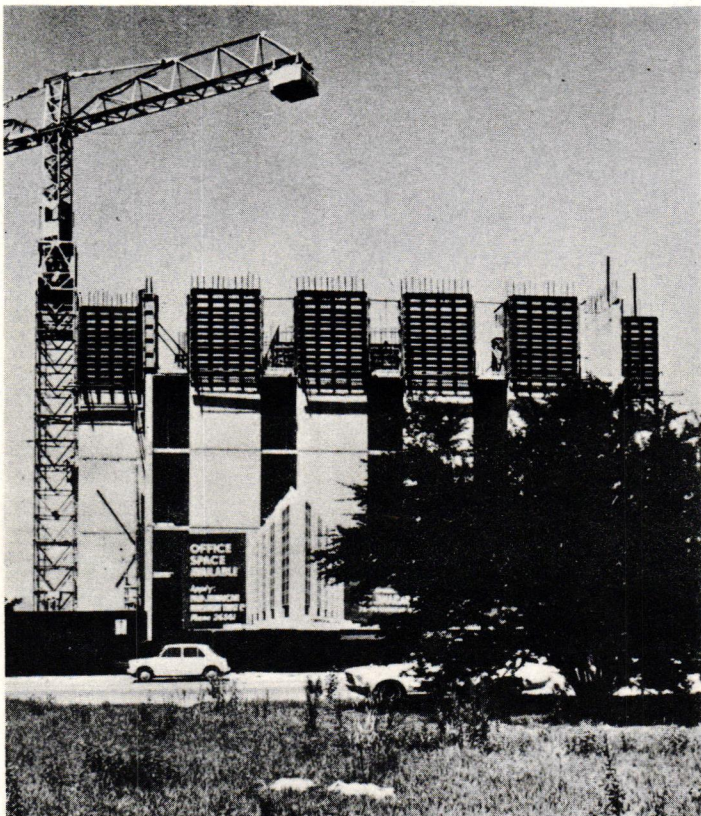
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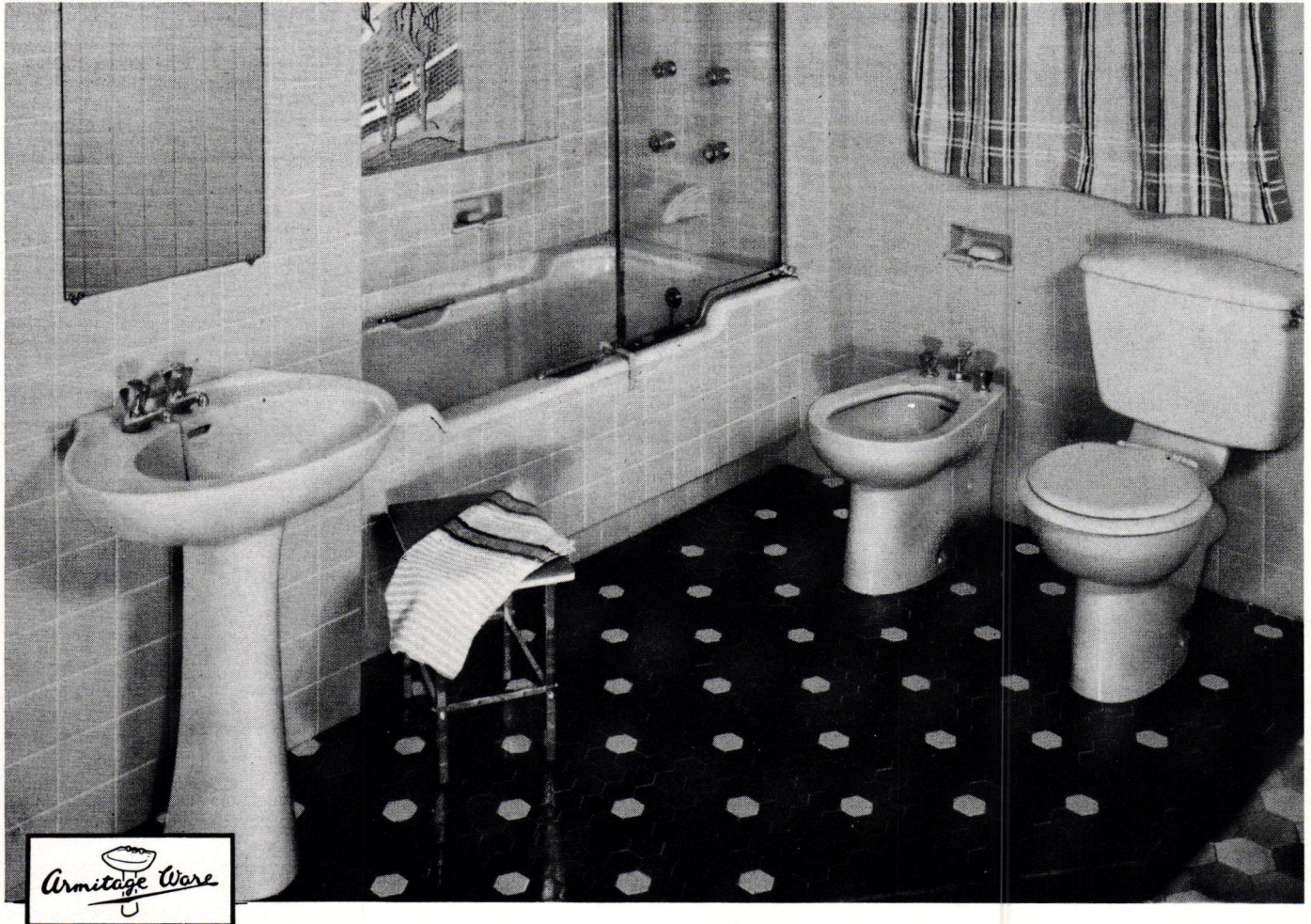
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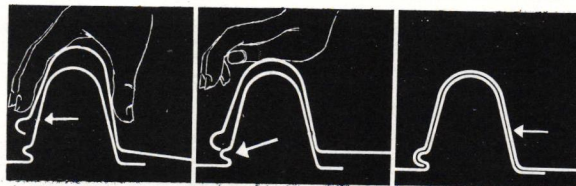


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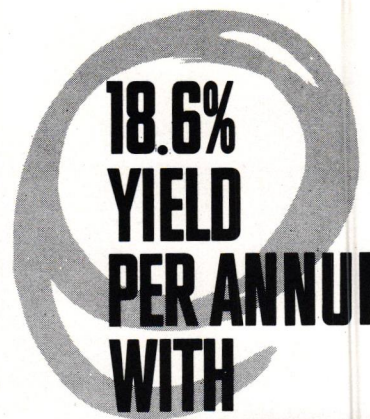
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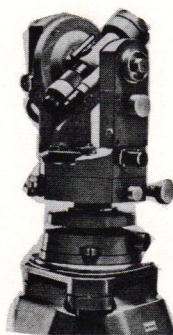
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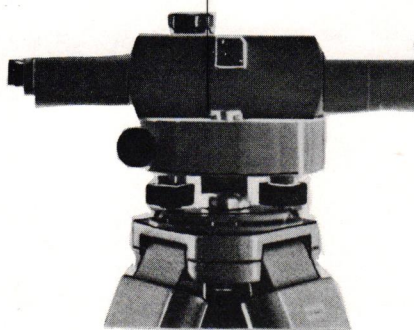


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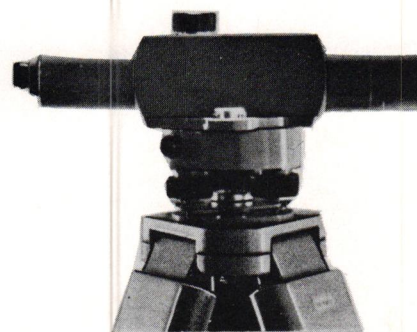


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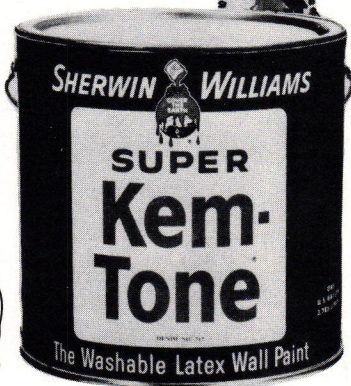
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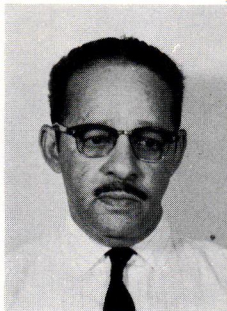
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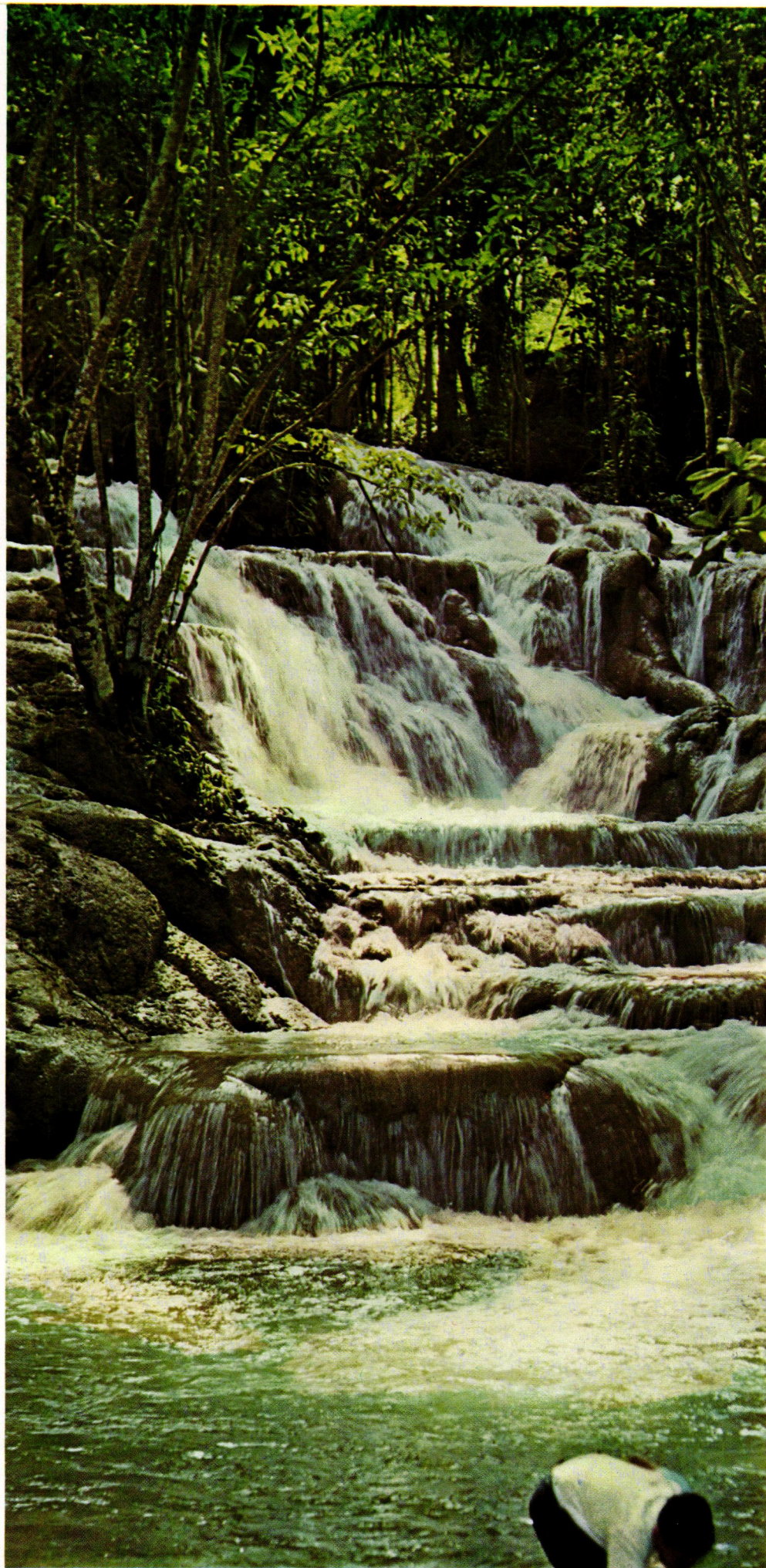


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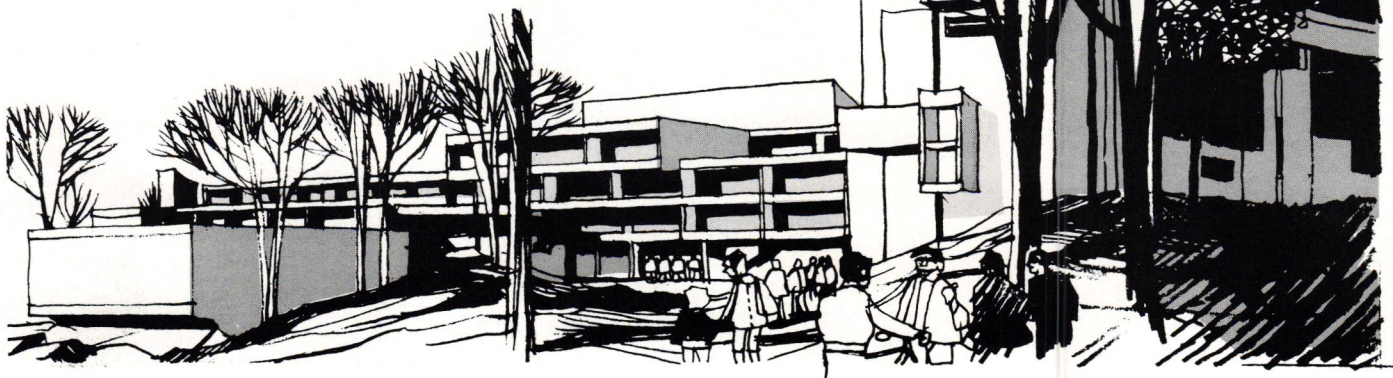
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# jamaica architect

A REVIEW OF ARCHITECTURE IN THE TROPICS

ISSUE 7 1970

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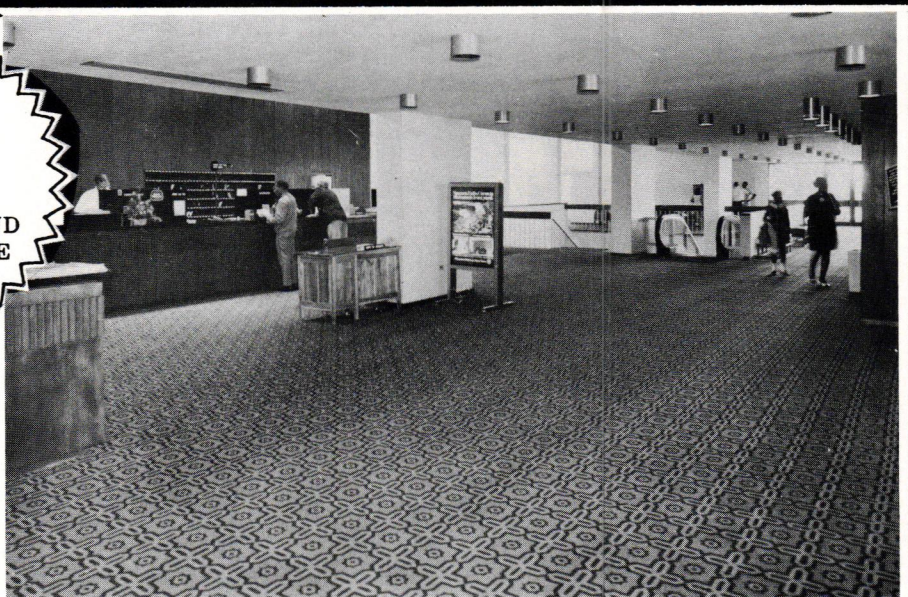
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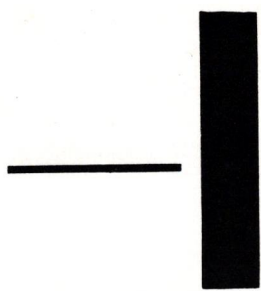
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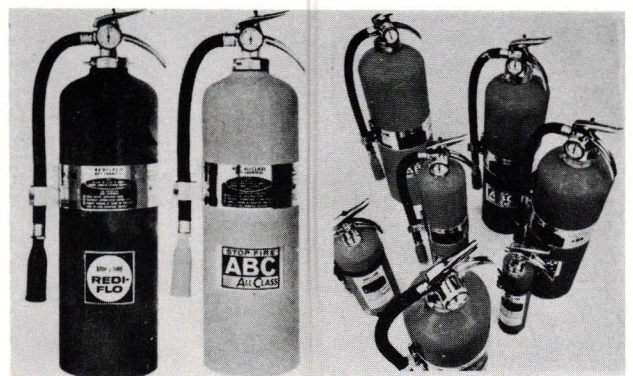
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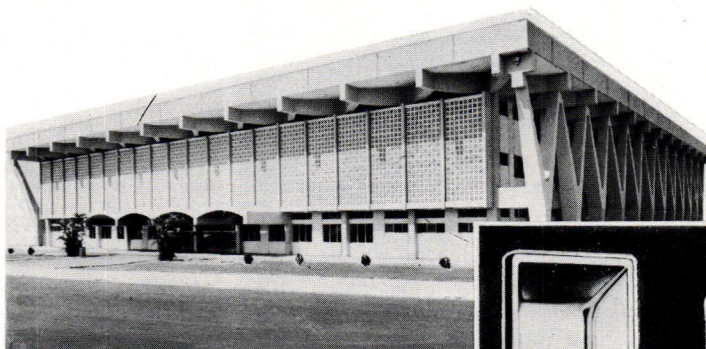
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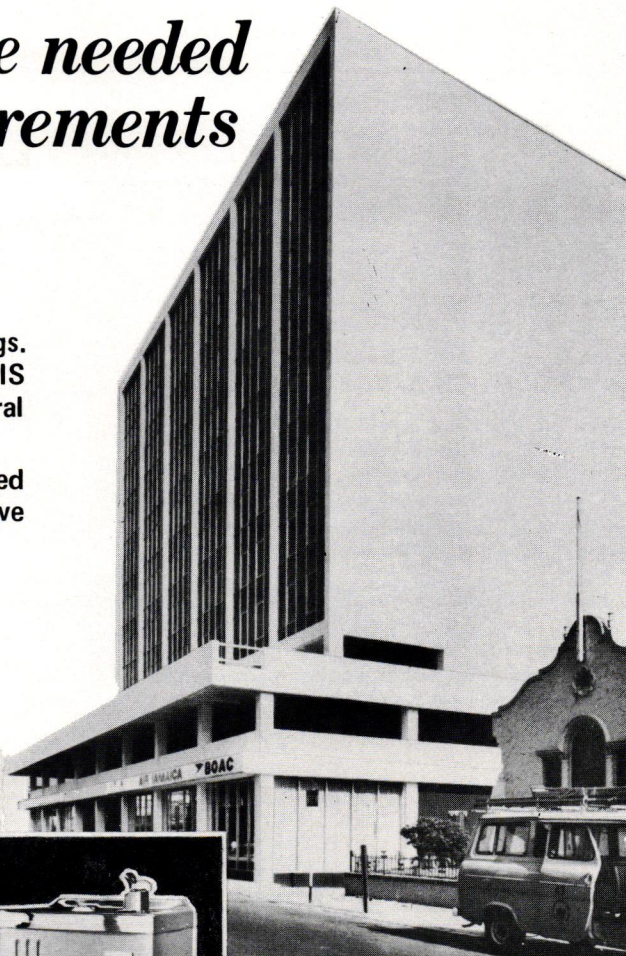
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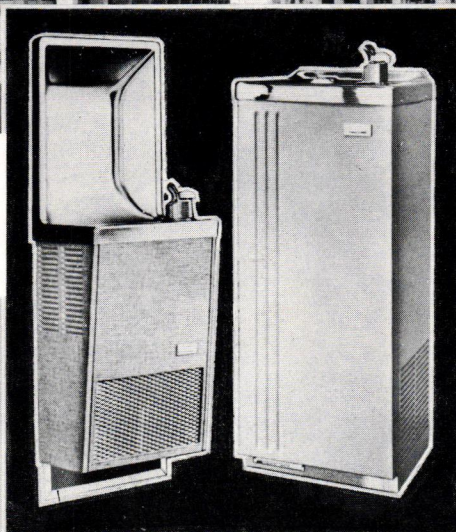
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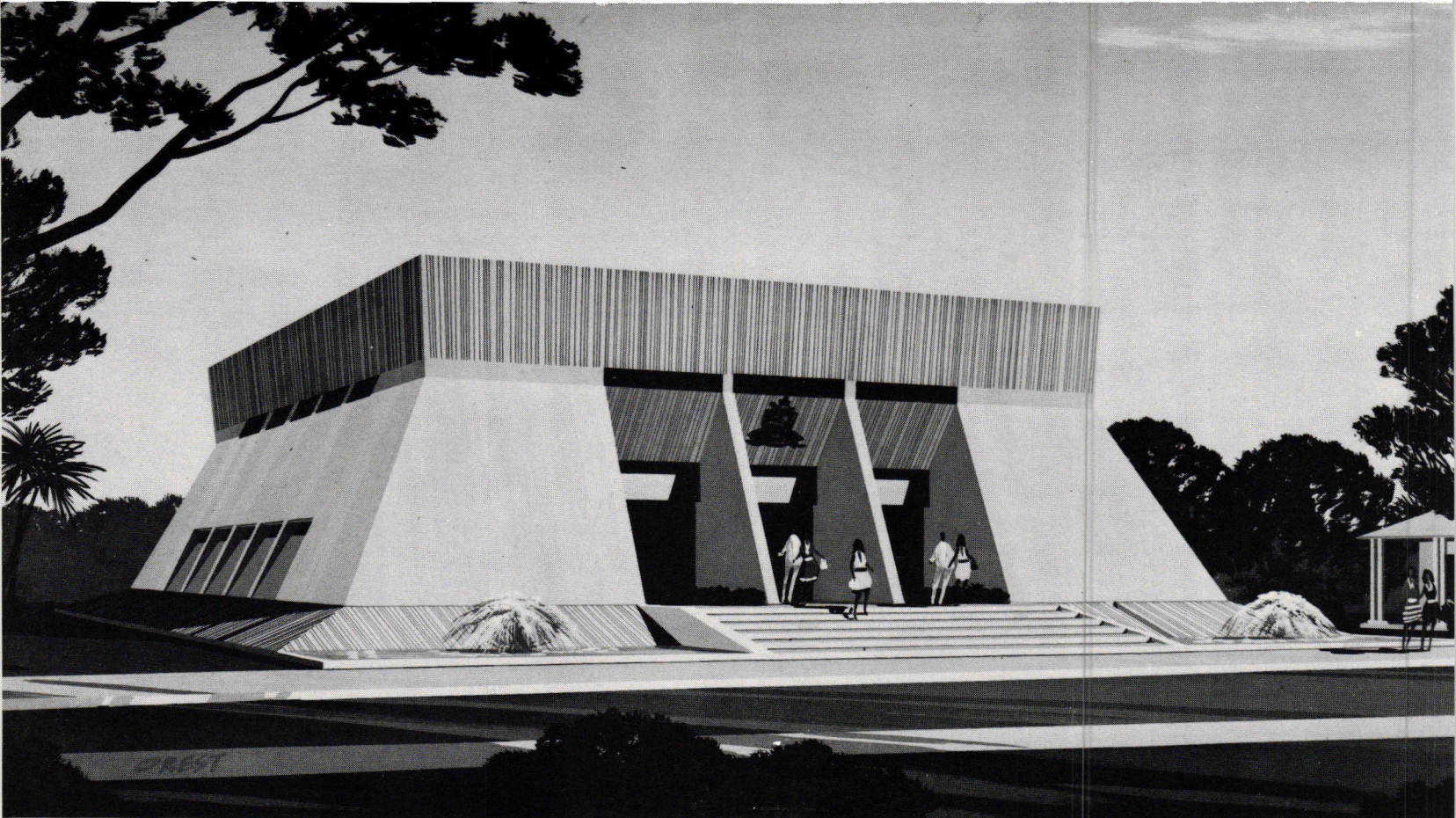
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*Perspective of winning design for Legislative Assembly Building — Cayman Rutkowski, Bradford & Partners.*

## Architectural Competition Winners!

*Rutkowski, Bradford & Partners won the first prize in the Competition for the Design of Government Buildings, Grand Cayman, Cayman Islands.*

*There were thirty eight entrants: Bahamas — one; Barbados — five; Bermuda — one; Canada — five; Cayman — six; Guyana — one; Jamaica — eight; St. Lucia — one; Trinidad & Tobago — four; U.S.A. — six.*

*Second prize was won by George Henry of Guyana.*

*Third prize was won by Collin Laird & Assoc. — Trinidad.*

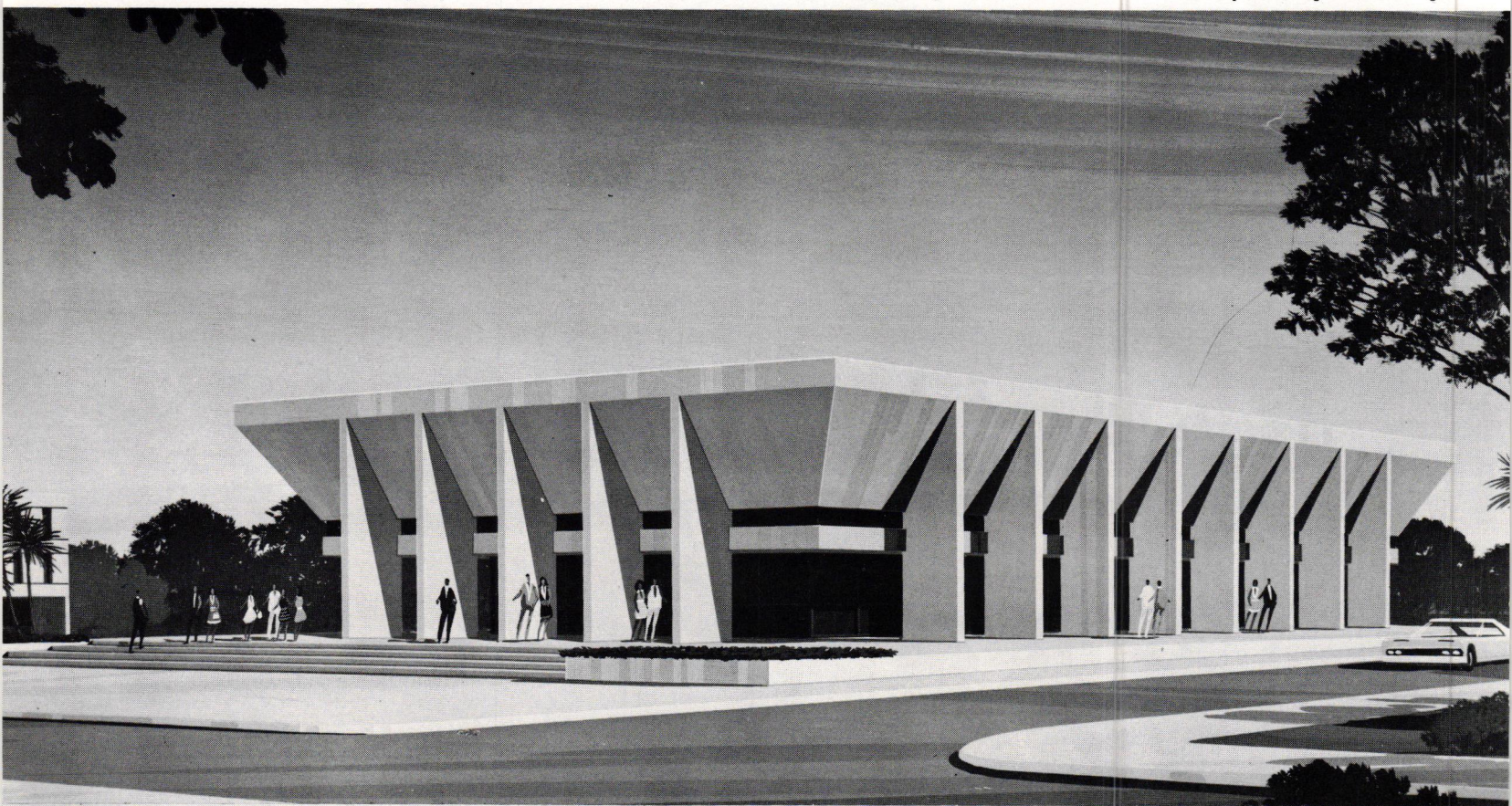
*The Chief Assessor was Mr. Peter Bynoe — A.R.I.B.A., Dip. Arch., President of the Commonwealth Society of Architects in the Caribbean.*

*The Co-Assessor was Mr. Mostyn Campbell, A.R.I.B.A., A.A. Dip. Trop. F.R.S. — Chief Architect. Min. of Communications & Works, Past President of the Jamaican Society of Architects.*

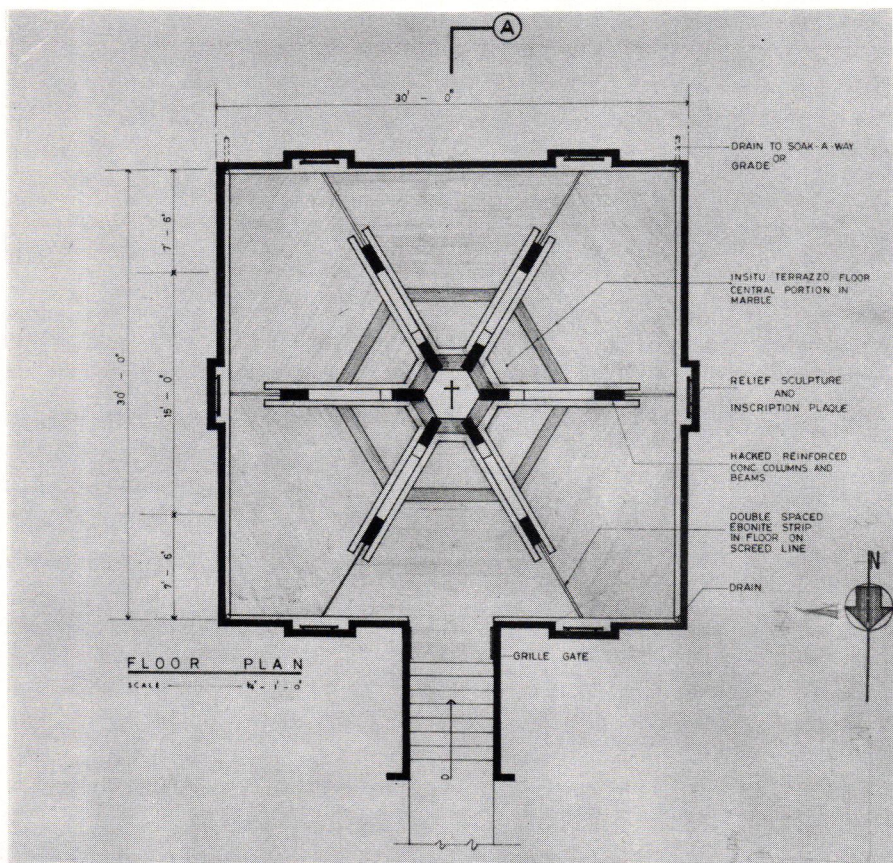
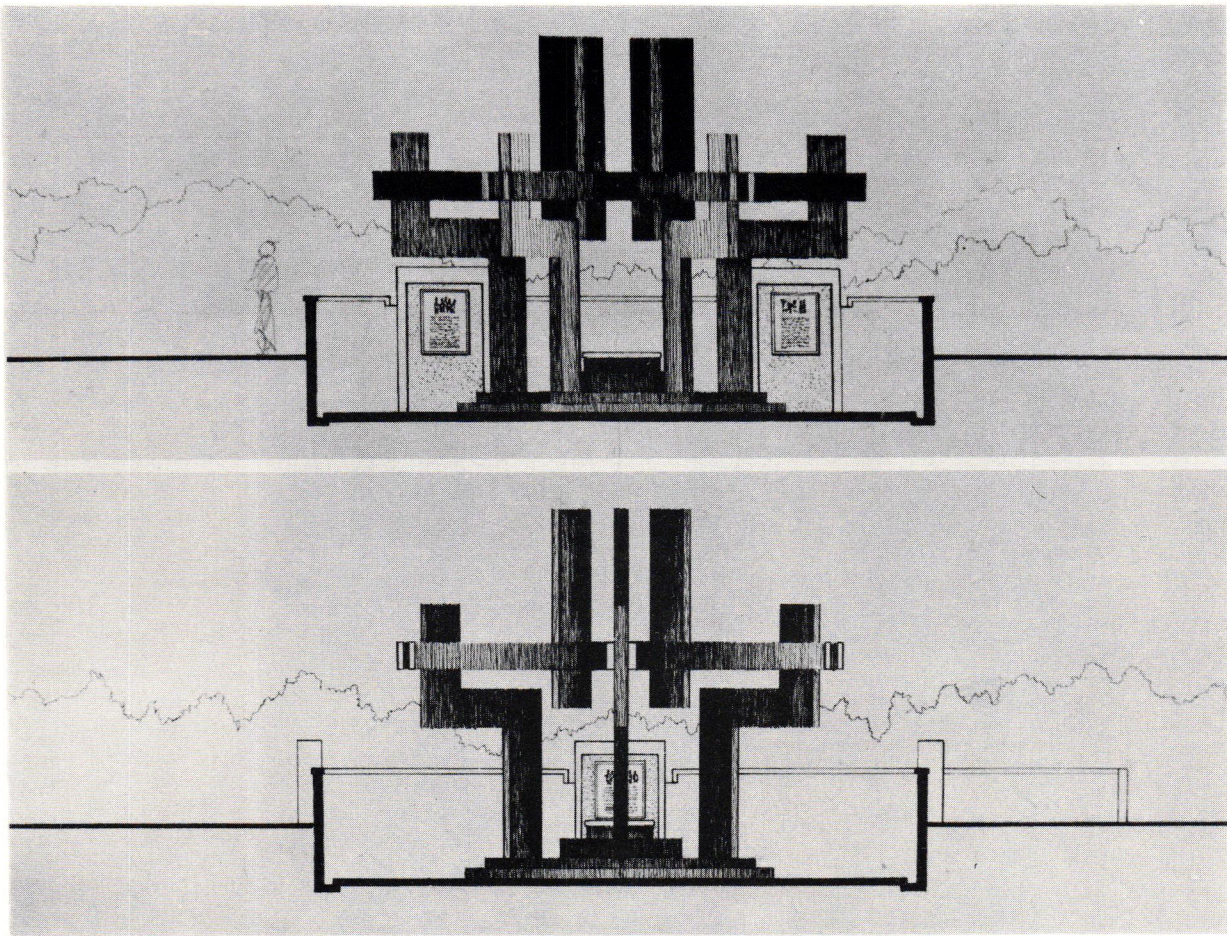
*Mr. Alexander Davidson, F.R.I.C.S., Chief Quantity Surveyor, Min. of Communications & Works, Ja., was the Technical Advisor.*

*Perspective of winning design for the Law Courts Building — Rutkowski, Bradford & Partners.*

*photos by Neville Hylton*







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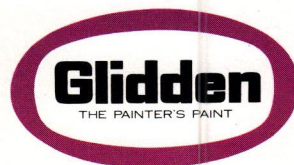
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# DESIGNING for HEALTH

by Lloyd J. Robinson, F.R.I.B.A.

*Guest Editor for this issue of the Jamaica Architect*

The Ministry of Health second Five Year Plan contains proposals for the planning of a new law to replace the Public Health Law, Chapter 320. The new legislation aims principally at the promotion of health through control of environment. The law will also embody power to make regulations aimed mainly at: the prevention and abatement of nuisances, construction, plumbing, sanitation, drainage, building inspection and control of hotels, apartments, barber shops etc.,

Parallel to this law there should be proposals for an advisory body to do research and set standards in design and planning to enable enforcers of the law to give consistent advice on the appropriate requirement within their particular area of responsibility not only on what is lacking but on the minimal acceptable standards. Even more important is the need for an organization or agency to keep abreast of all health projects from planning, through design, to construction and to observe the actual practical application of concepts and modules so that these can be later issued by the Ministry as standards. There must be a system of comprehensive research. Study groups should be selected to examine in detail the the accommodation needs of selected Departments and the programming and design for health to suit our local environment. The results of these studies could be made available to whoever may contemplate the planning and construction of buildings for health, whether it is a private or public individual or organization. The only pre-requisite for using this Information Centre on public health planning and design would be the willingness to spend time and money to add to the Island's health facilities and a promise that information on decisions, programme, brief and design would be sent back for information and vetting before the start of construction.

There already exists, within the Ministry of Health, a National Health Planning Committee whose duty it is to assess the medical care and medical aid needs of the Island. When the overall requirements of the Island have been established it will be necessary to build this information into actual physical projections and advise on a phased construction and modernization programme. This would be based on a disciplined master plan conceived by consideration of the Island's total requirements and environment and a global collection of statistics, research and anticipated advancement in all sectors.

This type of evaluation programme could be tied in with local research and co-ordinated planning as set out in the Ministry's five year plan. On this basis there would be a complete and integrated programme of research, not only into areas that affect the family planning programme; it could be enlarged in scope to the extent where research would cover the entire economic resources of the country's temporal and environmental (physical and spatial) constraints which are infringing on it.

If this is done priorities could be established, population increases could more easily be linked to the declining death rate and lack of immigration outlets to the rising birth rates.

Statistics by the U.S. Department of Health also points to the fact that the over 65 segment of the population requires hospital services at twice the rate of the younger people. This group poses a greater medical problem here in Jamaica than they do in the United Kingdom and the United States. In the more developed country the patient can be sent home much earlier while here in Jamaica the Medical Officer may have to take a more generous view in extending hospitalization because of poor residential conditions, lack of consultation and treatment facilities near to the patient's home, or the inability of the individual to return to the Hospital for further treatment.

In the U.S.A. home care and related services are under the jurisdiction of the hospital and are organized in the same way as the outpatient department or other clinical services but the essential services and communication is of a high standard. There is no doubt that rural electrification, a better telephone/telegraph service and the new bridge and road programme of the Ministry of Communications and Works will all improve the bed utilization ratio of the hospitals in the island. On a recent visit to a hospital in the north-east, there was an unusual number of expectant mothers in the maternity ward and it transpired that this was because frequent flood conditions in the area necessitated admission of the expectant mother up to two weeks ahead of time. What at first seemed to have been a medical problem was in reality one of communications. This means that this particular hospital has the potential to serve over 300% more maternity patients if the average stay could be reduced from the present 1 to 2 weeks to the normal



4 to 5 days. Paradoxically, good communications would reduce hospital utilization for stress patients by bringing more accessible preventive medicine to the people.

The SUNDAY GLEANER of 25th August, 1970 in an article on "World Food Programme" assistance to be given to four Government Hospitals in Jamaica, it was pointed out that this type United Nations Development Programme assistance will reduce both the number of patients and the length of their stay in the hospitals. It can be seen that hospital utilization is dependent on a multiplicity of factors. It is quite possible that a Heliport added to a Regional Hospital could be of greater assistance in bringing medical care and medical aid to a community than a new ward extension to a Cottage Hospital.

Although hospital planning, design alteration and construction has reached a crescendo in the last ten years, both in the public and private sector, in the next ten years we may very well have to triple our efforts to keep up with the expected increase in population. Even with the anticipated effectiveness of family planning, this country can look forward to a heavy increase in the population.

The problem is to do research in order to develop general hospital facilities so that they will have maximum flexibility, thereby being capable of meeting the advances in medical care and the changing needs and practices relative to providing patient care.

The question of how we should plan the hospital system of the future to meet our local needs can only be answered by the diligent research of a central hospital planning department whether it be a government or non-government organization. Our greatest need is to realise that segmented planning can only lead to a fragmentation of time, effort, and finance which may well be completely lost if not evaluated and knitted into the framework of a functional plan devised and created by detailed consideration of the various patterns of development.

*Lloyd Robinson is a Senior Executive Architect, in the Architectural Branch, Public Works Department of the Ministry of Communications and Works, in Jamaica. He was elected an Associate of the Royal Institute of British Architects in March 1956. In October 1968 he was admitted to the Senior Membership and is the first Jamaican to be made a Fellow of the Royal Institute of British Architects.*

*He attended the Kingston Technical School, receiving his architectural training at the Leicester School of Architecture, College of Arts & Crafts, Leicester and the Hammersmith School of Architecture in London.*

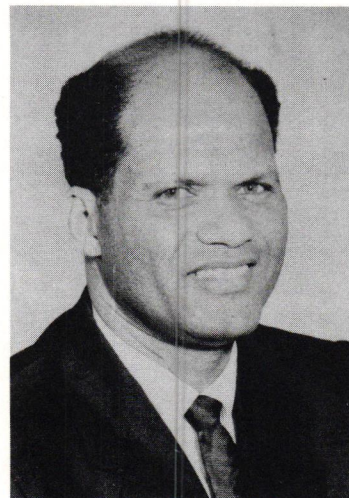
*He is an Architect of considerable international experience of government offices and procedures, having served in the Ministry of Works in London, Ghana and Jamaica. While at the Ministry of Works, Architectural Branch, in Millbank, he served in the Atomic Energy Department designing buildings for Harwell and Aldermaston (atomic energy research establishments.)*

*In the Diplomatic section he designed and detailed embassy and consular buildings for various cities overseas, including Saigon, Djakarta, Dakar, Lagos, Accra, Bahrain as well as an office building in London.*

*In 1956 he resigned from his position in London and accepted a government post in Ghana where he remained for six years. For four years he served as District Architect of Accra where he was first introduced to hospital design and construction as all the extensions and alterations to the city hospitals were part of the District Architects routine responsibility. From 1960 to 1962, he was District Architect of the Ashanti Region. The Hospital construction section for Kumasi hospital came under his portfolio and he was responsible for various extensions, i.e.: wards, an X-Ray block, and outpatient facilities.*

*In 1962 he was invited to return to Jamaica to join the Ministry of Communications and Works as the Senior Executive Architect in charge of the Ministry of Health projects. Since then he has had the responsibility of planning, design and construction of most of the Ministry of Health's projects which have included the Childrens Hospital, which was converted from a Military Hospital; the new hospital at Golden Grove; the Comprehensive Clinic on Slipe Road and the new May Pen Hospital, now pending construction. He has also planned and designed additions to existing hospitals inclusive of maternity wards; and outpatients block; X-Ray blocks, kitchens and operating theatres.*

*In July of 1970 he was the Architect member of a team sponsored by a Pan-American Health Organization Fellowship grant to study Intensive Care Technology in the United States. He is an active member of the Jamaican Society of Architects and is at present Chairman of the Architects Committee of the Joint Consultative Committee. In the past he has served as Chairman of the Education Committee and Treasurer. He is a member of the Royal Air Force Association and Chairman of the Sports Committee for the St. Andrew Boys Scouts Local Association.*





*Foreword*  
*by*  
*The Honourable Herbert W. Eldemire*  
*Minister of Health*



photo by Jamaica Information Service

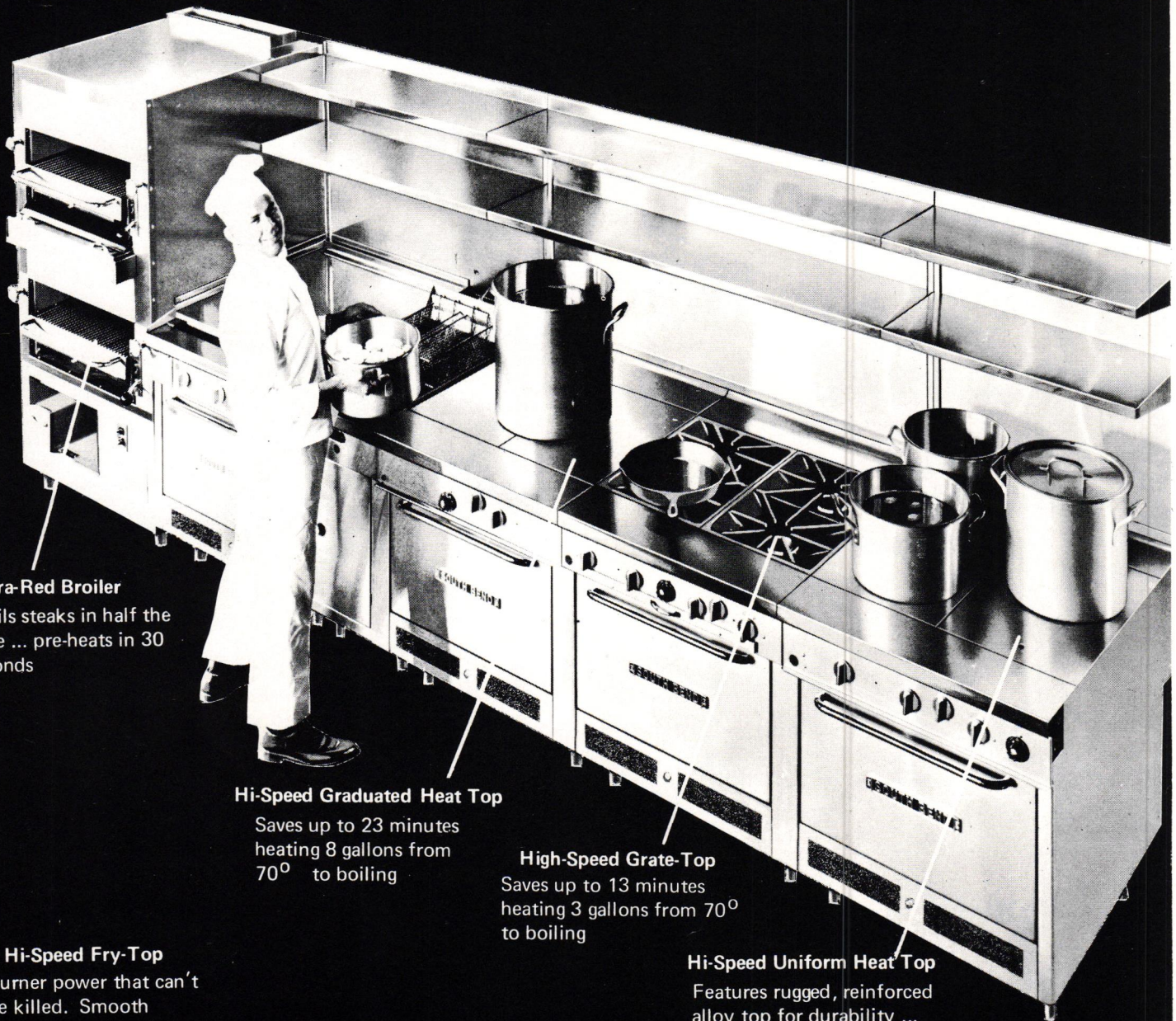
The planning and designing of a hospital is perhaps one of the most complex and challenging tasks facing the architect today. This is a field which has unfortunately not received the attention it deserved in the past with the result that at the present time we are faced with immense problems arising directly out of the inability of our hospital designs to meet the demands of modern hospital practice.

This problem is aggravated by the rapid evolution of medical science, of equipment and of procedural systems, an evolution which is as yet still far from its peak. With this in mind, a Health Planning Unit is being established in the Ministry of Health with the purpose of marshalling all the disciplines which go into the improvement of existing health facilities and the provision of new ones. This Unit will be entrusted with the responsibility of producing a blueprint for future development of health care in Jamaica. The role of the architect will be vital in this plan and I have little doubt that we will all be proud of the final product.



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# HOSPITAL DESIGN

## A Comparative Study

by Lloyd J. Robinson, F.R.I.B.A.

*Senior Executive Architect, Ministry of Communications and Works,*

*Research Fellow in Intensive Care Technology,*

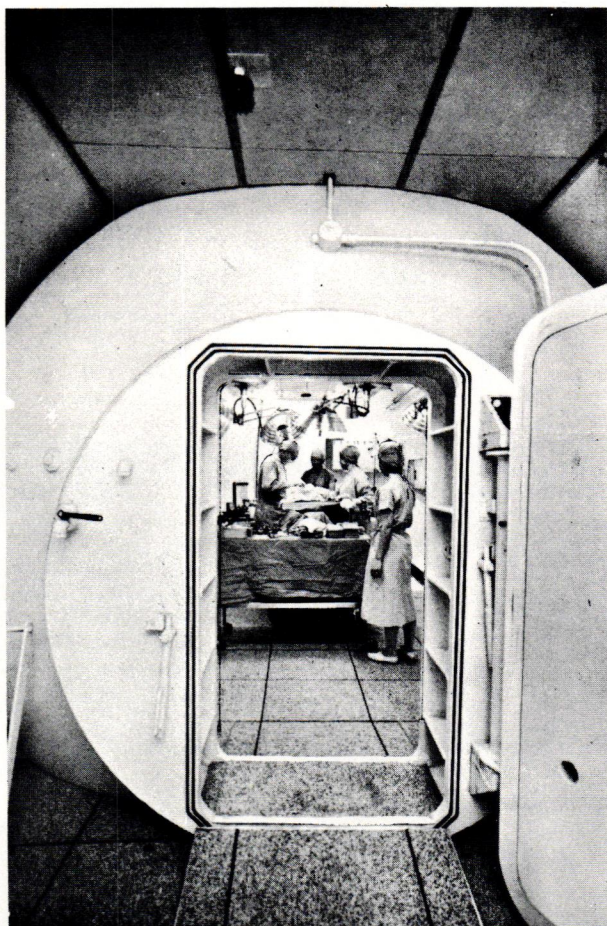
*Sponsored by The Pan American Health Organization through  
the courtesy of The Ministry of Communications and Works.*

Hospital design is one of the most fascinating and demanding branches of Architectural work. The Architect who specializes in Hospital Design must in fact have a good background of general practice, for in this sphere of Design all other branches of Architecture are represented in a most exacting and challenging manner.

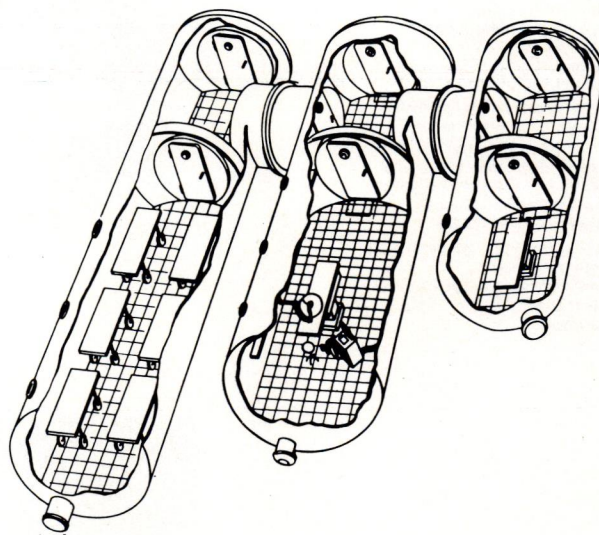
The Nurses Quarters is really a specialist Apartment building. The Dietary Department which includes the Kitchen, Dining Room and Cafeteria is even more specialised than the similar units in a large Hotel. Added to this

are the Ancillary Units such as the Laundry, Boiler House and Workshops. There are also the adjunct Services which can include the latest in Electronics, Radiotherapy and Radioisotopes.

The giant strides being made in spare parts surgery, and in the field of Computerisation and Monitoring are adding new dimensions in medicine. It is predicted that by the end of this century life expectancy in the United States will be 100 years, today it is about 70 years, in 1900 it was only 47.3 (ref. "New Frontiers in Medicine" by Stanley Englebrandt).



The hyperbaric chamber, a relatively new tool in medicine, allows treatment, operations and research to be conducted under high-pressure oxygenation. It is a valuable technique for treating "blue babies," certain gangrene infections, carbon monoxide poisoning, heart and stroke patients, and people suffering from severe shock. Here is the operating chamber.



Above is a diagram of the hyperbaric chamber at Lutheran General Hospital, Park Ridge, Illinois. From left, are a six-bed medical chamber, the surgical chamber, and the recompression and research chamber. All three are connected by locks, allowing staff and patients to adjust to differing pressures.

With regard to hospital design in the tropics, where very little research is being done, the problems which are encountered are a little different from those met with in the Northern countries. They also have put a lot of time and money into research, building prototypes and testing equipment. As a result of this they have made considerable progress. Although we can learn a lot from these countries, we must be careful not to transplant ideas and methods that may have been developed and improved with years of usage and a high degree of expertise for their specific conditions, but which are not always applicable



to our situation. However, with the fantastic improvements now being achieved in Electronics, Physics and Engineering, we must make sure that the hospitals and adjunct services which we are now planning will utilize the very latest in instruments and equipment and advanced methods in preventive and curative medicine.

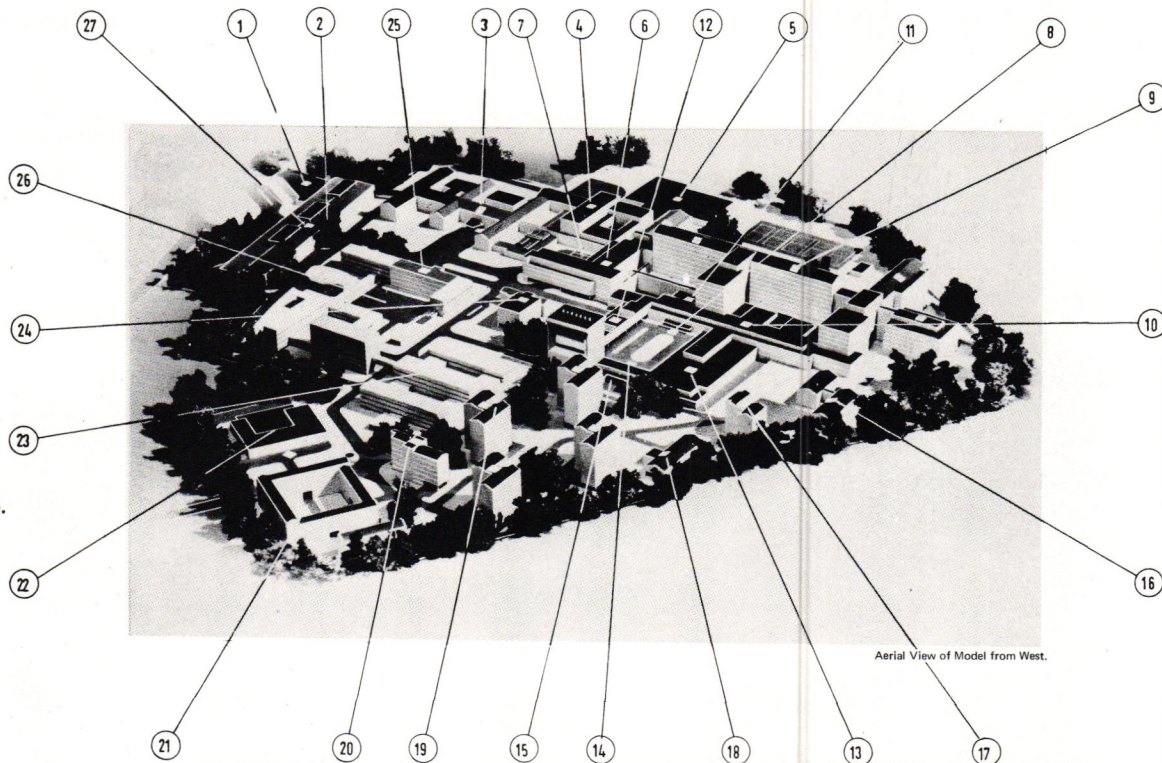
In England, the U.S.A., and other developed countries, Hospital Design is the responsibility of a full time planning team which includes a Doctor, a Nurse, a Hospital Administrator and the Architect. In the Addenbrookes Hospital which when completed is to be a teaching Hospital with a total of 1,140 beds, the team was made up as above but with three additional Architects, a Mechanical Engineer, a Structural Engineer, a Quantity Surveyor, a Work Study Officer and a full time Secretary. Before completing work on this Hospital, the Planning team visited 14 Hospitals throughout the British Isles. They did study

tours of Germany in 1958. In 1959 independent visits were paid to Sweden, Denmark, Germany and Switzerland. They took part in the Congresses of the International Hospital Federation in Edinburgh that same year, in the United States in 1960, in Venice in 1961 and in Belgium in 1962.

The Architect and Engineer in Jamaica who would like to specialize in Hospital Design finds his dedication, flexibility and versatility strained to the limit because he is forced to gain so much of his knowledge from books and experiments in a lonely do-it-yourself world. Whenever possible, he must supplement his experience and knowledge by travel and communication with various centres of hospital research in Germany, Sweden, Denmark, England, Canada and the United States. Sometimes assistance is given such as the Pan-American Health Organization Fellowship which was granted to us last year. (See "Coronary and Intensive Care Units" this issue).

#### THE ADENBROOKE'S HOSPITAL COMPLEX

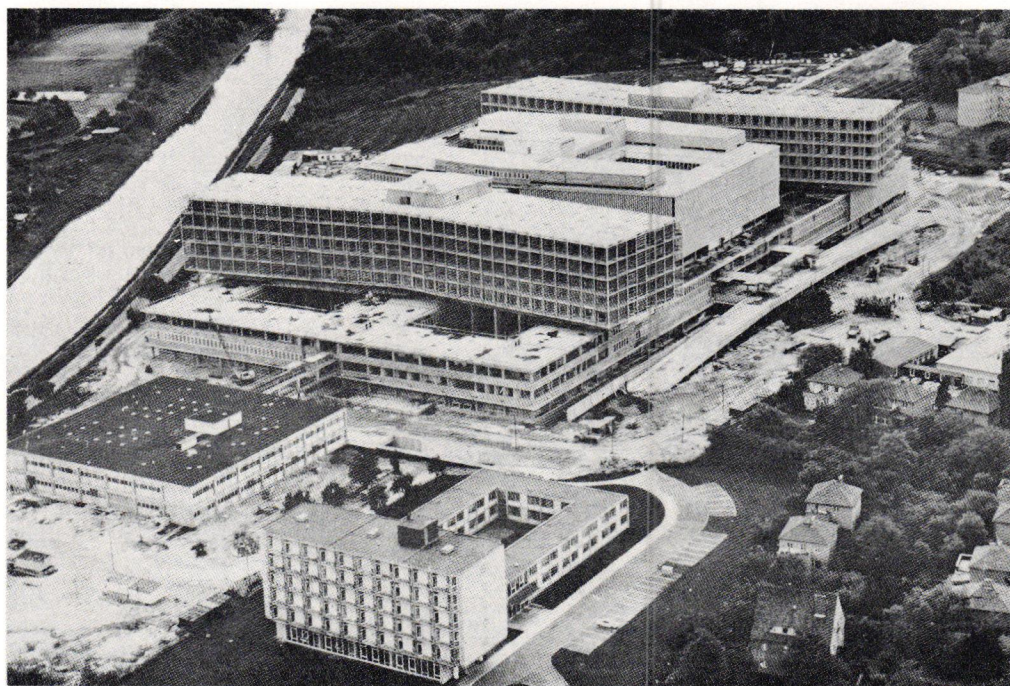
1. M.o.H. Artificial Limb and Appliances Dept.
2. Porters' Lodge
3. Out-Patient Dept.
4. Radiology Department
4. Radiotherapeutic Centre
6. Laboratories
7. Ambulance entrance to Accident & Emergency Service
8. Main Entrance
9. Ward Blocks
10. Operating Theatres
11. Chapel
12. Administrative Block
13. Staff Dining Room
14. Supplies Centre, Laundry, C.S.S. D. & Boiler House
15. Goods Entrance
16. Training Schools
17. Staff Nurses Residence
18. Sick Bay
19. Student Nurses Res.
20. Domestic Staff Res.
21. Senior Medical & Nursing Staff Accommodation
22. R.H.B. B'd Transfusion Centre.
23. Special Hospitals, Maternity Geriatric and Mental Deficiency
24. Medical Staff Residence
25. Department of Radio-therapeutics and Laboratory of Molecular Biology
26. Possible Development of Medical School
27. Car Park



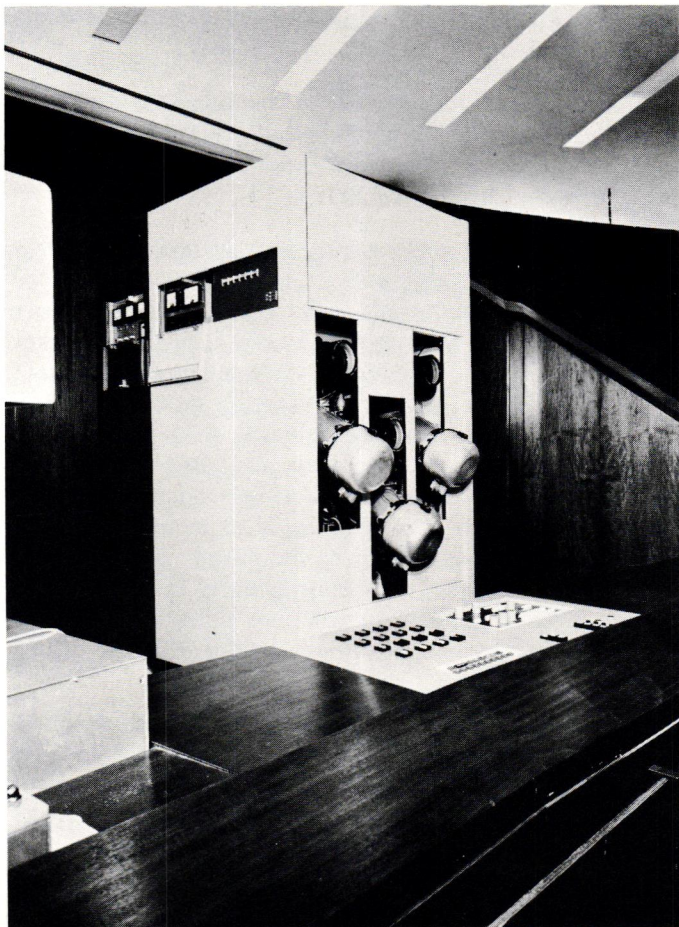
#### MEDICAL CENTRE OF THE FREE UNIVERSITY OF BERLIN

##### Architects:

Franz Mocken,  
Berlin, Germany  
Arthur Q. Davis,  
New Orleans, La., U.S.A.







*An 'Eidophor' — provides wide screen colour projections for observation and teaching. — (Philips)  
Medical Centre of the Free University of Berlin*

Perhaps the reader may be interested in taking a brief look at the extent of involvement that is required on these research trips.

I can remember discussing Sanitary ware in the U.S.A. with a representative of a well known firm. After discussing basins and lavatories for offices and bungalows on which subject my informant was completely lucid, I enquired about similar fittings for hospitals. I was informed that this was the sphere of another agent who would be around to discuss this matter shortly. In England the situation was even more complicated as the Export Manager of a well known firm of Sanitary ware was unable to discuss details of the units. The information would have to be obtained from the Salesman who dealt with that specific line in the Caribbean area.

I have chosen this incident to emphasize the degree of specialization abroad even in the most basic necessities, but the problem is even more involved in the related adjunct services such as Radioisotopes, Radiography, Radiotherapy and Micro Surgery. At a famous Hospital in the United States, after I was shown Radioisotope equipment such as Scanning and Counting machines, I was handed over to someone else for the information on Radioisotope storage. The doctors who demonstrated the use of this equipment were experts in this particular field; in fact the scanners I was shown were made in the Hospital Workshop.

After completing all of the research, the Architect and Engineer in Jamaica must then be able to translate this knowledge in order to design and build the type of edifice

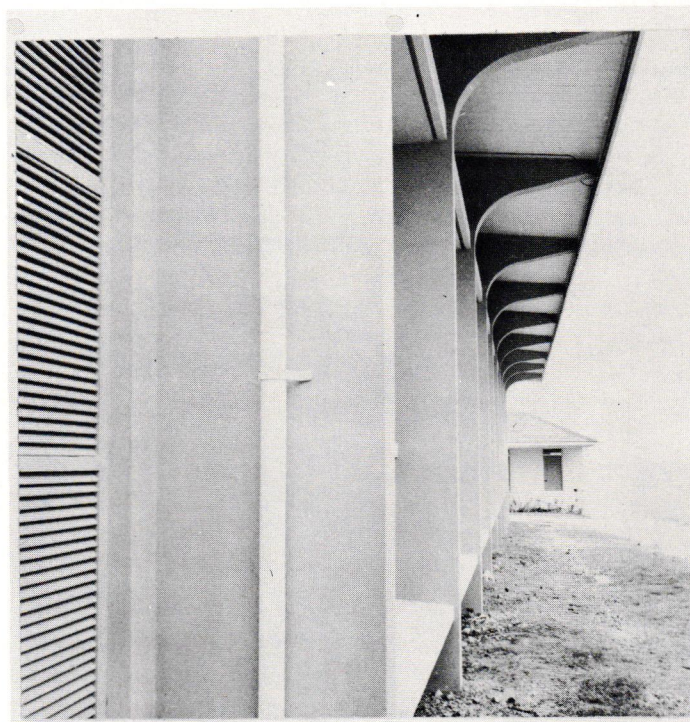
that is most suitable to the climate and conditions prevailing here.

We are in a region where there have been two disastrous earthquakes in our known history. Every year we have slight to moderate tremors which, more often than not, do some structural damage. Therefore we must at all times design against shocks of the most severe degree.

Our Architecture is also affected by the fact that we are in the Hurricane area and although we are not known to have had a direct hit, we do get hurricane force winds and torrential rain from these phenomenon when they pass nearby as in the case of the infamous Hurricane Flora in 1963.

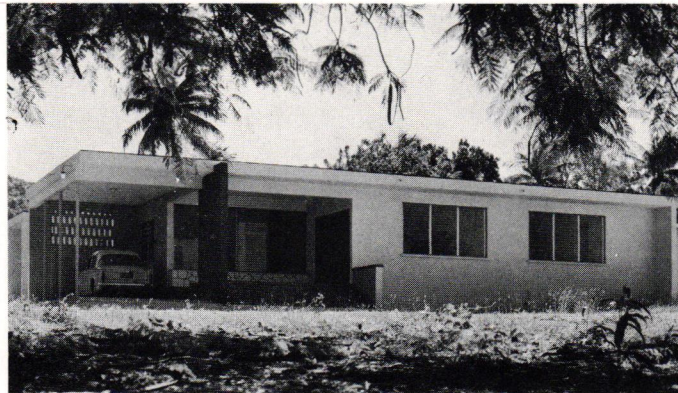
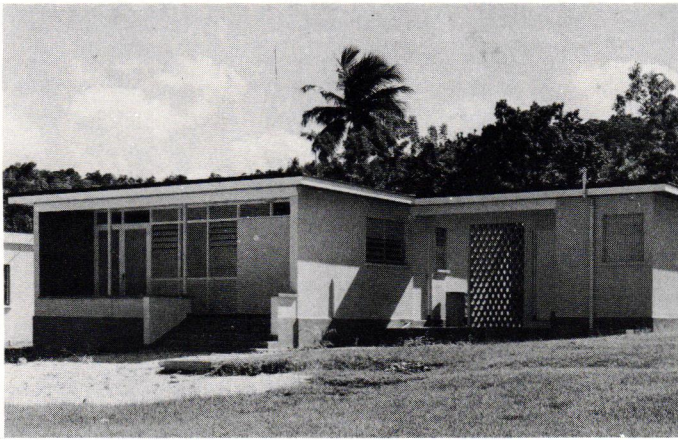
An early decision should be taken as to whether the building will be cooled by air-conditioning or not. This will determine the type of layout, ie: It may be compact, using air-conditioning or it may be light and open to enable natural breezes to pass through. In any case however, air-conditioning will be necessary for the Operating Theatre suite. Regardless of the system of ventilation, in Jamaica we should always protect our East, South and South West elevations from the sun by good planning, orientation, shading, reflection, insulation and glare control.

This article is to deal with the subject in broad outlines, therefore only cursory attention is being paid to details of climate and the suitability of designing in the context of our local materials, ie: reinforced concrete blocks and aluminium louvre windows. Even with these brief comments, however, it becomes evident that the local problems in Design and Construction are unique to this area of the world. It is therefore most important that, in the design of a hospital, or for that matter any other building, all the environmental factors be taken into account for the happiness of the people who use the building. In turn, the building will improve the efficiency in staffing and in Medical care. In fact as it is anticipated that stress illness will be the medical problem of tomorrow, Architects may well play an increasingly important role in creating en-



*Section of Maternity Block, Noel Holmes Hospital, Lucea, shows tropical shading design features.*





Doctors' Cottage (above); Matrons' Cottage (below) at St. Ann's Bay Hospital designed by Chief Architects Branch Ministry of Communications and Works

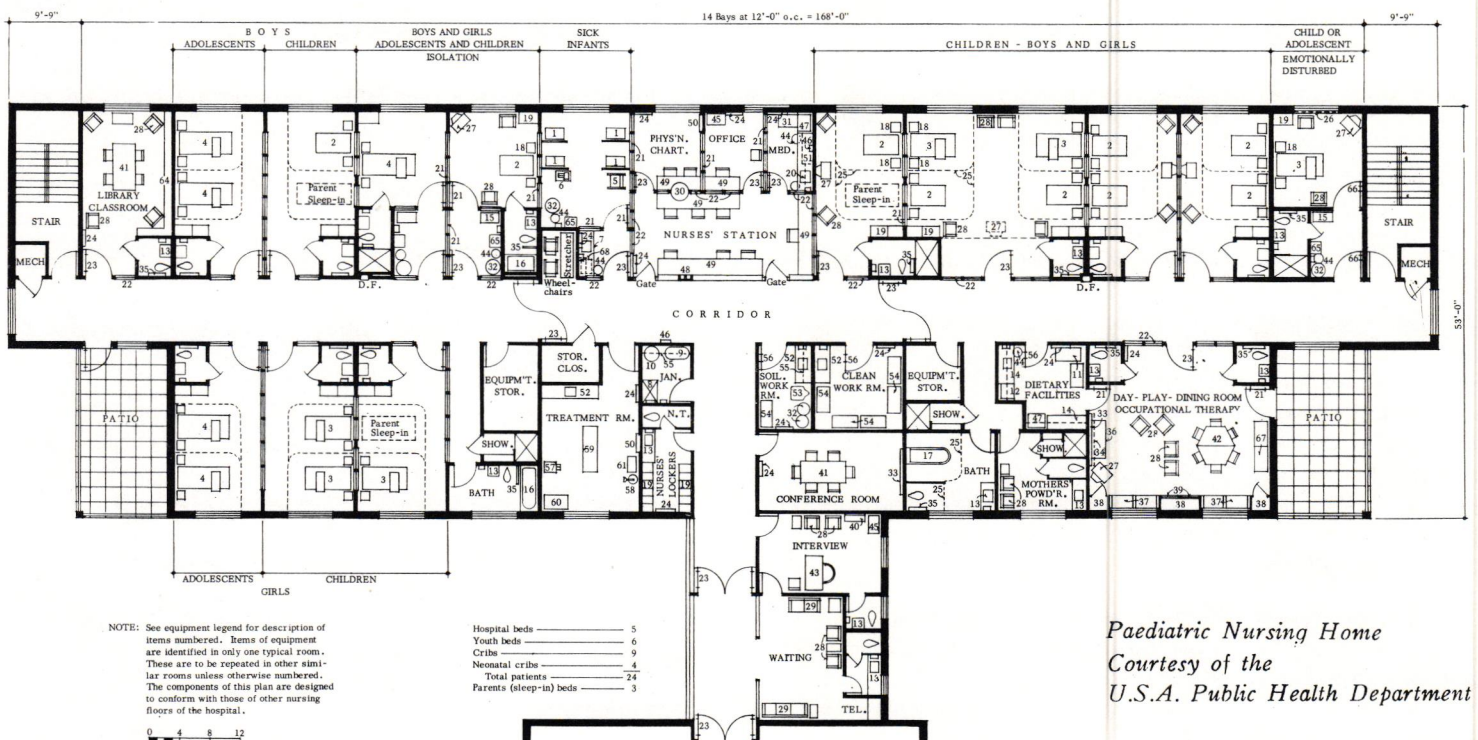
vironments which minimize this type of pressure through design and colour.

Perhaps we should examine the separate elements of the Hospital Complex to see what planning difficulties are involved. Let us begin with the Ward or Nursing Unit as it is called in the United States.

The present trend is to have small flexible units of between two to four beds with a toilet and utility space for each unit built on the inside walls. The ward and patients are well monitored with communication equipment which can give an alarm in a number of different ways dependent on the health of the patient, ie: pressure on the carpet, a buzzer over the bed, or even by the use of sensing devices which take the patients blood pressure, pulse, temperature and breathing rate. The nurse therefore does not always have to go to the bed of a critically ill patient for these important checks, with a flip of the switch she can have these important checks appear on a panel in front of her. She can even communicate with her patients through a small microphone loudspeaker located near to the patients' pillow.

This type of ward unit is adjusted to suit the seasonal temperature changes, centrally heated in the Winter and airconditioned in the Summer. The rooms are usually painted in white or off white. The drapes and furniture provide the required colour accent.

Here in Jamaica, to begin with, our climatic conditions are different; our problem is keeping the heat out. Next, we do not have the financial resources of the



Paediatric Nursing Home Courtesy of the U.S.A. Public Health Department



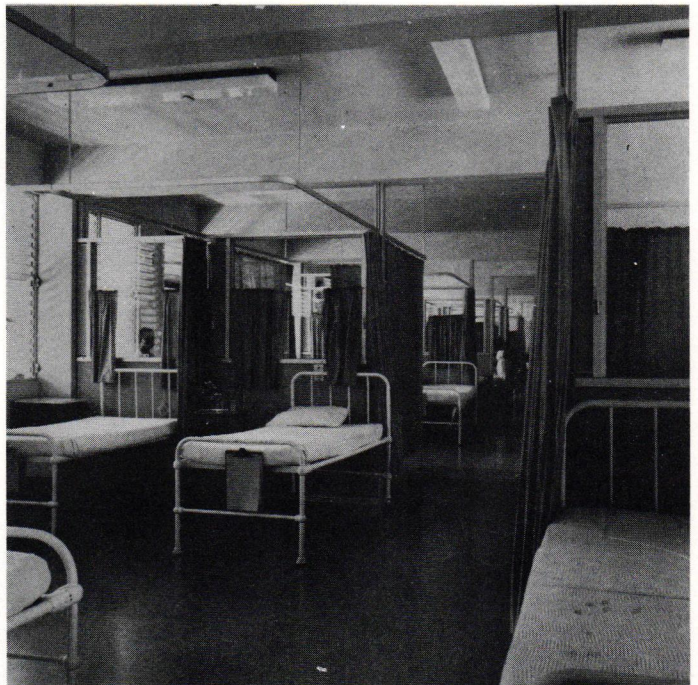


*Top: Monitory Centre — Medical Centre of the Free University of Berlin*

*Centre: Patients listen to music — St. Josephs Hosp., Netherlands Courtesy, "Sound & Image" — Philips.*

*Bottom: Closed rooms with light over door — St. Josephs Hosp., Netherlands. Courtesy "Sound & Image" — Philips.*

developed countries. It is just not possible to build, economically, toilets and utility rooms on an inside wall; nor can we afford the expensive monitory equipment which would permit patients to live behind closed doors unseen from the nurses station. Then, let us face it, there is a staffing problem. We just do not have enough nurses to supervise small units, and a large unit would be a retro-grade step. Therefore our Nursing Unit must be easily accessible from the Nurses Station. As there is a financial and planning problem against putting a lavatory on the inside wall the advantage and disadvantage of a centralized lavatory facility has to be put in the balance.



*Port Maria Hospital Ward — same ward design as that evolved for Paediatric Hospital, Kingston.*

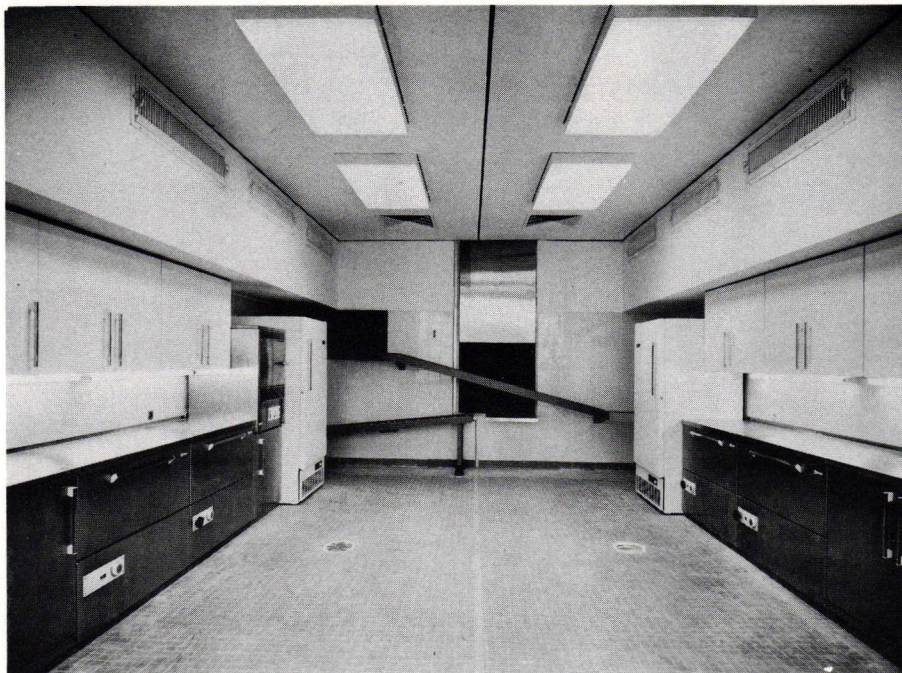
In view of the above, here in Jamaica we have therefore evolved a ward design which was first used in the Paediatric Hospital (Children's Hospital) when the 60 bed Military Hospital at Up Park Camp was converted to form the 200 bed hospital. This plan was used again on the May Pen Hospital and on the Montego Bay Hospital.

The Hospital Kitchen is another of the many component parts of a Hospital that has to be adapted to suit the Jamaican climatic and staffing conditions. Hospital and Hotel kitchens in Britain, the United States and Canada use less staff and more equipment than those in Jamaica. In developed countries it is possible to obtain and pay for highly skilled labour to use and service the machines at source.

There is also the additional factor that in Jamaica we enjoy an average temperature of about 85 degrees and therefore must counteract and minimize heat at all times. In contrast to this our American and European neighbours, for at least nine months of the year, welcome the extra heat generated by the extensive equipment in their kitchens.

Therefore, when planning institutional kitchens in Jamaica, we have to consider the availability of cheap labour, the ventilation to get rid of the steam and heat, termite and dust control and the feasibility of keeping the equipment functional with the limited number of skilled

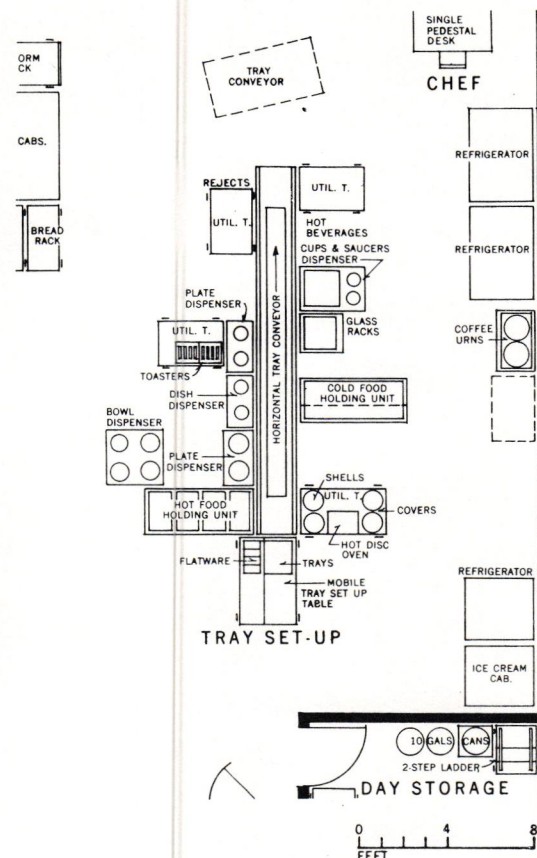




Above: Serving Kitchen, conveyor system at rear-Medical Centre of the Free University of Berlin

Right: Patient tray serving area for a 100-150 bed hospital.  
Courtesy, Hospital Dietary Services, U.S. Public Health Dept.

Below: Kitchen at Bellevue Hospital, Kingston — designed to serve three thousand meals at a time.



technicians and parts available. The writer has seen a dishwasher in disrepair for months waiting for a small part from abroad.

The Hospital Kitchen most suitable for Jamaica has to be more spacious, well ventilated and with a minimum of exotic machinery. Although increased labour costs have brought the demand for labour-saving ideas, it is recognized that single pieces of equipment can only save a significant amount of labour if the reduced labour force is properly trained to use the machinery, and if repairs can be carried out quickly and efficiently at source. Therefore extra machinery in a Hospital or Hotel in this country may, in fact, cause an increase in labour and overhead costs.

In most hospitals overseas, there is a centralized tray serving system. Patients' trays are assembled in the Kitchen

by dietary aides on an assembly line. They are then placed on Special Carts for delivery to the patients floor or into vertical conveyors for more immediate delivery.

In Jamaica where we have a small dedicated band of dietary aides, the food is served in bulk in the kitchen and taken by cart to the ward pantry where the food is shared out by the Nurses or Nurses Aides and delivered to the patients' bedside, in some cases ambulatory patients are allowed to use a communal dining area.

I have always felt that Jamaica could benefit by a thorough study of the possibility of having a central Hospital Kitchen to serve the whole Corporate Area. In fact, I do not feel that it would be too ambitious to investigate the matter with a view to planning an islandwide distribution service using a kitchen similar to the Bellevue Kitchen



as an island service centre. Recent improvements in cooking, refrigeration, freezing and packaging, as well as other developments in processing technology and material handling have eliminated the traditional hazards of such a service and therefore today this type of service for Jamaica is a distinct possibility. To date the only central service I have seen has been at the Nacka Lasarett Hospital in Stockholm. The central kitchen at this hospital has been serving the whole of Sweden's seven million inhabitants for over six years.

*Right: The prepared food is packaged in plastic bags — Nacka Lasarett Hospital, Sweden.*

*Below: Refrigerator room for the storage of the plastic packaged food. Courtesy Nacka Lasarett Hospital, Sweden — Folke Lofstrom, Architect.*



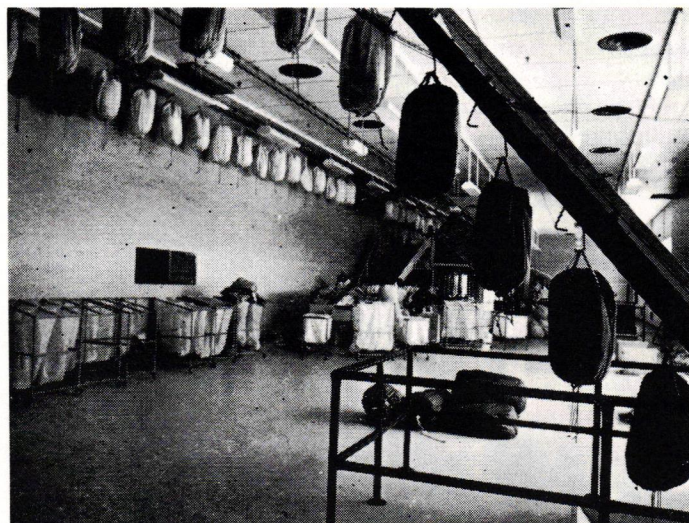
In this Central Kitchen as many as 150 different menu items are prepared, the food is packed in plastic bags, chilled and kept at a temperature of 40°C. When it is required the unopened portion packages are reheated in boiling water for fifteen to twenty five minutes.

According to the Swedes, the pasteurized food prepared in this way keeps for two to three weeks permitting them weekly delivery schedules. Vegetables, salads, breads are prepared fresh on the premises of the individual hospitals and not at the Central Kitchen.

This system has not been tried out in the U.S.A., therefore Jamaica could very well be the first to implement it in this part of the world, and possibly save one million dollars in the equipping of individual kitchens.

In the above we have only been able to scratch at the surface of our problems in Hospital Design by microscoping two areas, the Ward and the Kitchen.

Another vital hospital service which requires careful planning is the laundry. "The Hospital" of June 1969 (the official publication of the British Institute of Hospital Administration) carried an article on a "push button group laundry and central linen service in South Australia" by C. S. Spencer. This laundry is on a nine acre site which is accessible to all main roads serving the 46 Institutions which participate, representing over 6,000 beds. Hospitals, homes, as well as government offices are able to requisition laundry 5 days per week.



*Soiled linen arriving at sorting room where work is unloaded on to conveyor belts for classifying. Courtesy, The Hospital — June, 1969.*

Here in Jamaica we lack the financial resources of the larger countries and therefore our major problem is the fight against rising costs. Construction costs are going up yearly, equipment prices have almost trebled in 8 years and drugs are also twice as expensive as they were ten years ago. All of this reflects the world financial trend. It is imperative that we devise and apply new methods of not only reducing initial costs, but, by intensive time and motion studies, reduce recurrent costs.

We can try to achieve this through design and experiments in the use of new materials.

If the programming, planning, design and construction of health buildings in Jamaica is to be successful, the wealth of information we are now gaining from our present wide and varied programme must be carried through to a central information agency or department which in turn will produce standard recommendations for guidance, i.e. produce notes, equipment schedules, briefing guide-lines, space and design solutions to our local problems.

In the United Kingdom the Health Departments (The Ministry of Health for England and Wales and the Scottish Home and Health Department) issue hospital building notes and other guidance material to assist hospital authorities in the planning of hospital developments. Standardized building components are used and experimental building schemes are carried out to test how economically a hospital can be planned and built. (The Chief Architect of the Ministry of Health Mr. Tatton Brown, visited Jamaica five years ago).



The work load of this Ministry on the matter of standards, organisation and administrative procedure is considerably lightened by the work and publications of the Hospital Centre which is a meeting place and source of information for all interested in hospital matters whether they be administrator, doctor, nurse, engineer or architect. The building is also the base for the International Hospital Federation and the British Hospital Export Council on which the Royal Institute of British Architects is represented. The application of hospital legislation and administration is co-ordinated by Regional Hospital Boards and each hospital, or group of hospitals is administered by a hospital management committee.

The United States has the largest net work of hospitals in the world, they include a diverse group from private hospitals (profit and non-profit) Municipal, State and Federal Hospital Centres. The Department of Public Health Education and Welfare is the official guiding arm of Central Government. They control subsidies for equipment; construction and modernization of hospitals under the Hill Burton Act. This Ministry also makes a tremendous contribution with its Hill Burton publications and prototype studies of equipment lists and articles, on standards. All of this is prepared on specific phases of hospital design and hospital construction. Currently the Department

is doing research on progressive patient care. This is a process of evaluating patterns of patient care and thinking through, in great detail, how best services can be rendered to suit each type of patient who visits the hospital.

Each hospital is given a high degree of freedom in organization and administration. Technical standards with regard to amenities are applied by national bodies such as the American Hospital Association, American College of Surgeons, American College of Physicians, and the American Medical Association, through a joint commission on Accreditation of Hospitals. The American Hospital Association whose head office is in Chicago with affiliated Associations and Institutions throughout the country, have a special committee on hospital planning. The committee guides local planning groups in carrying out their function in the complicated business of hospital planning, arranging regional conferences and exhibitions.

I have gone into the above in considerable detail yet I have barely scratched at the surface of the great wealth of information that is available to our colleagues in the well developed countries. We in Jamaica could do something on a modest but similar line to start an information clearing house for hospital design perhaps similar to that of the Canadian Hospital Design division which is attached to the Department of National Health and Welfare.

#### CREDITS AND ACKNOWLEDGEMENTS

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*The British Export Council Publications  
"British Hospitals, Home and Overseas" 1968/69  
"Modern British Hospitals" 1967/69  
"Hospital International" 1968*

*The Hospital — Issues June 1969, August 1970*

*World Health Organization Publication "Hospital Planning"*

*Mr. Franz Mocken, Berlin; Mr. Arthur Q. Davis, New Orleans  
Architects: Medical Centre of the Free University of Berlin*

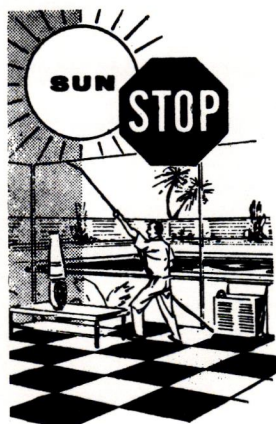
*Mr. Traubel, German Trade Commission, for assistance in supplying material.*

*Mr. Dennis Thornley, First Secretary, British Trade Commission, for assistance in obtaining information.*

*Mr. J. A. M. Romme, Delegate for Philips Jamaica Ltd. & Philips Medical Systems, for assistance in supplying material.*

*Mr. E. Jansen, Elema Schönander, Sweden. for assistance in supplying information and material.*

## SUN STOP TRANSPARENT & FROSTED GLASS COATINGS



### STOPS FADING

100% absorption of ultra-violet rays.

### STOPS HEAT

86% of heat-absorbing infra-red rays.

### STOPS GLARE

95% of eye-irritating glare.

### DO YOU HAVE SUN PROBLEMS?

WHEREVER THE SUN SHINES — SUN STOP IS NEEDED . . . . .

In homes, in offices and display windows. In banks, in schools, factories, hospitals and hotels.

18 beautiful colours. — For solving your sun problems:

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## TRANSPARENT GLASS COATINGS COMPANY

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Sole Agents For: TRANSPARENT GLASS COATINGS CO. INC. International Distributors of "SUN STOP" Resin Window Coatings, LOS ANGELES, CALIFORNIA, U.S.A.



# Halsey Taylor®

## ELECTRIC WATER COOLERS

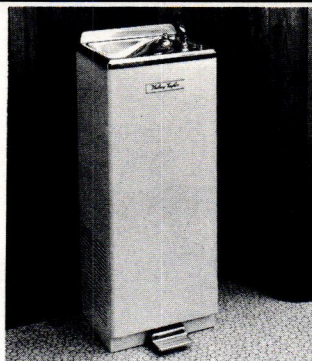
### SEMI-RECESSED WATER COOLER



RWM-8-A  
RWM-13-A

Semi-recessed in wall requires only 4½". Mounting box simplifies installation. Satin finish stainless steel contour top receptor easy to clean. Cabinet apron in baked gray enamel or attractive vinyl-clad steel. Also, matching stainless steel. Two models to select from. Two capacities to choose from, 8.0 and 13.0 G.P.H.

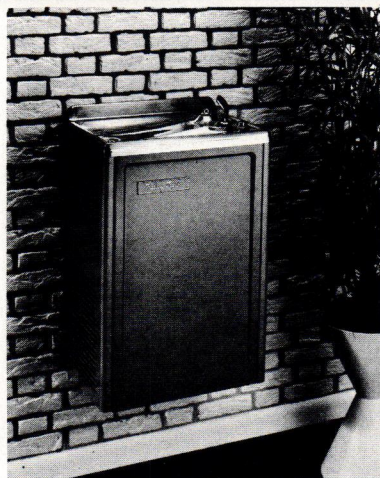
### FLOOR MODEL WALL-TITE SERIES



WT-8-A  
WT-16-A  
WT-14-A  
WT-21-A

Unit mounts against wall to conceal plumbing connections. Deep-pan stainless steel top eliminates wall splashing. All models equipped with two stream bubbler and automatic stream height regulator. Durable baked-on gray enamel. Dual hand and foot pedal controls. Available with hot water, freeze-proof and filter accessories. Also, water cooled condenser models. 15¾" wide x 43" high by 13¼" depth. Four capacities to choose from.

### WALL MOUNT — WM SERIES

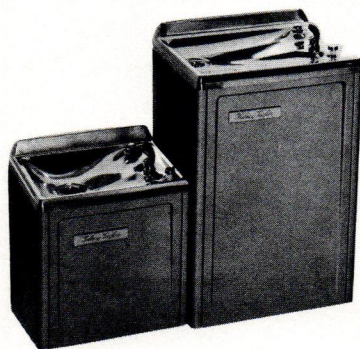


WM-8-A  
WM-16-A  
WM-14-A  
WM-20-A

Mounts off floor for easier floor maintenance. Concealed plumbing connections. Available in gray baked enamel, choice of vinyl covered cabinet, or stainless steel. Available in four capacities, 8.0, 14.0, 16.0 and 19.0 G.P.H.

Accessory items available, hot water tank and dispenser, freeze-proof heater strip and filter. Water cooled condenser models also available. Cabinet 18" wide x 28" high x 14¼" depth.

### BI-LEVEL ACCESSORY FOUNTAIN

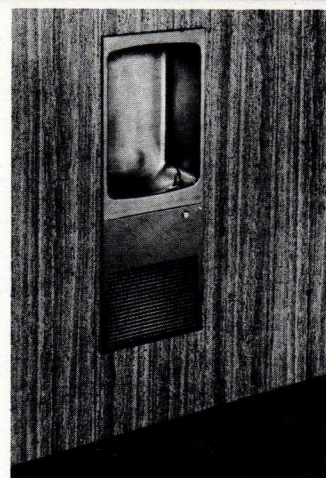


Model No. BL-301 with WM Series

Mounted on left side of WM cooler models. Dual purpose wasteline included. Ideal for public locations requiring adult and children service. Matching cabinets in gray baked enamel, vinyl covered steel or stainless steel.

Choose WM cooler capacity to meet your requirements.

### FULLY-RECESSED WALL COOLER

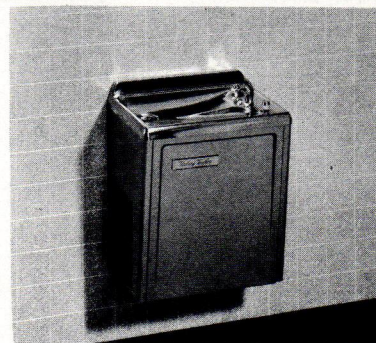


RC-8-A

Complete packaged electric water cooler easy to install. Mounting box simplifies installation. Permits roughing-in of electrical and plumbing prior to installation of fountain receptor and cooling unit package. Capacity, 8.0 G.P.H.

All stainless steel one piece receptor and basin. Matching grill. Requires only 12" back recess. 18" wide x 50¼" high. Glass filler accessory available.

### SHORT WALL MOUNT — SW SERIES



SW-8-A  
SW-13-A

Compact cabinet permits lower wall installation, ideal for small children requirements. Cabinet in standard gray baked enamel, vinyl covered steel or stainless steel. Anti-squirt two stream projector and automatic stream height regulator. Cabinet, 18" x 20½" high x 14¼" depth. Two capacities—8.0 and 13.0 G.P.H.

SALES SERVICE  
INSTALLATION

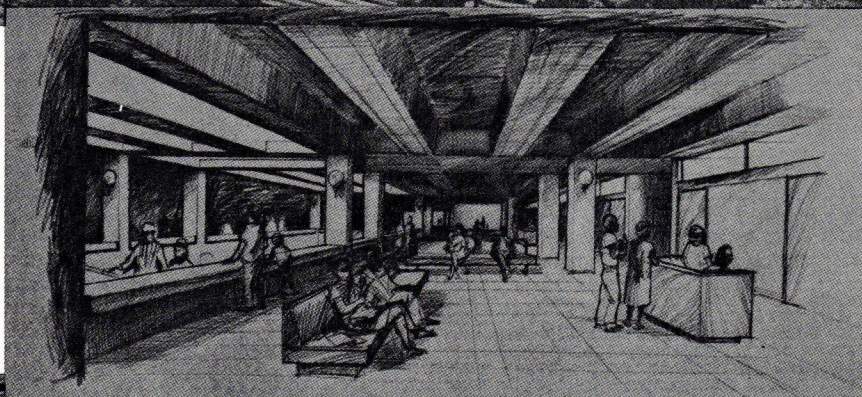
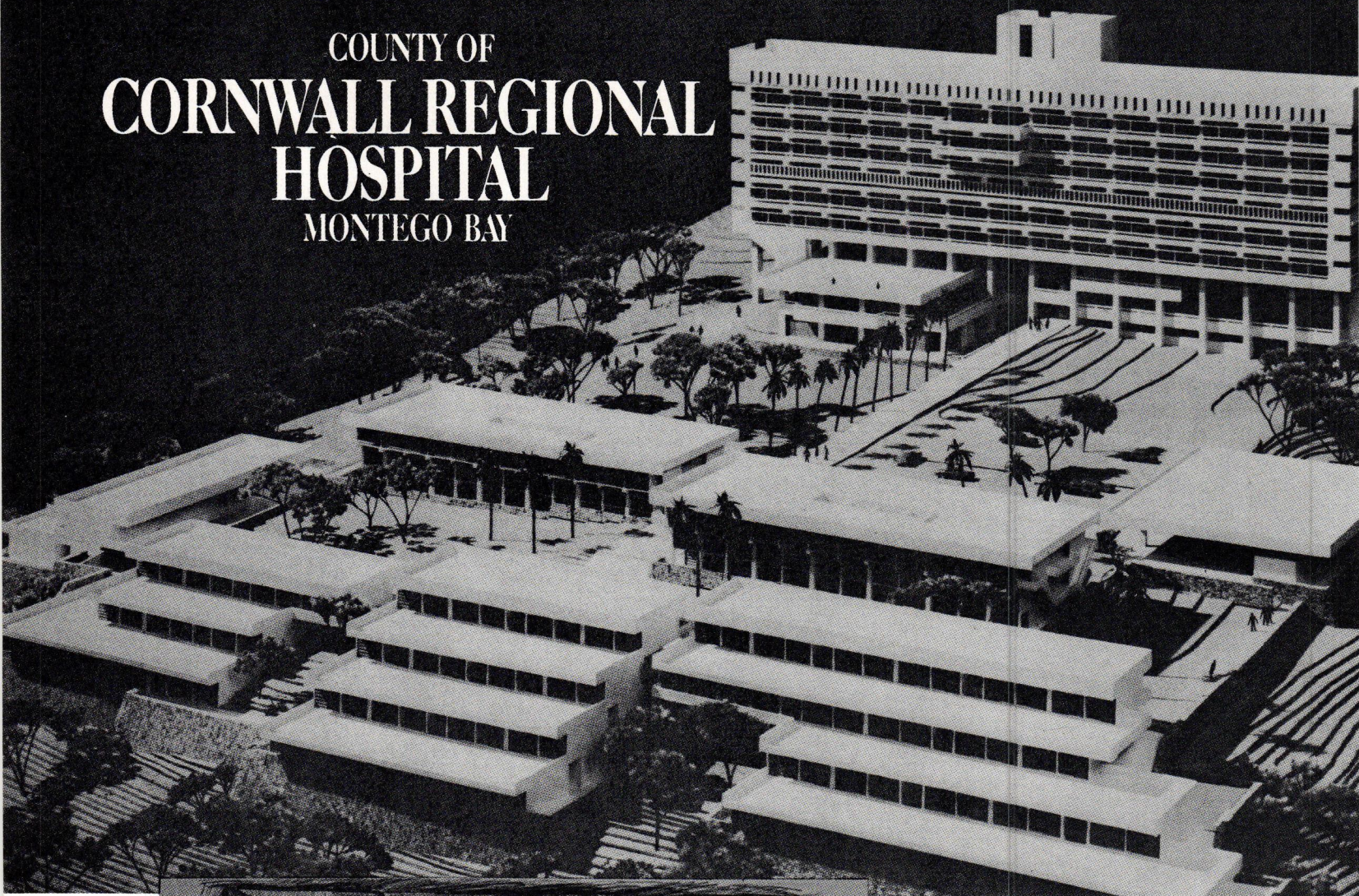
## DAGE SERVICE LIMITED

128 OLD HOPE ROAD, KINGSTON 6 TELEPHONE 78133 78538

at Matilda's Corner

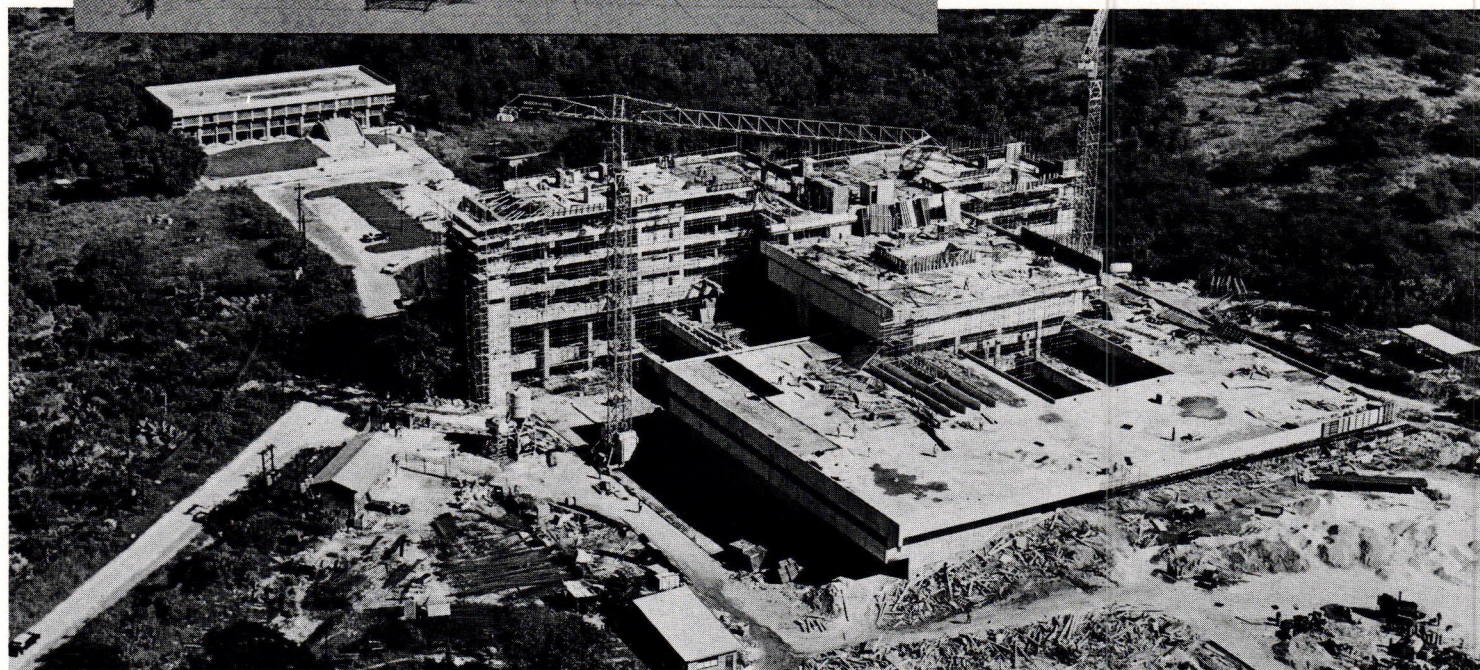


# COUNTY OF CORNWALL REGIONAL HOSPITAL MONTEGO BAY



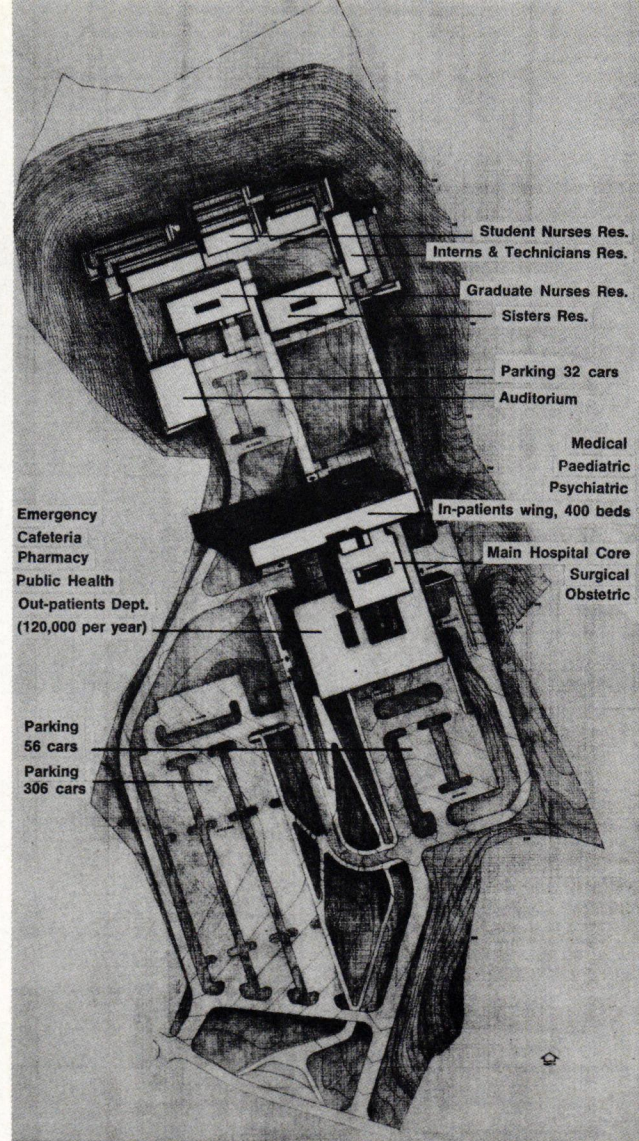
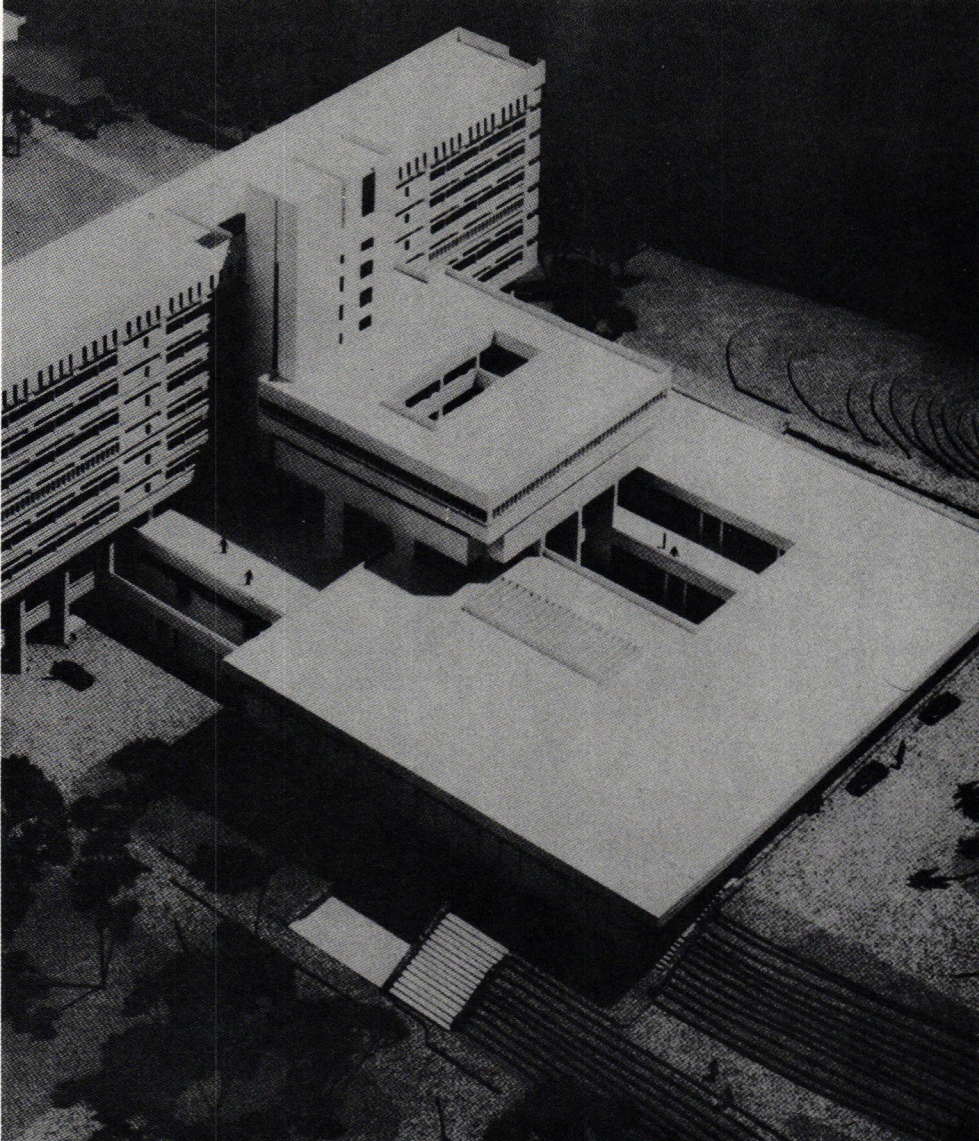
*Out-patients' waiting area.*

*Illustration, Courtesy of British Hospitals,  
Home & Overseas 1968/69*



*Aerial View of the new County of Cornwall Regional Hospital, Montego Bay, now under construction.*





**Architects:**  
**THE ARCHITECTS COLLABORATIVE INC.**  
 Cambridge, Mass., U.S.A.

**Representatives in Jamaica:**  
**CHALMERS, GIBBS & ASSOCIATES:**  
 Kingston & Montego Bay

**Liaison Ministry:**  
**MINISTRY OF COMMUNICATIONS & WORKS**  
**PROJECT PLANNING & LIAISON TEAM:**

**MINISTRY OF COMMUNICATIONS & WORKS:**

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E. Ogilvey, D.F.H., M.I.E.E., Director of Mech. & Elec. Svcs.	
Roy H. Stephenson, F.R.I.B.A., A.M.T.P.I., Past Chief Architect	
Mostyn F. Campbell, A.R.I.B.A., A.A. Dip. Trop. F.R.S.A., Chief Architect	
Lloyd J. Robinson, F.R.I.B.A. - Senior Exec. Architect	
A. B. Davidson, F.R.I.C.S. - Chief Quantity Surveyor	
K. Batts, B.Sc., M.I.E.J. - Chief Engineer (Civil)	

**MINISTRY OF HEALTH:**

- W. J. Wilson, M.B., F.R.C.P., Principal Med. Officer
- H. Ramcharan, B.A., Principal Assistant Secretary
- K. K. Walters, A.C.A., - Administrator in Charge

**CONSULTANTS:**

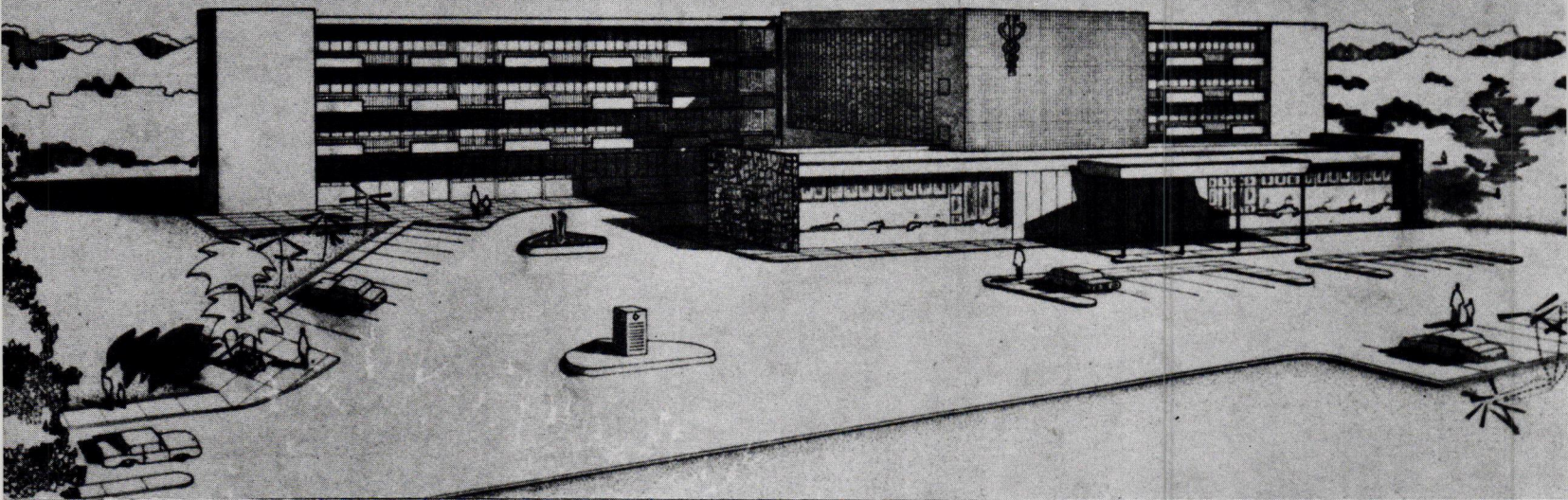
- Reinaldo A. Ferrer, M.D., Hospital Consultant,  
Puerto Rico
- Rafael Cruz Ginoria, B.A., M.R.S.H., M.H.A.  
Equipment Consultant, Puerto Rico

## HOSPITAL FACILITIES & SERVICES

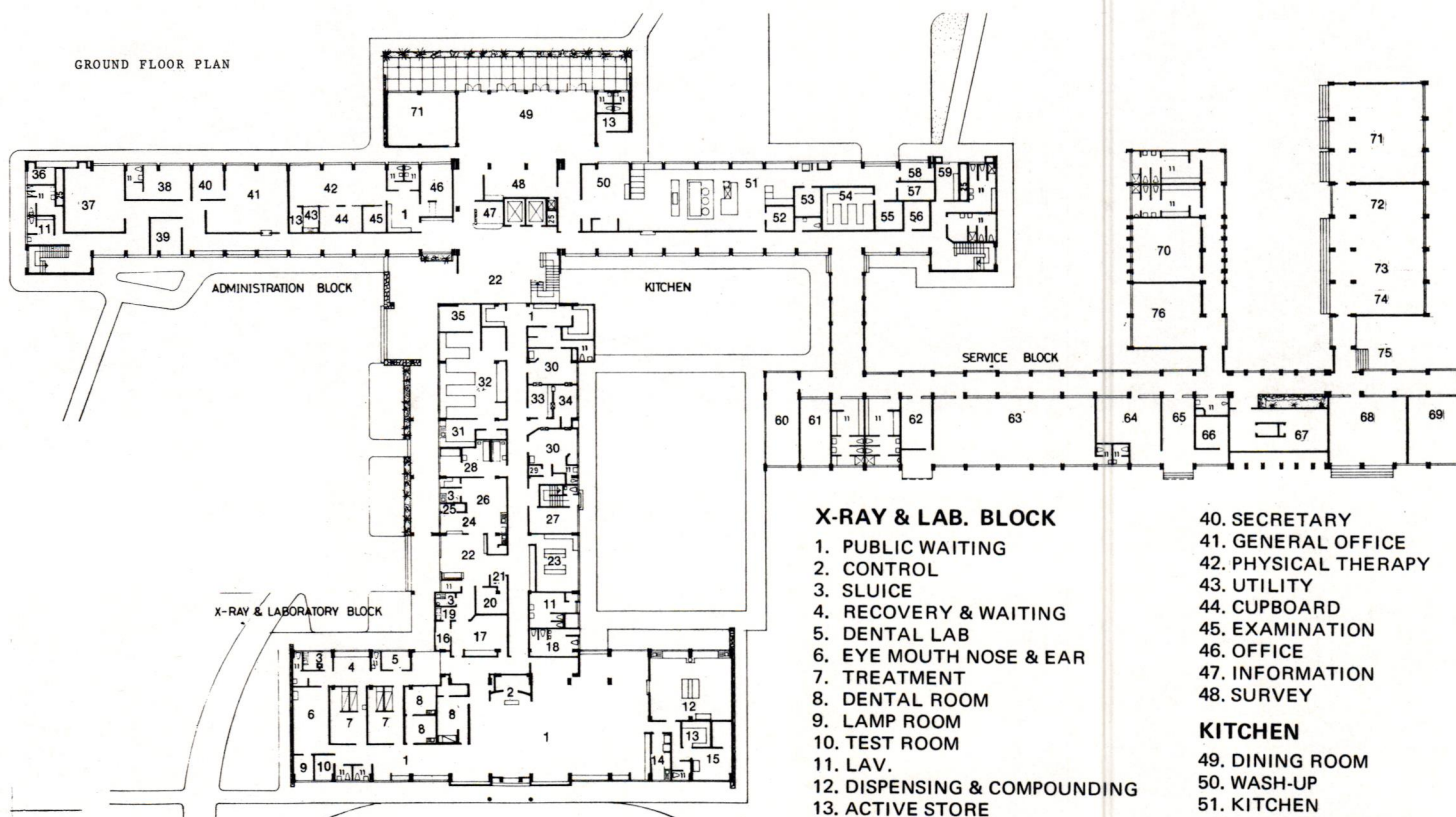
FLOOR	Services & Facilities
First:	Emergency, Radiotherapy, Cafeteria & Kitchen, Mechanical Equipment & Storage
Second:	Pharmacy, Clinical Laboratories, Public Health Offices, Occupational & Physical Therapy, Nursing School, Medical Library
Third: (main floor)	Out-patients' waiting area, Diagnostic Treatment & Radiology facilities, Coffee Shop, Bank, Post Office, Shops, Staff Lounge, Offices
Fourth: (Obstetrics)	Delivery Suites, Nursing Units, Intensive Care & Isolation Areas
Fifth: (Surgical)	Operating rooms, anaesthesia, recovery, cystoscopy & supply rooms, Nursing Units
Sixth: (Medical, Surgical)	Nursing Units, Central Sterile Supply, Mechanical Equipment
Seventh:	(medical) Nursing Units & related facilities
Eight & Ninth:	(Paediatric) Nursing Units & related facilities
Tenth:	(Psychiatric) Nursing Units & related facilities



# MAY PEN HOSPITAL (PROPOSED)



GROUND FLOOR PLAN



## X-RAY & LAB. BLOCK

1. PUBLIC WAITING
2. CONTROL
3. SLUICE
4. RECOVERY & WAITING
5. DENTAL LAB
6. EYE MOUTH NOSE & EAR
7. TREATMENT
8. DENTAL ROOM
9. LAMP ROOM
10. TEST ROOM
11. LAV.
12. DISPENSING & COMPOUNDING
13. ACTIVE STORE
14. RED CROSS CAFETERIA
15. DISPENSERS OFFICE
16. STERILE STORE
17. EMERGENCY OPERATIONS
18. PUBLIC LAV.
19. SCRUB-UP
20. CONSULTING ROOM
21. SUPPLIES
22. LOBBY
23. RECORDS
24. NURSES STATION
25. DUCT
26. OFFICE & TREATMENT
27. RADIOLOGIST
28. OBSERVATION ROOM
29. CHANGING CUBICLE
30. X-RAY ROOM
31. GLASS WASHING
32. LAB.
33. VIEWING
34. DARK ROOM
35. PATHOLOGIST

## ADMINISTRATION BLOCK

36. ELECTRICAL ROOM
37. CONFERENCE & LIBRARY
38. SENIOR MEDICAL OFFICER
39. MATRON

40. SECRETARY
41. GENERAL OFFICE
42. PHYSICAL THERAPY
43. UTILITY
44. CUPBOARD
45. EXAMINATION
46. OFFICE
47. INFORMATION
48. SURVEY

## KITCHEN

49. DINING ROOM
50. WASH-UP
51. KITCHEN
52. DIETICIANS OFFICE
53. VEGETABLE COOLER
54. DRY STORE ROOM
55. OFFICE
56. LAUNDRY CHUTE
57. SUPPLY STORE
58. GARBAGE COOLER
59. LOCKER ROOM

## SERVICE BLOCK

60. DISPENSARY STORE
61. PATIENTS' STORE
62. SEWING ROOM
63. LAUNDRY
64. DIRTY LINEN
65. MATTRESS STORE
66. OXYGEN
67. MORTUARY
68. BOILER
69. WORK SHOP
70. LUNCH ROOM
71. AIR COND. ROOM
72. SWITCH ROOM
73. COMPRESSOR
74. GENERATOR
75. SERVICE ENTRANCE TO MORTUARY
76. ENGINEER'S OFFICE

## Planned and Designed by:

MINISTRY OF COMMUNICATIONS & WORKS

D. Wint, A.M.I.C.E., C. Eng. — Chief Technical Director

J. Lawrence, M.I.C.E., C. Eng. — Director of Technical Svcs.

M. F. Campbell, F.R.S.A., A.R.I.B.A. — Chief Architect

L. J. Robinson, F.R.I.B.A., — Project Architect

K. Batts, B.Sc., M.I.E.J. — Chief Engineer (Civil)

S. Mair, M.Sc., — Project Engineer

A. B. Davidson, F.R.I.C.S. — Chief Quantity Surveyor

H. Beattie, A.R.I.C.S.

M. Brownrigg, A.R.I.C.S.

B. Kerr, F.R.I.C.S.

E. Ogilvie, D.F.H., M.I.E.E., — Director Electrical & Mechanical Services

D. Marks, M.I.E.E.

C. Simpson, M.Sc.,

O. Woodham, H.N.G. Eng.

A. Chong, M.Sc.,

Project Quantity Surveyors

— Project Engineers



## MAY PEN HOSPITAL (Proposed Services & Facilities)

The May Pen Hospital when built will offer bed space for about 180 patients with clinical and ancillary services to facilitate extensions to accommodate a further 120 beds.

This Complex will provide Surgical and Gynaecological, Services, Male, Female and Children's wards, and clinical facilities in the Outpatients Department for Ear, Nose & Throat treatment, Dental care and attending to Fractures. There will also be a central Kitchen, Laundry and Boiler House.

The Hospital is designed to form the letter "T"; Operating Theatre suites are linked by a Vertical Circulation Tower.

Natural Ventilation is used for the Ward Blocks to take advantage of the Southeast wind by day and the North wind in the night. The Operating Theatres, Delivery Rooms, Central Sterilising Areas, Clinics and Outpatients Department are all airconditioned.

The design of the Ward Blocks was originated for this hospital, but the concept has since been used on the Port Maria Hospital and is now being built into the New Montego Bay Hospital.

The Surgical Block contains four (4) Surgical suites, two Theatres, one Orthopaedic and one Cystology Theatre. Each pair of theatres shares a common clean up, sterilising and scrub up area. Complete asepsis control is the aim in the design of the

Surgical suite. There is a recovery room off the sterile area with full services. These Units could also be used as Intensive Care Units.

The Maternity Block will consist of 25 beds, Nurseries with 5 cots each, two labour suites and two delivery rooms.

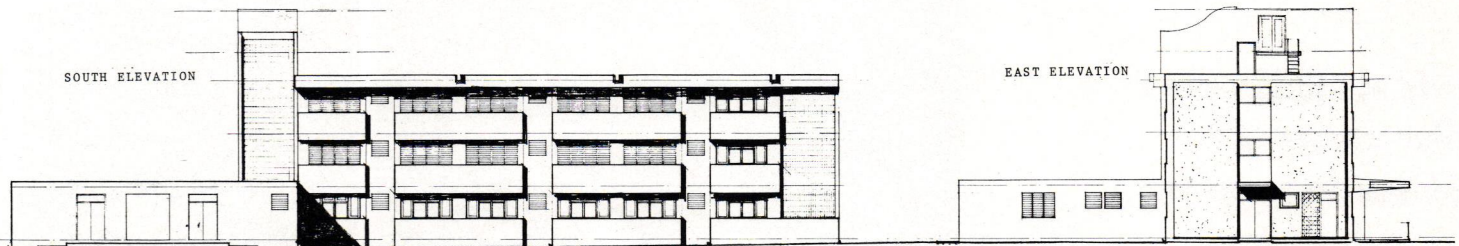
The Emergency Department consists of overnight beds, consulting rooms, Theatre Room and a Minor Operating Theatre.

The Central Sterile Supply Department is placed above the Theatre Block. Here surgical instruments, dressings, theatre linen and clothing for the Operating Theatre staff are collected, cleaned and repaired, when necessary, before being sterilised and stored into sterile packs ready for re-issuing. There is a special Glove Room where gloves are automatically washed, dried, powdered and stored for use. A solution room is also incorporated into the C.R.S. for manufacturing distilled water.

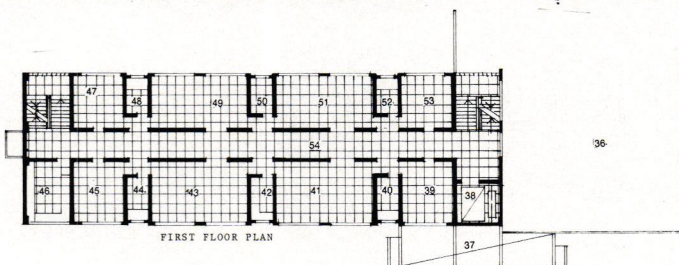
A Mortuary with refrigerated units, Boiler Room, Workshop and Generating Switch Room are also planned. A special sewage treatment plant had to be designed because the water table in the area is fairly high due to the clay soil.

Special accommodations have been provided for nurses to enable them to relax away from the hospital environment. A residential complex has been planned around a recreational area with an adjoining well ventilated and attractively decorated canteen.

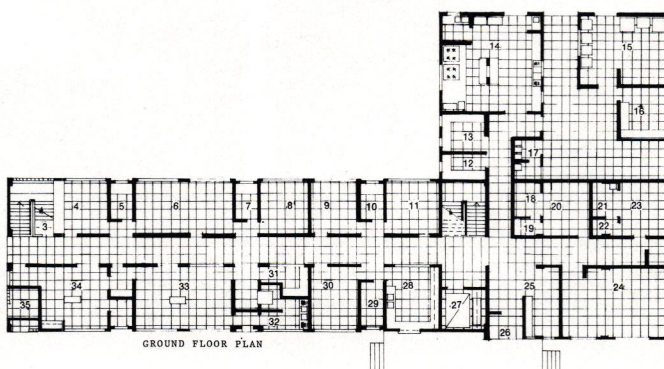
## MAY PEN HOSPITAL PROPOSED CONVERSION OF NURSES HOME INTO MATERNITY WARDS



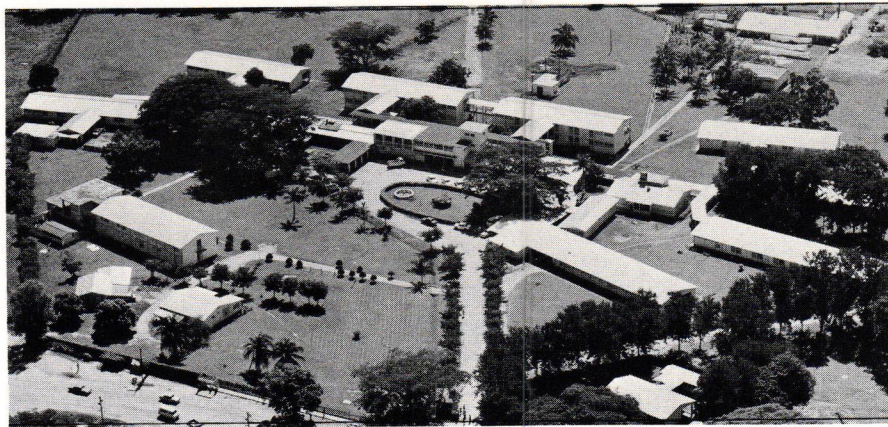
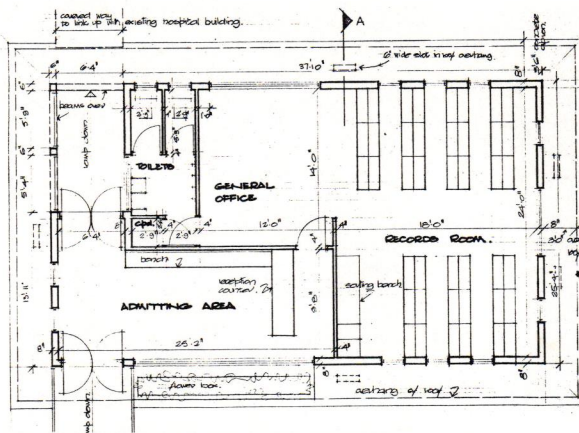
PROPOSED CONVERSION OF EXISTING NURSES HOME INTO MATERNITY WARDS — MAY PEN — Ministry of Communications & Works — Chief Architects Branch — Project Arch. — L. J. Robinson, F.R.I.B.A.



- |   |                         |
|---|-------------------------|
| 1. CONDENSING UNIT                            | 27. LIFT                |
| 2. PLANT ROOM                                 | 28. PHARMACY            |
| 3. STORE                                      | 29. LAVATORY            |
| 4. NURSES STATION                             | 30. MATRON              |
| 5. LAVATORY                                   | 31. STERILE SUPPLY      |
| 6. FIRST STAGE WARD                           | 32. DIRTY UTILITY       |
| 7. LAVATORY                                   | 33. OPERATING THEATRE   |
| 8. PREPARATION                                | 34. DELIVERY            |
| 9. NURSES STATION                             | 35. AIR CONDITION       |
| 10. LAVATORY                                  | 36. LOWER ROOF          |
| 11. RECEPTION                                 | 37. CANOPY              |
| 12. STORE                                     | 38. LIFT                |
| 13. DRY GOODS STORE                           | 39. PRIVATE WARD        |
| 14. KITCHEN                                   | 40. LAVATORY            |
| 15. LAUNDRY                                   | 41. WARD                |
| 16. LINEN                                     | 42. DIRTY UTILITY       |
| 17. MAID'S CHANGE                             | 43. WARD                |
| 18. EXAMINATION                               | 44. LAVATORY            |
| 19. CHANGE                                    | 45. NURSERY             |
| 20. MEDICAL OFFICER                           | 46. UTILITY             |
| 21. EXAMINATION                               | 47. PRELIMINARY NURSERY |
| 22. CHANGE                                    | 48. LAVATORY            |
| 23. MEDICAL OFFICER                           | 49. WARD                |
| 24. PUBLIC HEALTH DEMONSTRATION & CLINIC AREA | 50. SLUICE ROOM         |
| 25. WAITING AREA                              | 51. WARD                |
| 26. MAIN ENTRY                                | 52. LAVATORY            |
|   | 53. PRIVATE WARD        |
|   | 54. CORRIDOR            |







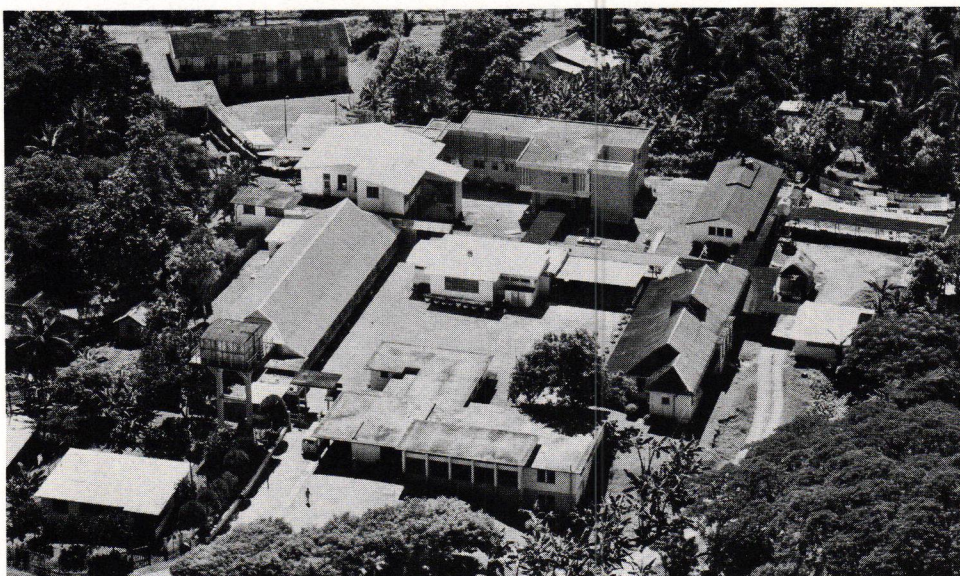
**SPANISH TOWN HOSPITAL** Span. Town  
beds — 206; monthly attendance — 1843  
bassinets — 10; births per yr. 628  
Services: Medical, Surgical, Maternity  
Facilities: Dental, Pharmacy, Outpatient clinic,  
X-Ray Diagnostic, Laundry

**NEW RECORD OFFICE FOR SPANISH  
TOWN HOSPITAL**  
Ministry of Communications & Works  
Chief Architects Branch  
Chief Architect — M. Campbell, F.R.S.A.,  
A.R.I.B.A.  
Project Architect — B. G. Roberts, F.R.I.B.A.



## Hospitals Around the Island

**LINSTEAD HOSPITAL, St. Catherine**  
beds — 110; monthly attendance — 756  
bassinets — 4; births per yr. — 177  
Services: Medical, Surgical, Maternity  
Tuberculosis  
Facilities: Pharmacy, Outpatient Clinic, X-ray,  
Diagnostic, Laundry

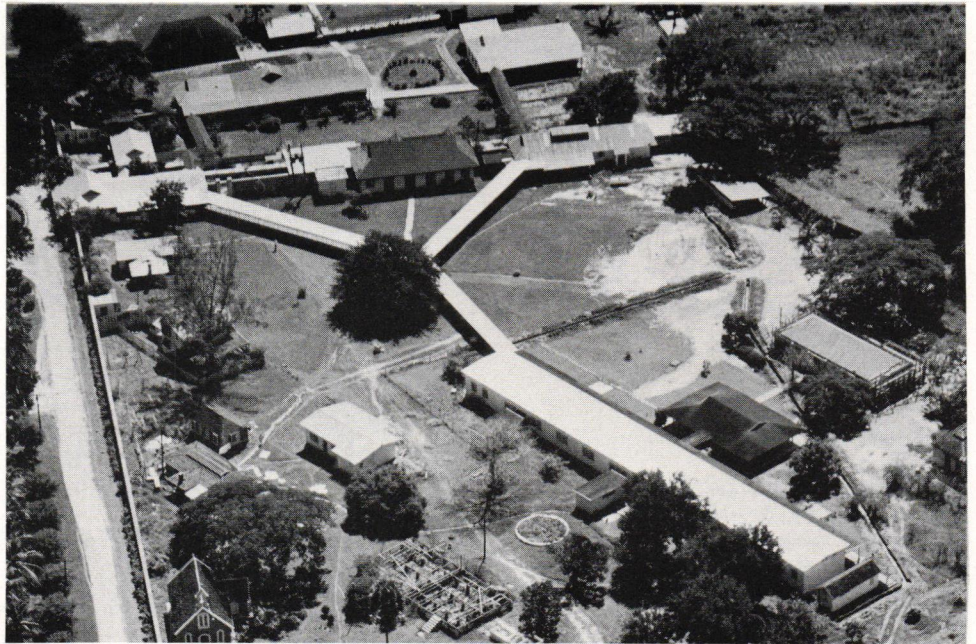


photos by J. S. Tyndale Biscoe

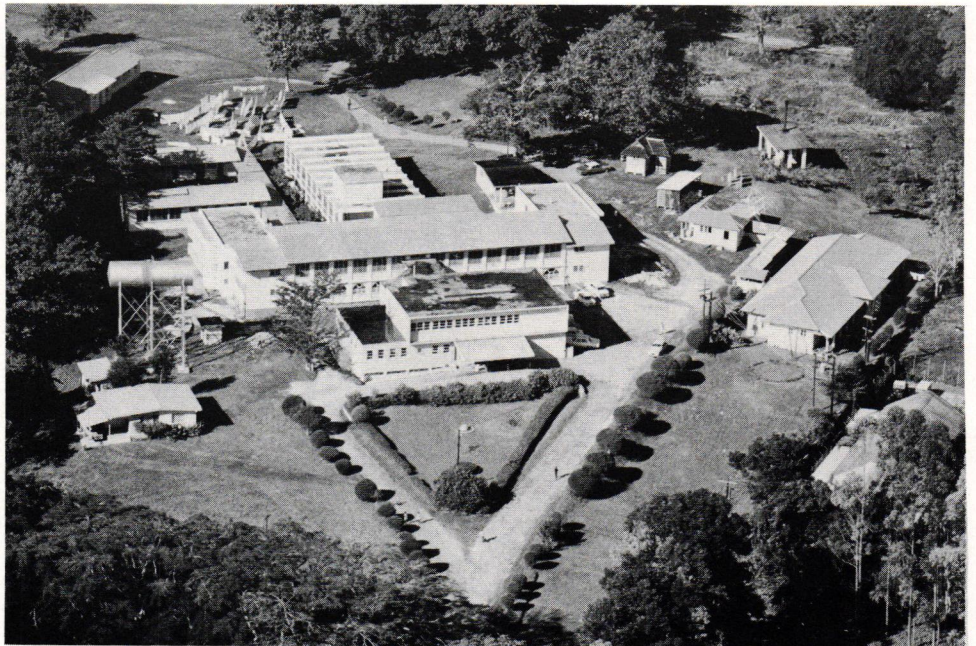
**CHAPELTON HOSPITAL, Clarendon**  
beds — 52; Monthly attendance — 694  
bassinets — 6; births per yr. — 223  
Services: Medical, Surgical, Maternity  
Facilities: Pharmacy, Outpatient Clinic,  
Laundry





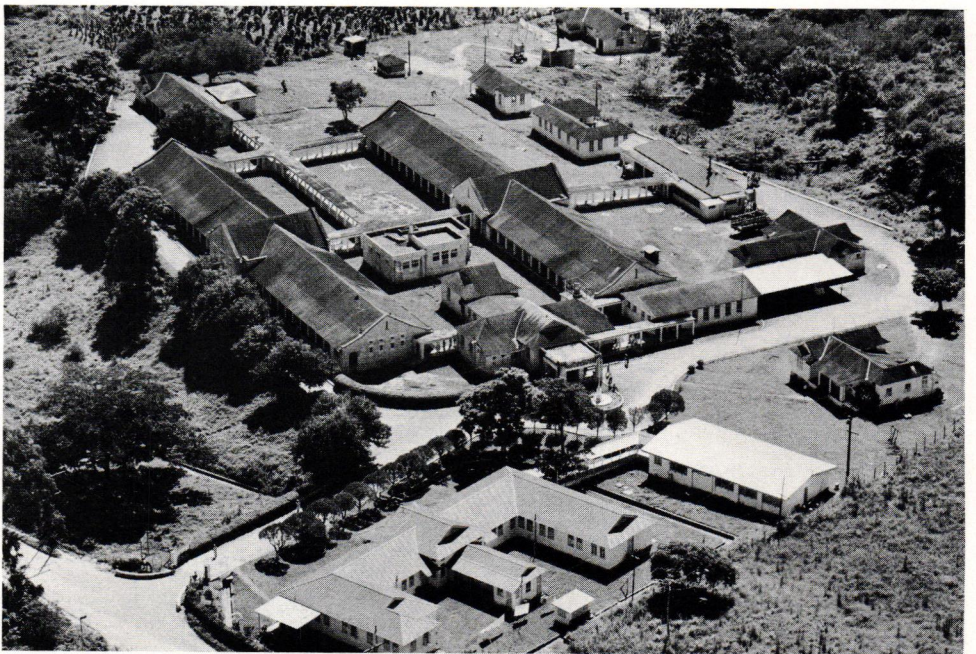


HANSON HOUSE (Leprosy), St. Catherine  
beds — 185



MANDEVILLE HOSPITAL, Manchester  
beds — 130; Monthly attendance — 1,569  
Services: Medical, Surgical, Paediatrics,  
Maternity, Tuberculosis  
Facilities: Clinical Lab., Dental, Pharmacy  
Outpatient Clinic, X-ray Diagnostic,  
Laundry

photos by J. S. Tyndale Biscoe



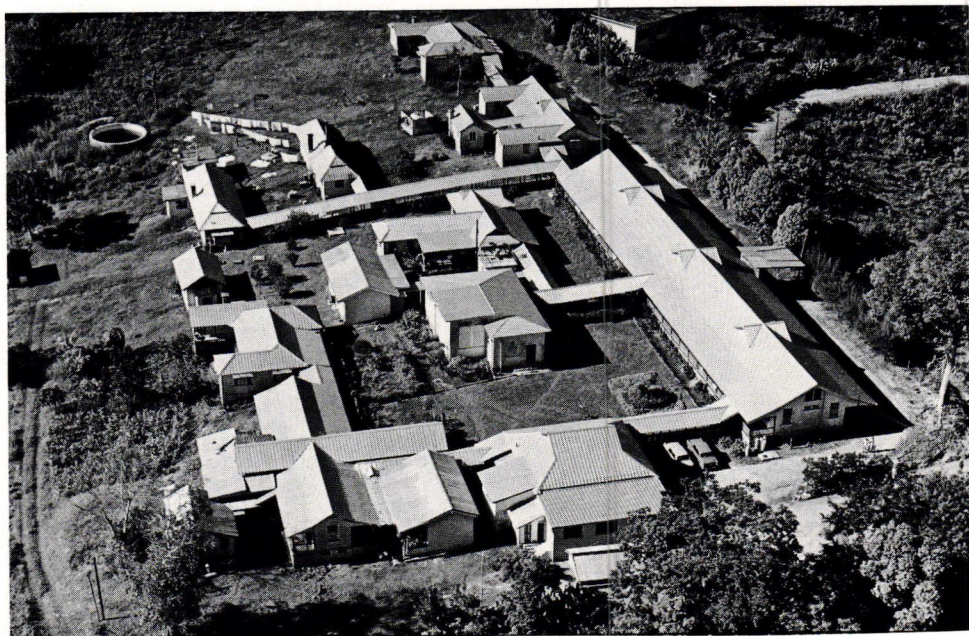
PERCY JUNOR HOSPITAL, Spaldings,  
Clarendon  
beds — 123; Monthly attendance — 1,319  
bassinets — 6; births per yr. — 335  
Services: Medical, Surgical, Maternity,  
Tuberculosis  
Facilities: Clinical Lab., Dental, Pharmacy,  
Outpatient Clinic, X-ray Diagnostic, Laundry



*ULSTER SPRING HOSPITAL, St. Ann  
beds — 33; Monthly attendance — 299  
bassinets — 6; births per yr. 42  
Services: Medical, Surgical, Maternity  
Facilities: Pharmacy, Outpatient Clinic,  
Laundry*

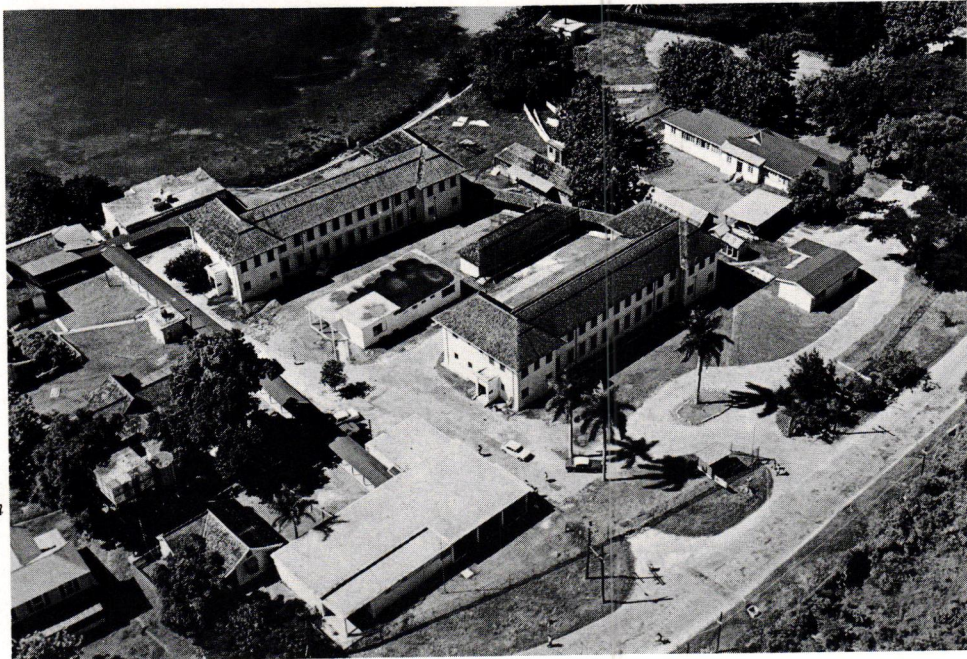


*ALEXANDRIA HOSPITAL, St. Ann  
beds — 52; monthly attendance — 261  
bassinets — 6; births per yr. — 176  
Services: Medical, Surgical,, Maternity  
Facilities: Dental, Pharmacy,  
Outpatient Clinic, Laundry*



*photos by J. S. Tyndale Biscoe*

*BLACK RIVER HOSPITAL, St. Elizabeth  
beds — 120; monthly attendance — 1,070  
bassinets — 6; births per yr. — 306  
Services: Medical, Surgical, Maternity,  
Tuberculosis  
Facilities: Clinical Lab., Pharmacy  
Outpatient Clinic, X-ray Dept., Laundry*





# SAVANNA-LA-MAR HOSPITAL

Westmoreland

beds — 140; monthly attendance — 783

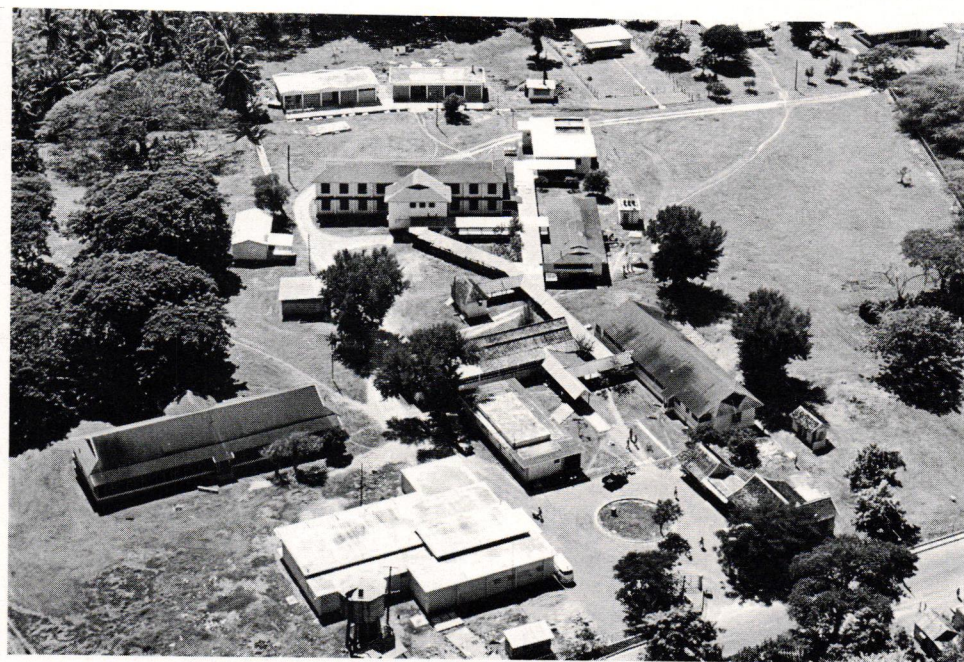
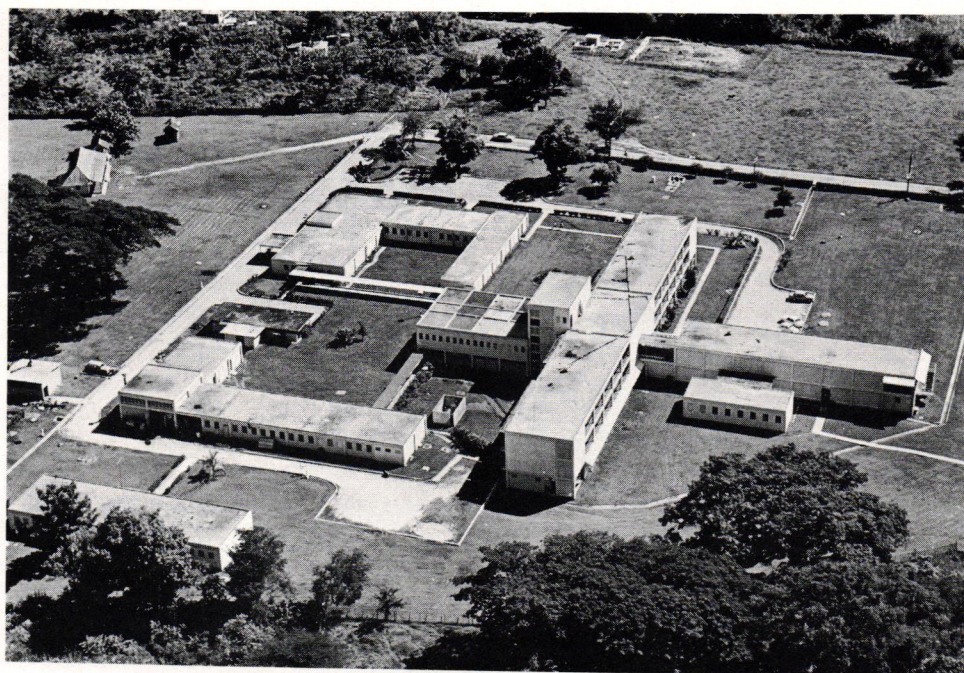
bassinets — 24; births per yr. — 625

Services: Medical, Surgical, Paediatric, Maternity, Tuberculosis

Facilities: Clinical Lab., Dental,

Pharmacy, Outpatient Clinic

X-Ray Diagnostic, Laundry



# LIONEL TOWN HOSPITAL, Clarendon

beds — 79; monthly attendance — 454

bassinets — 4; births per yr. 461

Services: Medical, Surgical, Maternity

Facilities: Pharmacy, Outpatient Clinic, Laundry

N.B. See proposed Intensive Care Unit, in "Coronary & Intensive Care Units", this Issue.

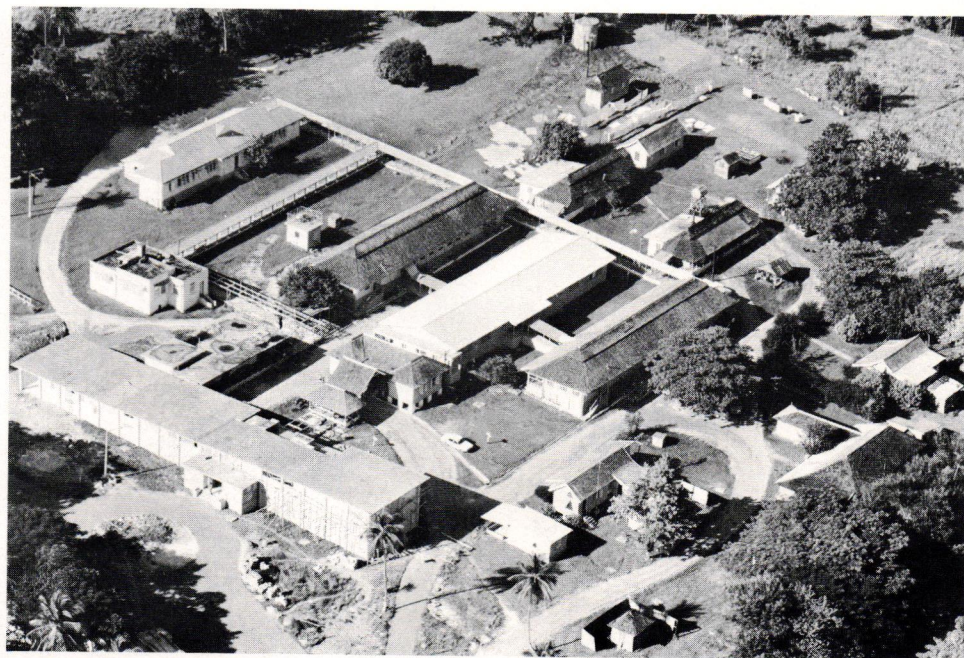
# ST. ANN'S BAY HOSPITAL, St. Ann

beds — 94; monthly attendance — 867

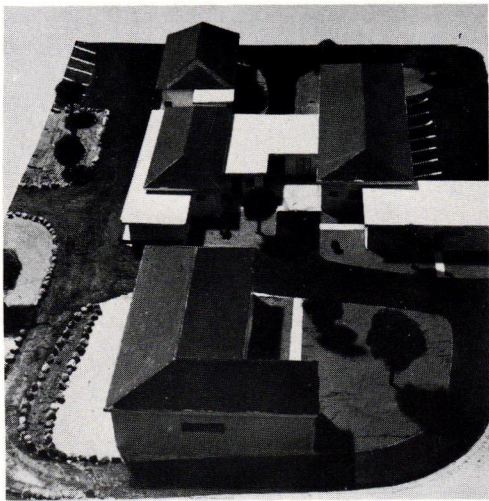
bassinets — 12; births per yr. 144

Services: Medical, Surgical, Maternity, Tuberculosis

Facilities: Clinical Lab., Pharmacy, Dental, Outpatient Clinic, X-ray Diagnostic, Laundry

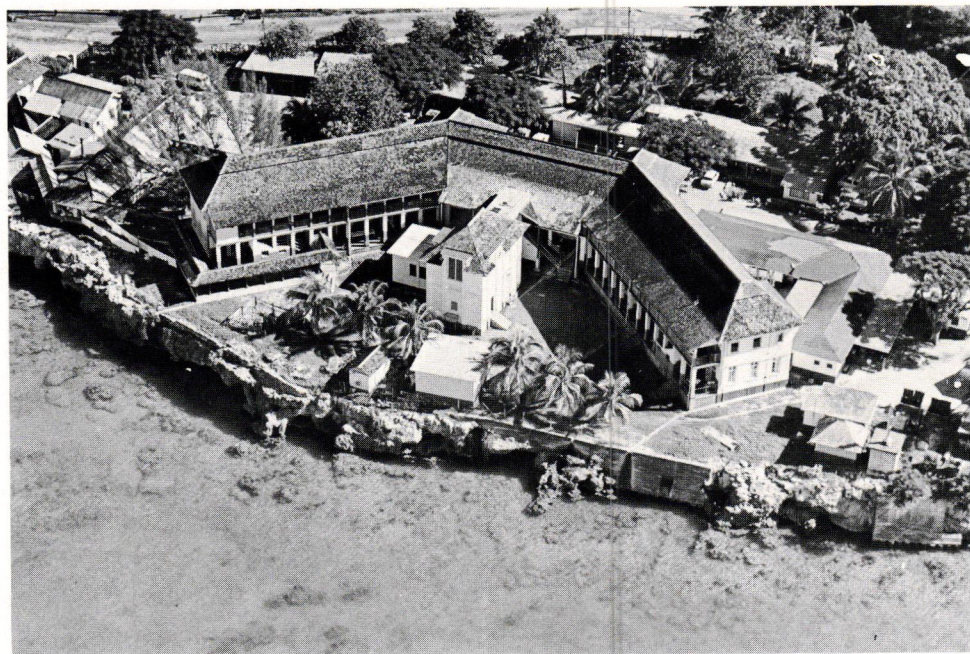
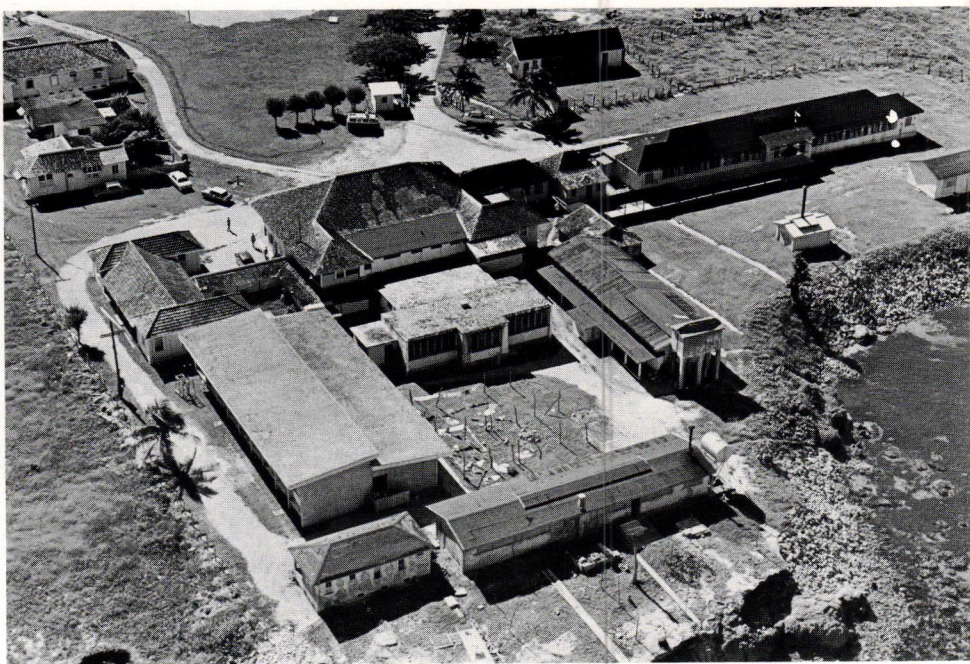






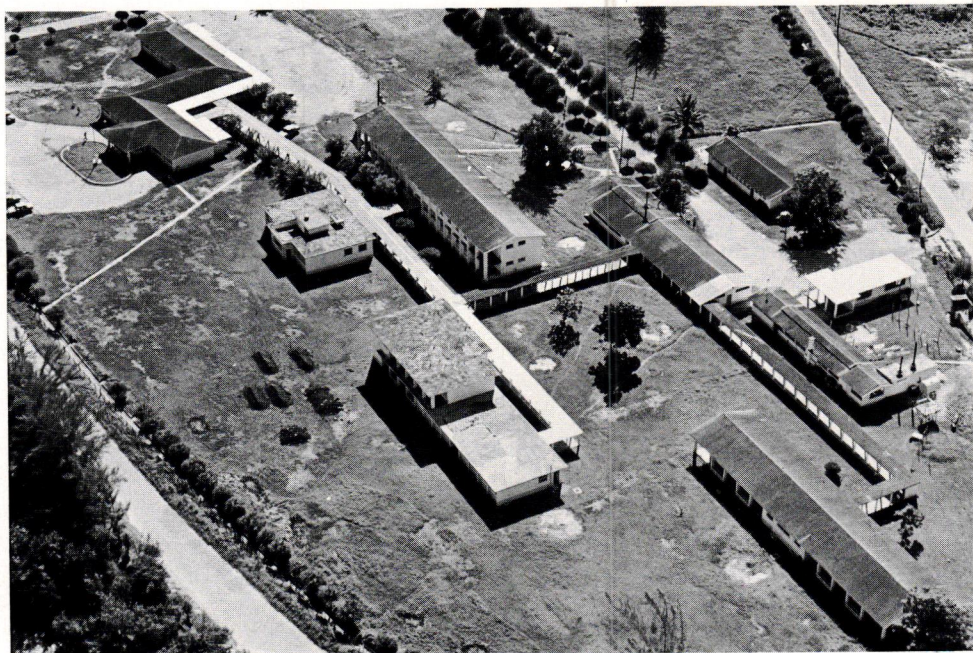
*Model of proposed Children's Ward for Noel Holmes Hospital, Lucea-Min. of Comm. & Wks.*

**NOEL HOLMES HOSPITAL, Lucea**  
 beds — 90; monthly attendance — 750  
 bassinets — 6; births per yr. 269  
 Services: Medical, Surgical, Maternity,  
 Paediatric, Tuberculosis  
 Facilities: Clinical Lab., Dental,  
 Pharmacy, Outpatient Clinic, Laundry



**ST. JAMES HOSPITAL, Montego Bay**  
 beds — 101; monthly attendance —  
 2,000  
 bassinets — 8; births per yr. — 620  
 Services: Medical, Surgical, Maternity,  
 Paediatric  
 Facilities: Clinical Lab., Dental, Pharmacy,  
 Outpatient Clinic, X-ray Diagnostic, Laundry

*photos by J. S. Tyndale Biscoe*



**FALMOUTH HOSPITAL, Trelawny**  
 beds — 91; monthly attendance — 750  
 bassinets — 16; births per yr. — 362  
 Services: Medical, Surgical, Paediatrics,  
 Maternity, Tuberculosis  
 Facilities: Clinical Lab., Dental,  
 Pharmacy, Outpatient Clinic,  
 X-ray Diagnostic, Laundry





**PORT ANTONIO HOSPITAL**

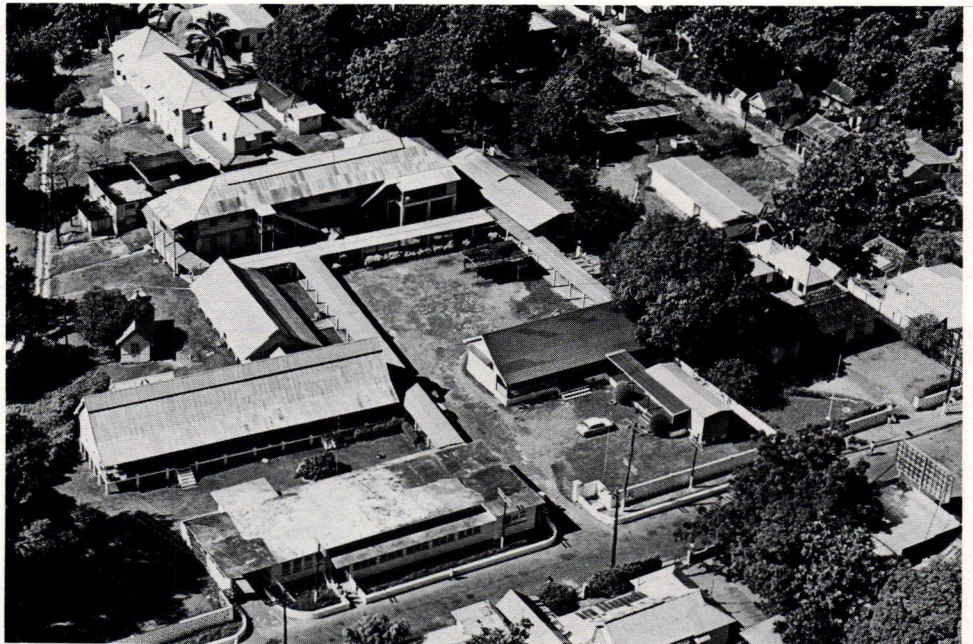
*Port Antonio*

*beds — 112, bassinets 12, births per yr. 475  
monthly attendance 909*

*Services: Medical, Surgical, Maternity*

*Facilities: Dental, Pharmacy*

*Outpatient clinic, X-Ray Diagnostic Laundry*



**BUFF BAY HOSPITAL, St. Thomas**

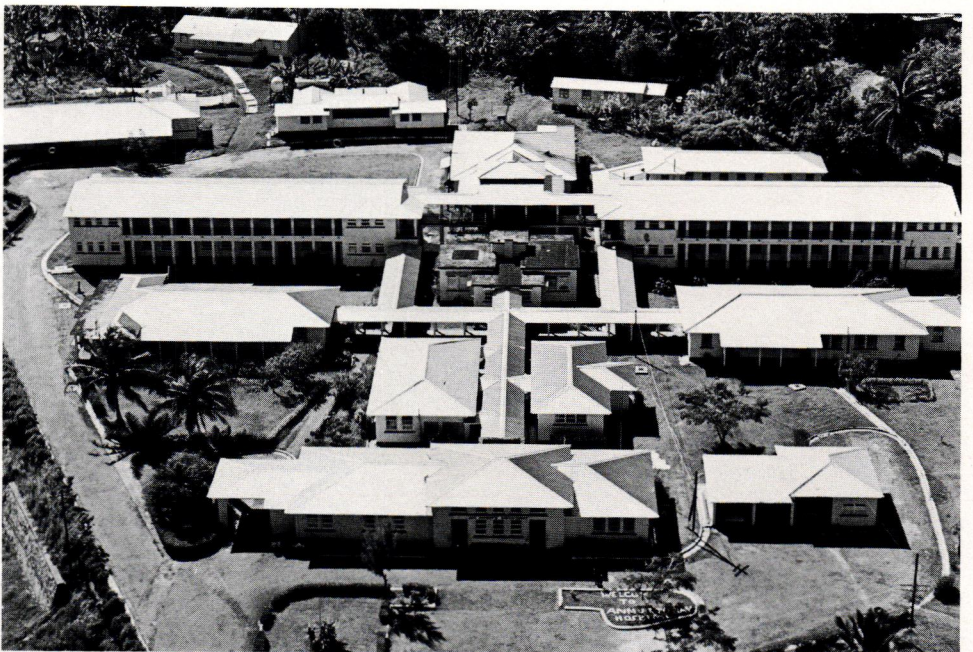
*beds — 120; monthly attendance — 349  
bassinets — 11; births per yr. — 226*

*Services: Medical, Surgical, Maternity*

*Facilities: Pharmacy, Outpatient Clinic*

*Laundry*

*photos by J. S. Tyndale Biscoe*



**ANNOTTO BAY HOSPITAL, St. Mary**

*beds — 124; monthly attendance — 442  
bassinets — 7; births per yr. — 430*

*Services: Medical, Surgical, Maternity*

*Tuberculosis*

*Facilities: Pharmacy, Outpatient Clinic*

*Dental, X-ray Diagnostic, Laundry*

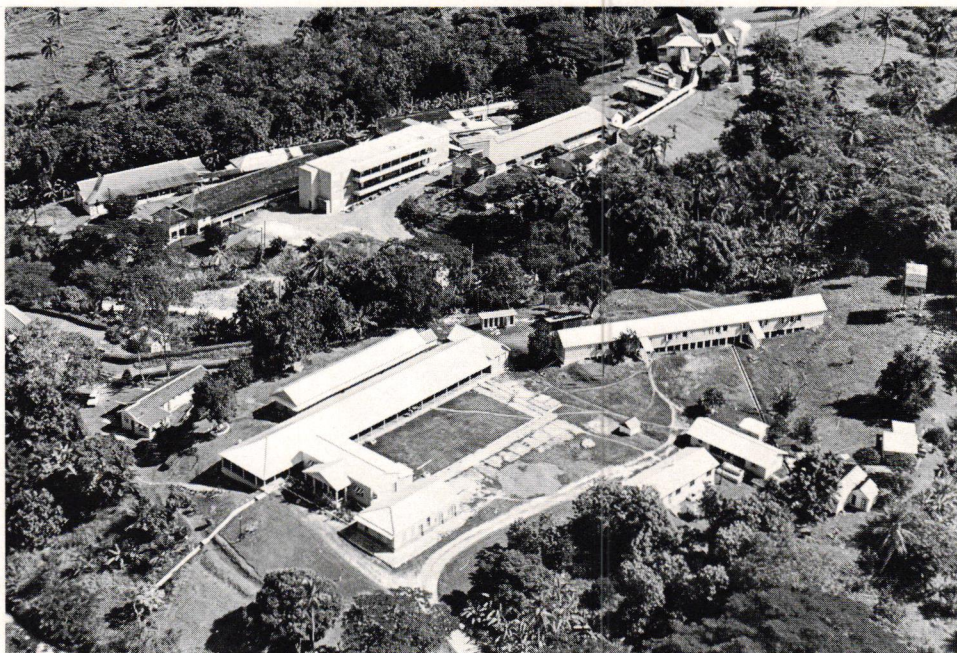


*ISAAC BARRANT HOSPITAL,  
Golden Grove*

*beds — 40; monthly attendance 125, births yr. 50  
Services: Medical, Surgical, Maternity  
Facilities: Clinical Lab, Dental,  
Pharmacy, Outpatient Clinic,  
X-Ray Diagnostic, Laundry*

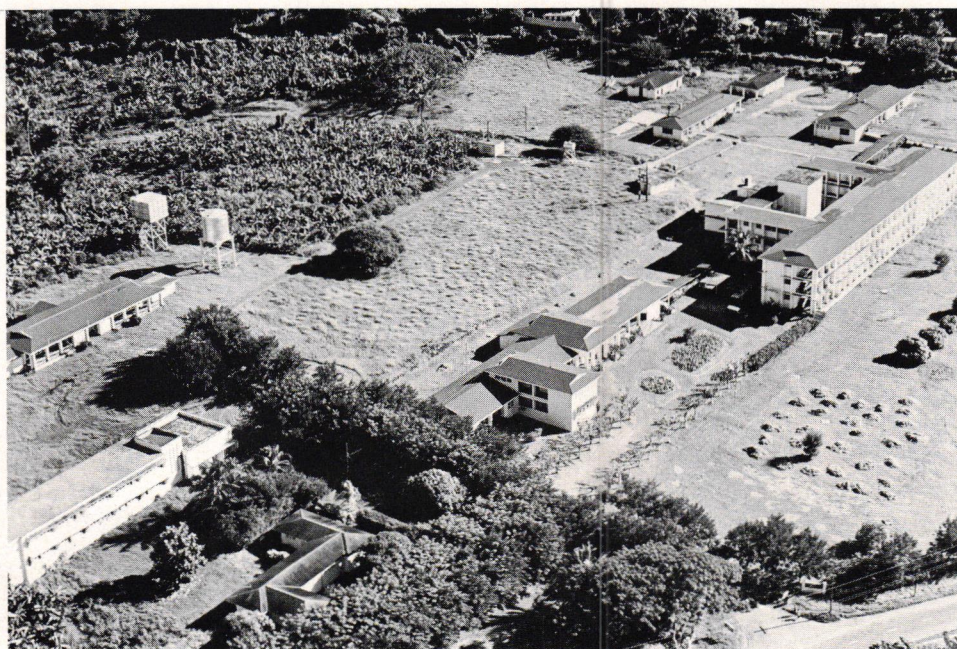


*PORT MARIA HOSPITAL, St. Mary  
beds — 162; monthly attendance — 1,058  
bassinets — 10; births per yr. 439  
Services: Medical, Surgical, Paediatrics,  
Maternity, Tuberculosis  
Facilities: Clinical Lab., Pharmacy,  
Outpatient Clinic, X-ray Diagnostic,  
Laundry*

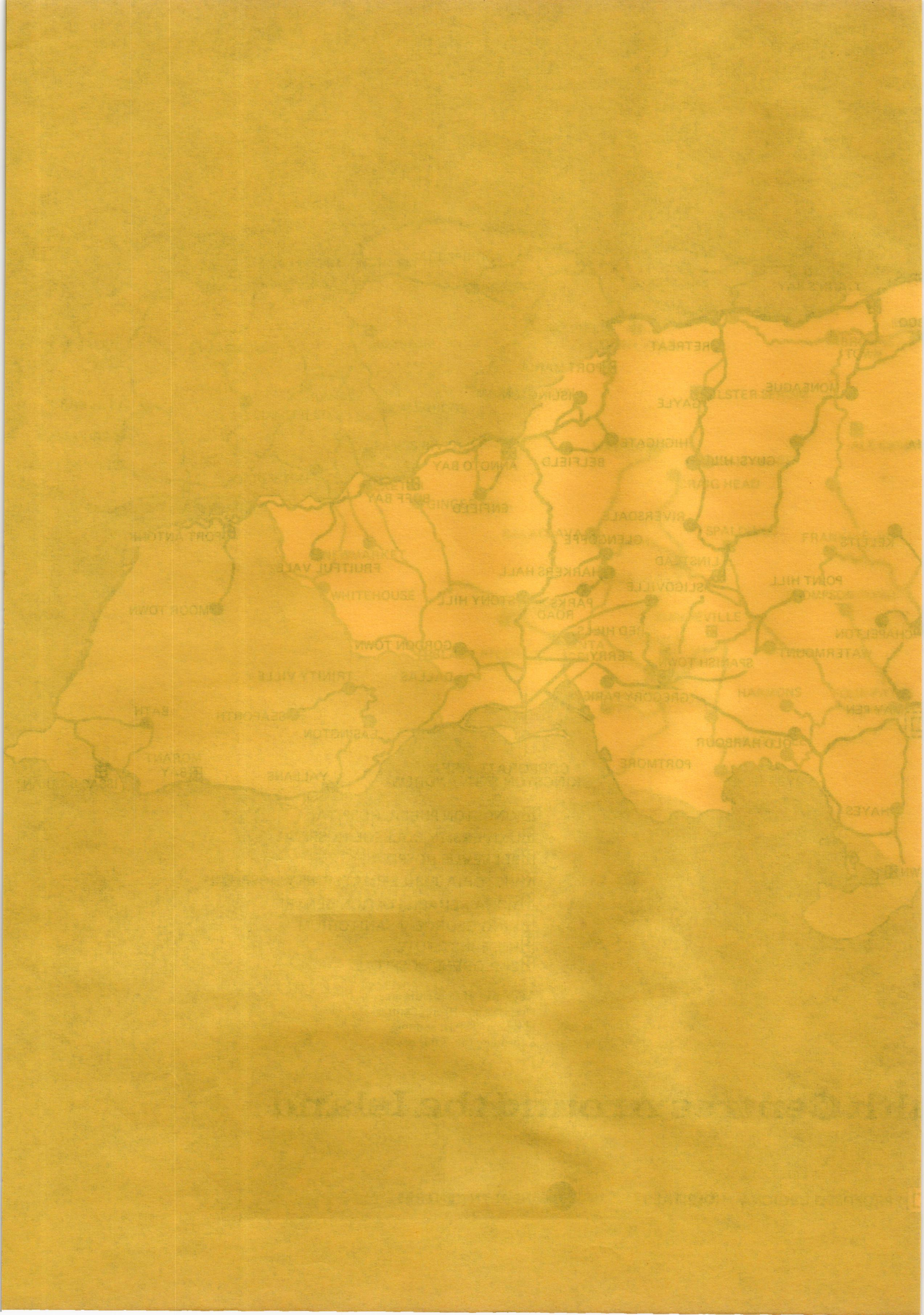


*PRINCESS MARGARET HOSPITAL  
Morant Bay*

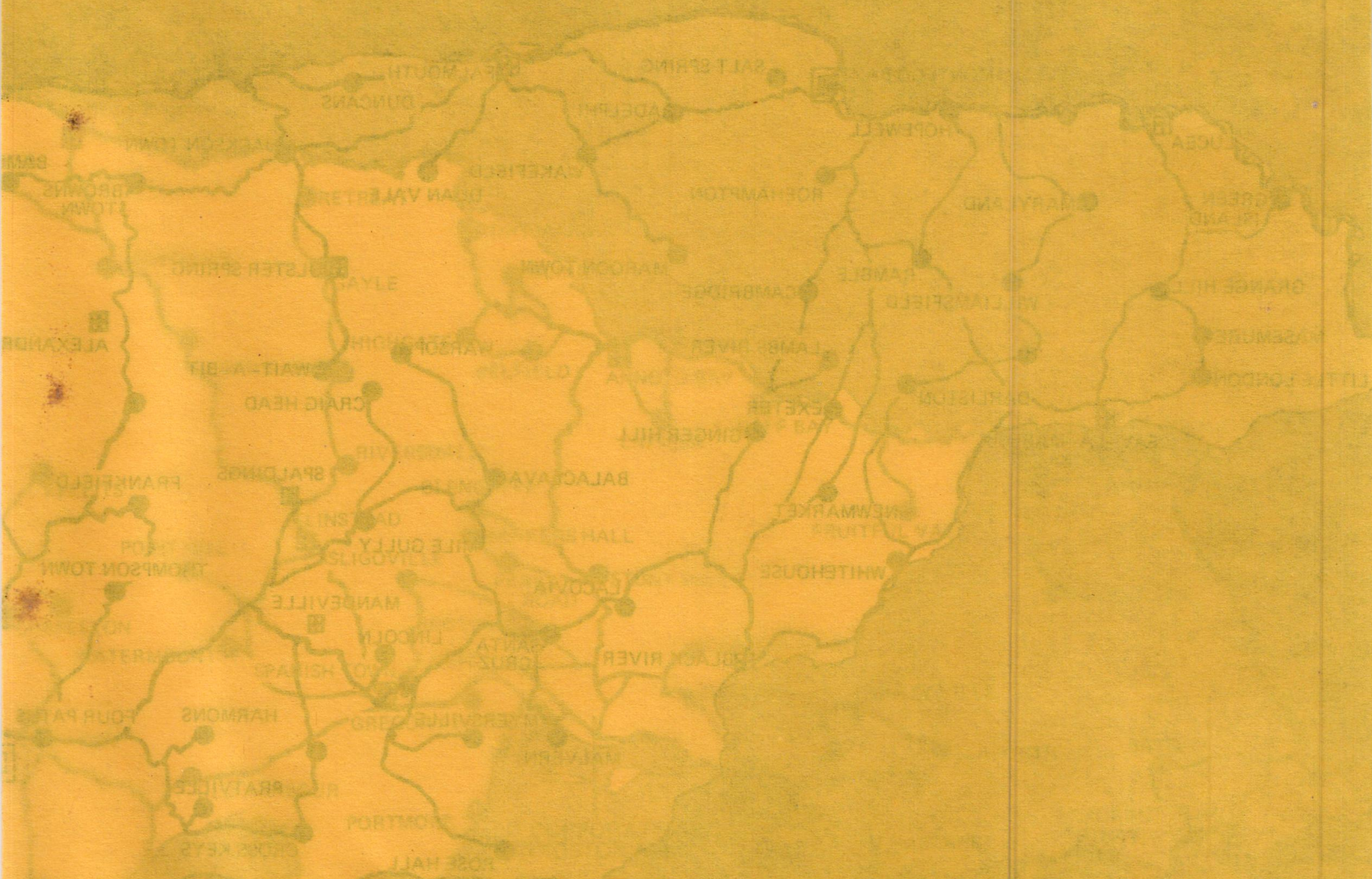
*beds — 150 — monthly attendance 1,339  
bassinets — 8; births per year .290  
Services: Medical, Surgical, Paediatric,  
Maternity, Tuberculosis  
Facilities: Clinical Lab., Dental,  
Pharmacy, Outpatient Clinic  
X-Ray Diagnostic, Laundry*











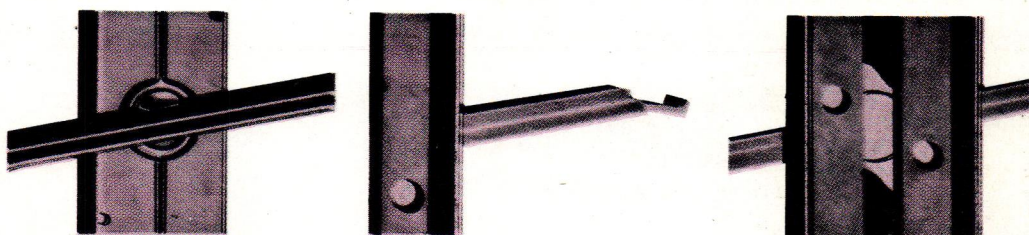


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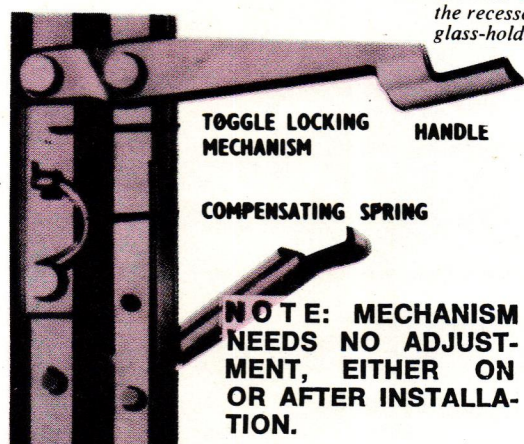
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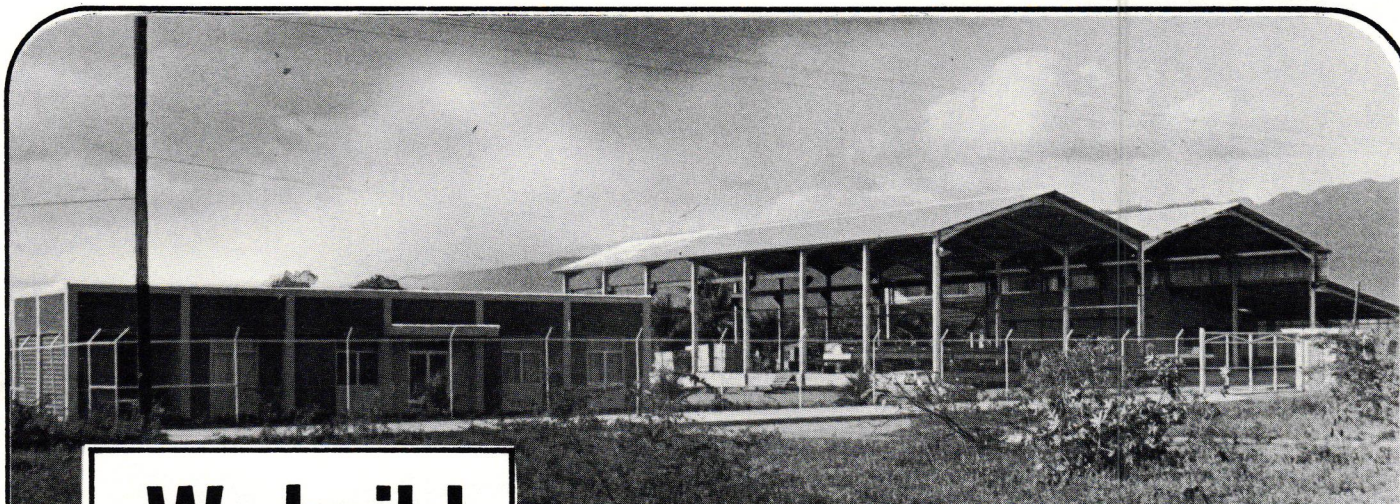
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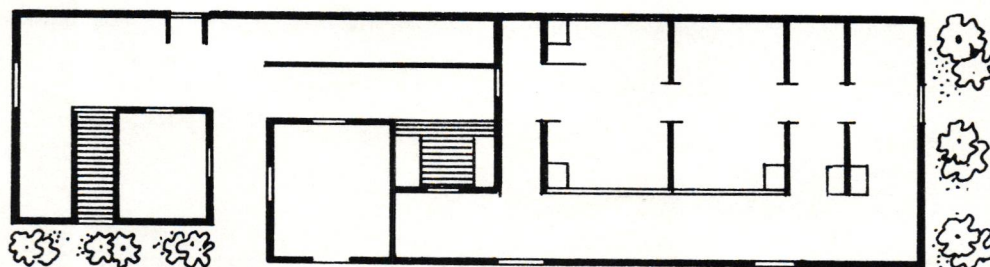
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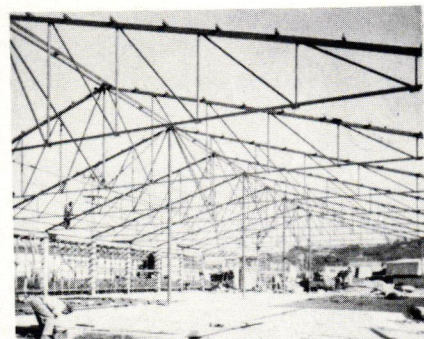
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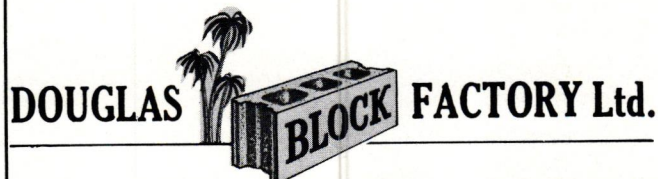


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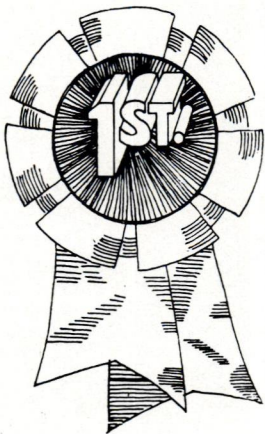
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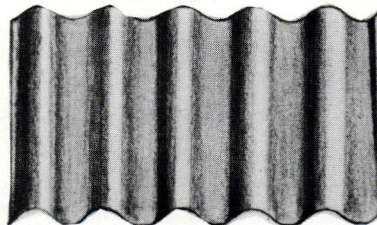


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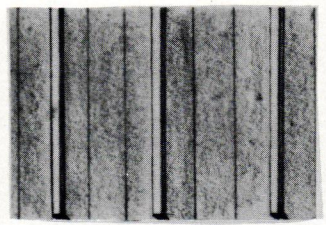
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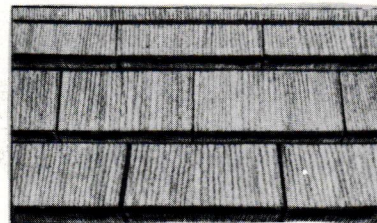
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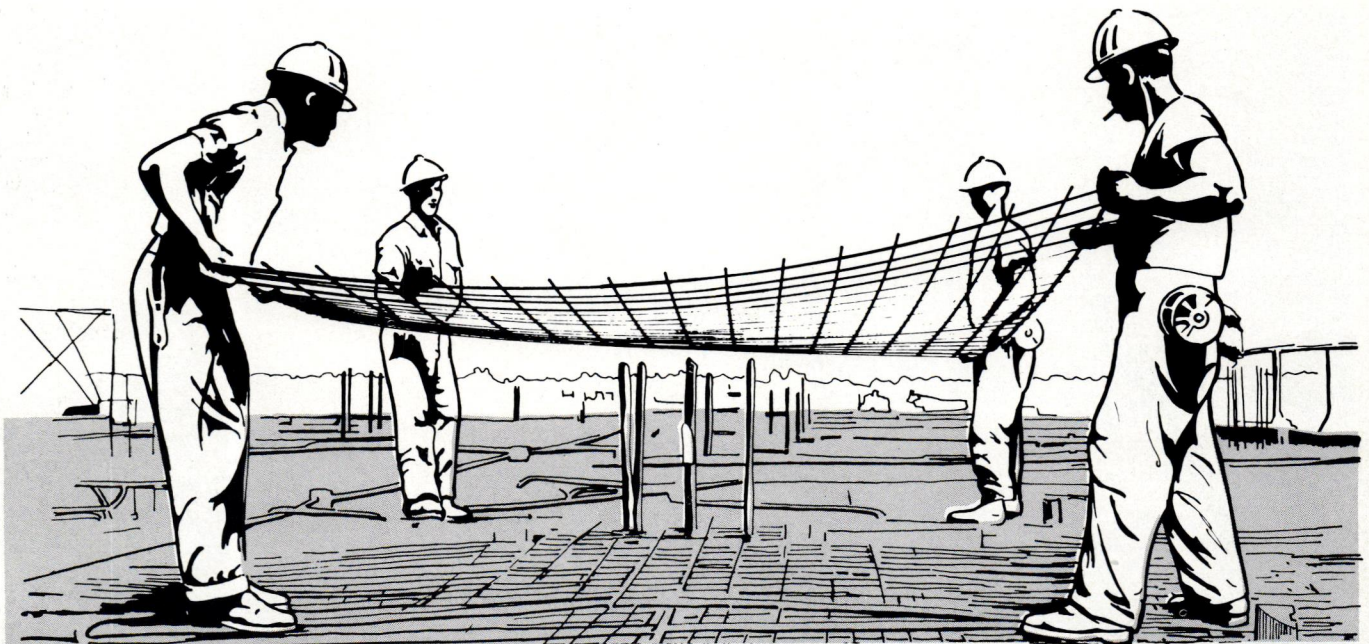
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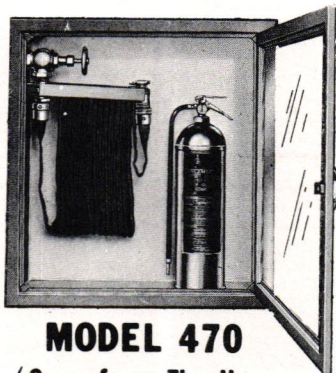
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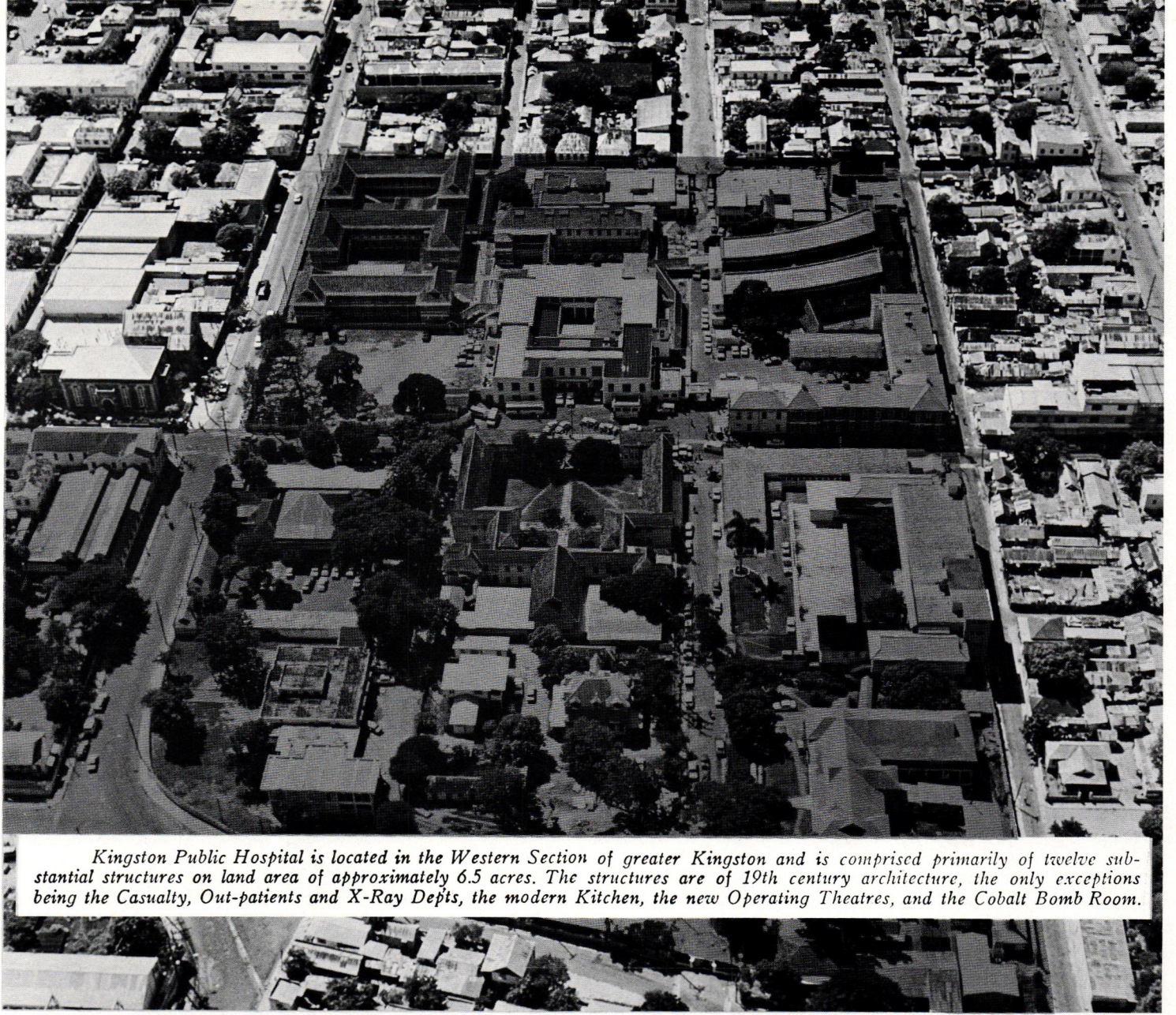


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*Tyndale Biscoe photo*

*Looking at the location of KINGSTON PUBLIC HOSPITAL as a regional hospital in relation to the expansion that has taken place in the Kingston Urban Complex during the last ten years and the continued massive expansion predicted for the next thirty years, the question arises; where, how and when should medical facilities be arranged to care for this increasing population?*

*The JAMAICA ARCHITECT invited DR. SAM STREET, CHIEF MEDICAL OFFICER, MINISTRY OF HEALTH; MR. DUDLEY McLAREN, GOVERNMENT TOWN PLANNER, MINISTRY OF FINANCE AND PLANNING; MR. MOSTYN CAMPBELL, CHIEF ARCHITECT, MINISTRY OF COMMUNICATIONS AND WORKS AND MR. BROOKE RILEY, TOWN PLANNER, SHANKLAND COX LTD. (Kingston Waterfront Redevelopment Scheme), to hold a discussion on this vital topic.*

*This lively and informative conversation emphasized the inter-relationship and interdependence between health facilities all over the island and the importance of planning for them in that context.*

*With this larger picture in mind, the Jamaica Architect has one regret. Due to a lack of space we have had to limit what we have printed to those aspects of the discussion dealing directly with KPH and the Kingston Urban Complex.*

# KPH and the Expanding City



**D. McLaren:** "I am referring to the map showing the location of the existing hospitals in the Corporate area. This is the University Hospital, St. Josephs, Kingston Public Hospital, Nuttall, Children's Hospital, Medical Associates, King George V., Andrews Memorial and the small hospital down on Maxfield Ave. These appear to be largely on the Eastern half of the city, but what is most significant is that they are located almost entirely within that portion of the city that existed twenty years ago. All of the area from Red Hills Road going west which you might describe as roughly half the existing city development since then, has nothing in the form of health services except probably Health Centres.

The city is moving westward. If you look at the location of KPH in relation to this and even more so to what we expect the Kingston urban complex to be in the next five or ten years, you will find that this area where hospitals exist is way off to the east. This was when the population of Kingston was half of what it is today.

We anticipate in the next twenty four years about one and a half million in population in this capitol city. The question will then arise — with this expanding volume of people, in this expanding city, are these hospital locations going to be enough? Clearly not! There will be far more patients and we will need far more doctors and nurses. In view of this, should the opportunity be taken, if the opportunity does exist at all, to create a new hospital the size of this hospital environment (KPH)? If we do that, what is the kind of 'leading' hospital that you are going to want? With all this complex we must have one that has more than the others. Should that one be located here (KPH) or should it be located in another place?"

**Dr. Street:** "The question starts out on a supposition which need not necessarily hold, that is, that one hospital must be larger than the other. Let us make one observation, then you will see what I mean.

For the whole of Jamaica we do not need more than one cobalt unit. For the whole British Caribbean at the moment one cobalt centre is operating. This is the one in Jamaica at KPH. This is a very expensive commodity. We built a cobalt unit at KPH which should serve the Island for the foreseeable future.

Now the proposition for Kingston, of having another very heavy investment in a hospital bigger and better than the

KPH or bigger and better than the University Hospital, would represent an investment of roughly 40 million dollars. As against this, another proposition would be to have another regional hospital which would have certain of the new specialties and of these I am thinking of Cardiac; Ear, Nose and Throat, which are very badly housed at KPH; Urology, which does not have any place at all and also Neuro-Surgery. All these are very badly dealt with in the Kingston Public Hospital because of physical arrangements. I would say instead of establishing a hospital to compete with the KPH and the University, a similar size hospital in the new area, with the proper development of those four specialties, would be better. Because of the heavy investment in cobalt treatment at the KPH, the heavy investment we are going to make now in an emergency accident block, the heavy investment in the Jubilee complex which requires a general hospital and because of the general expansion of the Jubilee and the teaching complex which is going to be there in the next two years, I would envisage that as a major regional hospital we would be splintering our services if we carried another major basic service into another one to compete with KPH. We have been faced with this, that we have ninety-five health centres around the island, we have three which are not occupied now because we can't find the staff. If we can't find the staff at that sort of level which is the basic level, it is even more difficult to staff two big major hospitals with all the unit and manpower facilities that they would need. We can move the manpower that we have in the KPH complex for those four specialties out to a new one right now and provide just the basic secondary facilities for general surgery and general medicine there to cope with the five or six new towns which have developed between Red Hills Bridge and the roundabout on Washington Boulevard. These areas need some basic medical and surgical services, with their expanding populations.

**D. McLaren:** "I don't know what the requirements are for additional medical service, what institutions you will put up, how big they will be, and exactly what you will provide, but I assume that if you have the space you will want to put in a large number of beds, large enough to suit the population demand in that area. I assume also that if you are having a specialist hospital you will want it to be accessible from all the secondary hospitals in the area. If we have an expansion of the metropolitan

area into Portmore, into Hellshire and into Spanish Town as is clearly envisaged (probably another half million people in the next thirty to forty years) many other hospitals will have to be established in those areas to service them in just exactly the same way that Nuttall and St. Josephs and all the others service this part of the city.

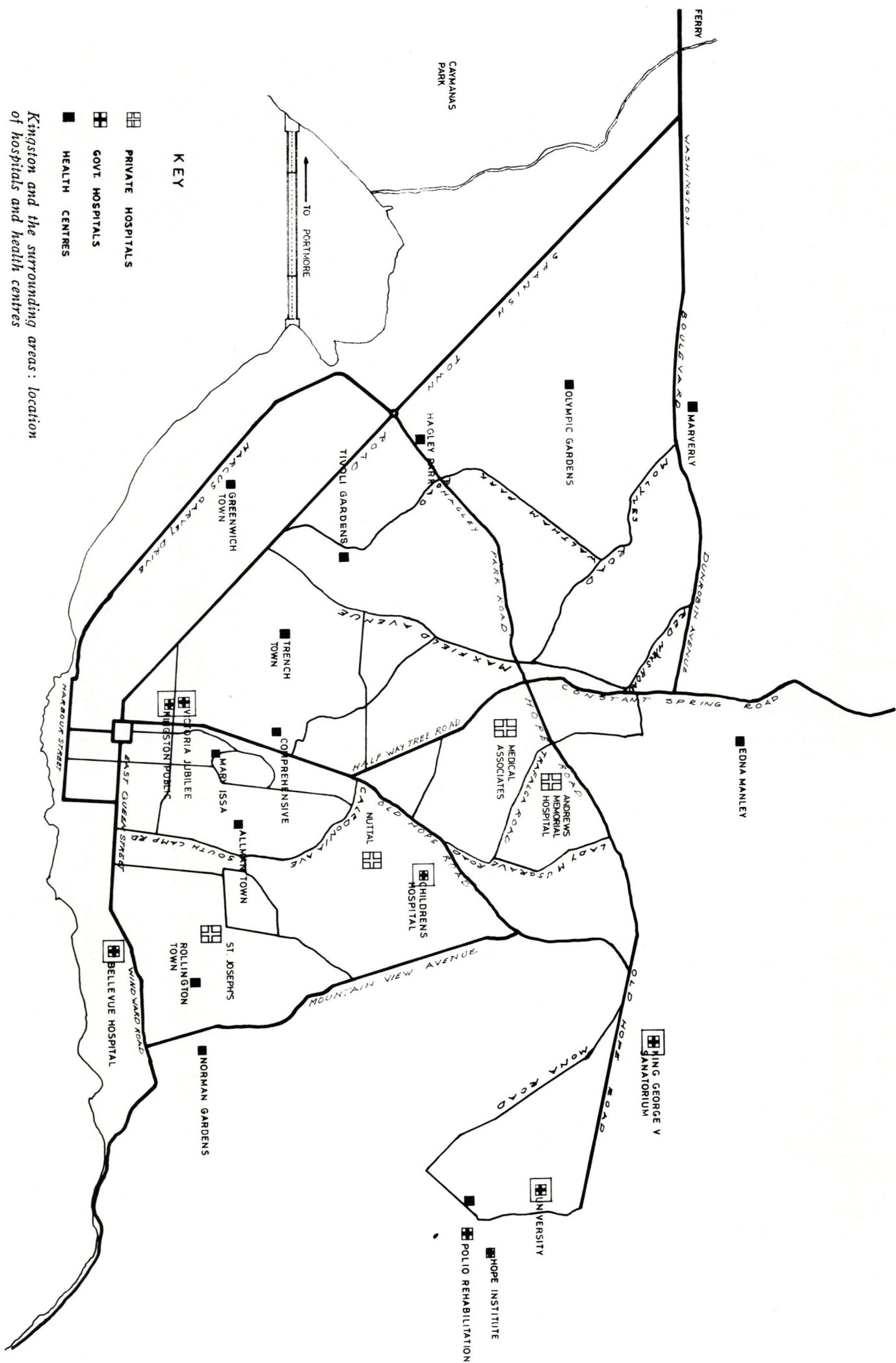
Where then is the best location for your super hospital to be? In a position where it is accessible from those as well, or at the far end of the city where you will have to cross the entire city network to reach it?"

**Dr. Street:** "There is a conflict which I have to face in the use of the word 'super' hospital. In the medical parlance, so to speak, we have tended to use the regional hospital as what you call a 'super' hospital. This is what is creating a slight conflict in my mind. The use of the word 'super' is not one that is within my frame of thinking. I can function in the concept of the regional hospital but I find it difficult to function in the concept of the use of the word 'super' hospital."

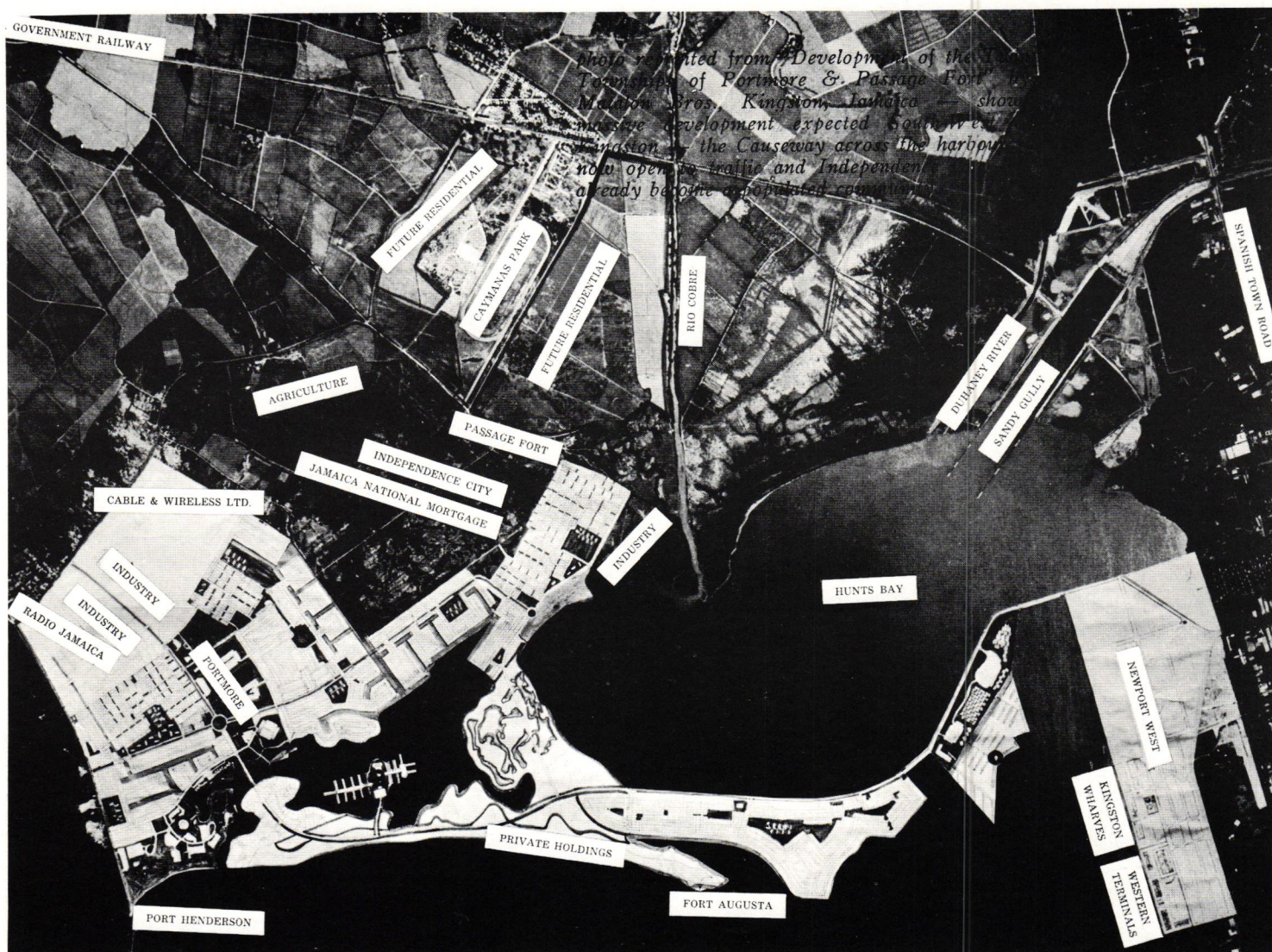
**B. Riley:** "Could your regional hospital in fact be several hospitals?"

**Dr. Street:** "Let me answer that this way. We expected to have three regional hospitals (it is now four) — Montego Bay, Kingston, May Pen and one on the North Coast, St. Ann's Bay, which I have looked at as the site for the other regional hospital, which would be fed from secondary hospitals and clinics. We envisage a regional hospital as being fed by a particular catchment area and providing a comprehensive range of services. However I introduce a modification of that concept in that when you have, in close proximity, two regional hospitals, which in the context of our Jamaican mileage, would be reasonably close, and since we don't expect more than one neurological centre for a population of one to two million, we don't expect more than one cardiac thoracic centre for more than one to two million. You can have one centre for up to two million people dealing with cardiac surgery, thoracic surgery and regional surgery. We don't need to have two hospitals for the island doing that until a population of three million is reached. A hospital of this kind is adequate. I have modified the concept of two regional hospitals, which are so close together, by separating specialized areas, but let me pursue the question of the expansion to the west and the implications in so far as the 'classic' description of a hospital service for Jamaica is concerned.









We now come up against a conflict with regard to siting. Since when you reach Ferry you have gone nearly half the distance to Spanish Town, the possibility of upgrading Spanish Town Hospital has to be borne in mind with reference to the proximity of the Hellshire Hills, Caymanas, and Portmore. Although this concept has been making its voice heard, I am now making a statement rather than supporting it with very valid arguments. In the context of present sophisticated needs for certain specialties, I think it would be preferable to start off with a brand new complex at the western end of the city rather than attempt now to carry these to Spanish Town to serve the whole corporate area. I would rather think of Kingston expanding to Spanish Town and this would now become greater Kingston. This would be the focal point for the next twenty years of the "regional centre". You can call it a "super" hospital if you want. This would become the base for a super hospital — it would remain a regional hospital for twenty years and then become a 'super' hospital for the next thirty years. You would have to set aside land — instead of

providing ten acres, you would have to think in terms of earmarking twenty acres for this."

**D. McLaren:** "At this point we are in agreement, I am sure, because I visualize this hospital, be it 'regional' or 'super', in a location where it would be accessible to all other subsidiary hospitals, to be fed by them from North, South, East and West if necessary."

**Dr. Street:** "This is a vital point. As a concept, I would not think of a 'super' hospital at this stage because I think the expenditure on a large complex would be economically unsound. I place the Morant Bay Hospital as having to operate at about thirty percent of its capacity for the next ten to fifteen years."

**D. McLaren:** "You could put down the total unit right now; put in the plant and leave it unoccupied until the people come. What I mean is that we need to devise, on a long range plan, a system of locations to determine whether your future major hospital should be here or there, or somewhere in Portmore or

Spanish Town. As you expand you will find at first a moderate need, then a greater need, then the maximum need at each location. When the population of Portmore has arrived there, will they go to Spanish Town or do you take your patients back to Kingston or up here? I presume that some sort of medical care will have to be planned for that population."

**B. Riley:** "When you said 'here' did you mean Ferry?"

**D. McLaren:** "Well that general location, Ferry, Riverton City or Caymanas."

**Dr. Street:** "In the midst of all this, I would like to go back to define some first principles again. The 'classical' concept is to divide the clinics and dispensaries, the secondary or feeder hospitals and the regional hospital. That is 'classic.' Now on top of that has come the concept of the comprehensive clinic. Once more, I am making a statement rather than opening something for discussion. I envisage a modern comprehensive clinic in the Portmore area such as the clinic we now have functioning



on Slipe Pen Road. A thousand patients a day pass through that place with the poorest and the most minimum facilities. I do not feel that Portmore requires a major hospital. I really don't envisage that Spanish Town Hospital or this other hospital which would be located somewhere in the Ferry-Riverton City area, could not cope with their needs for the next fifty years."

**D. McLaren:** "This is an important point. You will agree that the population of Portmore is expected to exceed fifty thousand within fifteen years or so. This is a very modest estimate, I have heard many, and they are all more extravagant than this. This is twice Spanish Town's population at the moment. By then Spanish Town too, will have grown and whether you can upgrade Spanish Town Hospital sufficiently to cope with all that or whether you wish to upgrade it sufficiently because there will still be a distance of about seven miles from the clinic, is the question."

**B. Riley:** "That's another point of considerable importance, the distance and

its relationship to the expected expansion. The next half million population in the Kingston area is not going to be one large conglomerate mass. It is going to be a series of expansions about the size of Portmore, fifty six thousand at a time, spreading through the Hellshire Hills into the bogs. This may present you with complications. In fact, I think if you look at the map you will see that the development will move away from Spanish Town."

**Dr. Street:** "Yes, I defined it badly, it is eccentrically placed. I would more envisage a secondary feeder hospital being placed down here (Portmore) twenty years from now rather than a 'super' hospital because there is a particular kind of virtue in concentrating sophisticated specialities within easy reach of one another. The site that we have been debating, somewhere around Riverton City or Ferry or the edge of Caymanas, is more within a context of an hour's run. Twenty years from now, the triangular arrangement of KPH, University and, say Ferry, would represent

in itself a new complex for revolution of thoughts. That would be preferable to having an eccentric development out here (Portmore). I would more envisage a comprehensive health centre to begin with, developing into a small cottage hospital which would eventually develop into a secondary hospital. This would not be the site for what you would call your 'super' hospital of thirty years time, but which I would name as one of three regional hospitals, because we call KPH and University regional hospitals, that will serve the Kingston Urban Complex of the future."

**D. McLaren:** "Coming to the point of your site for this new regional hospital, if one envisages the development in Portmore, Hellshire and also in Spanish Town it creates another triangle by a location within the vicinity of Riverton City, Ferry, Caymanas area. We would have one health centre growing into a hospital in that location (Portmore) which would be at the apex of a cross. In the next 30 years we will have a volume of population around eastern Spanish Town, and west, southwest of Kingston. A location somewhere at Ferry would be right in the middle of a cross which would enable access to be gained in the quickest time from any direction whether it is from the Constant Spring, Stony Hill end, downtown end, Spanish Town end or Hellshire. You will have to accept the premise that this will grow into a hospital at that stage and therefore you would build, at the beginning, the foundation . . . . ."

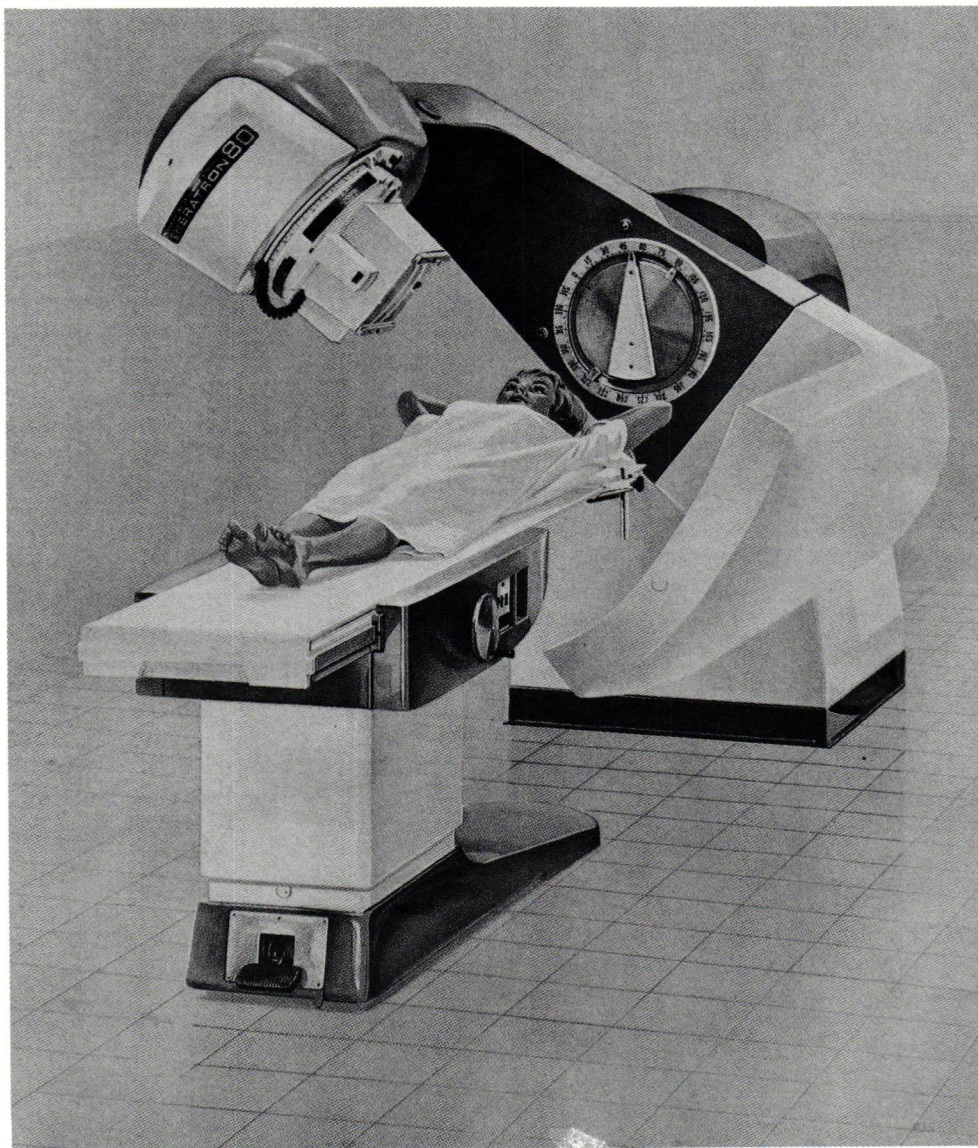
**Dr. Street:** "You have taken my argument a little bit out of context at the moment. I don't expect that if we were to build at this time we would start off with a comprehensive health centre at Ferry. We would start off with the building of a regional hospital. This (Portmore) would be the site for the building of a comprehensive health centre, which will grow into a cottage hospital and finally develop into a secondary hospital."

**D. McLaren:** "Well, we are not disagreeing by any means."

**Dr. Street:** "Actually, by process of discussion we have arrived at your point of this being the eventual location of your 'super' hospital thirty years from now."

**M. Campbell:** "The question I would like to bring back Mr. Chairman, is whether in fact KPH, as a site for a hospital — a major hospital, a regional hospital, would remain as such. Is there a chance of KPH being removed? Would we still retain KPH?"

*Cobalt Unit similar to that which is used at K.P.H.*





**Dr. Street:** "I came prepared to answer this question and my answer is entirely dependent upon your answering one for me. What do you plan to do with Rose Lane, Upper Luke Lane and Upper West Street? At this present point, because it represents such a heavy investment, which includes a cobalt unit, expensive operating theatres and Jubilee Hospital, which is one of the biggest complexes in the Commonwealth at the moment, I do not foresee, within the next 50 years, KPH being removed from its present site."

**B. Riley:** "This is a chicken and egg proposition, one can't decide that finally until one knows the ultimate future of KPH. I wonder if we could, for a brief moment, discount the question of the cost of the exercise and see whether in fact KPH is desirably located from all of the points of view, that is for: patients, staff, visitors and all that hinges on accessibility such as ambulances, bus services, general traffic and parking. If all these things add up to being desirable, that's it. If on the other hand every single one proves inadequate, we must re-examine the question of cost and ask, "Are we doing the right thing by continuing to develop it?"

**Dr. Street:** "Let me answer that one this way. It takes me forty-five minutes to get from Havendale to my office on Slipe Pen Road. This is just above KPH. In that context it would take people from that area a similar amount of time to reach any complex that you might develop anywhere else to replace what they now have. If you examine the addresses of the people who come into KPH you will see that it is providing a vital service for people who are within a stone's throw, in a very densely populated area which in my opinion will become even more dense. I am only seeing it from my vague concept of high rise buildings or building complexes eventually surrounding it. This is why I asked, "What will be done with Rose Lane, Oxford Street and Luke Lane?" With an increase in density anticipated, I would say that we should not envisage the removal of KPH from its present site."

**D. McLaren:** "I would consider that there will always be a need for a hospital at KPH's present location. Now, how intensive we make this, and whether you make this the greatest one is the question that I am debating. Should we pump in more finances into KPH to further expand services which are now adequately provided for or should we begin at an early date to lay the founda-

tion for another hospital which will eventually. . . ."

**Dr. Street:** Ah, that is the key! This is a crucial point! In the beginning we started off using the word re-site. Now Mr. McLaren has used a word and because words produce images and the images that you create eventually influence the decisions that you have to make, it is vitally important to define it clearly. Let us face it, he said, "Pump into KPH to add to what is there." That is not the key problem that we have to face. If we begin and end on the word "pump", then we may do nothing at all to that complex. This is what happened with regard to remodelling."

**D. McLaren:** "But I would term remodelling with maintenance."

**M. Campbell:** "No, it is a conceptual bit of work here involving much more than remodelling and maintenance."

**Dr. Street:** "Yes, it involves 'expand, remodel and maintain.'"

**M. Campbell:** "Unless we have definitions of those terms we can't move any further."

**Dr. Street:** "This is how a report in 1960 wrecked health care in Kingston for ten years, on this same definition — the correct definition of these words 'remodel and upgrade, extend and maintain'. That is the crux of the matter."

**B. Riley:** "I do feel that Mr. McLaren is not contradicting anything that you have said, but there are alternatives."

**D. McLaren:** "What I want to say is that what you have certainly needs maintaining and upgrading as is necessary to keep it at the highest standard of efficiency and performance. But, for example, if a new treatment is devised and new equipment has to be provided for a population that is growing on another side of the town, would you begin to provide these facilities on another site or would you wish to bring them into KPH because the foundation already exists at KPH? Do you wish to expand the walls of KPH, and enlarge the foundation in spite of the inadequacies surrounding it?"

**Dr. Street:** "With due regard to the limitations of the surroundings rather than the inadequacies we can show you land that is available which would do away with the question of inadequacy at the moment. As far as we are concerned, with reference to the service loan, the prime focal point of attack is KPH itself, to remodel and upgrade the

services that are delivered there within the available space at its disposal. This is the prime necessity as we see it."

**M. Campbell:** "You mentioned the accessibility of the plant. If this is, as it ought to be, a high priority, in our planning we should endeavour to have our road pattern and related aspects accommodate this existing complex. This is primarily a policy decision but somewhere along the line this has to be taken, and quickly because I can tell you from experience, it is an extremely expensive medical plant and I don't see, in practical terms, Government even thinking of disposing of it — even on a long term basis."

**B. Riley:** "But do you add to it. This is the crux of the matter."

**M. Campbell:** "As a land use project, this is underdeveloped, so one could conceive of KPH being re-built on a better density as far as the land use is concerned."

**Dr. Street:** "This is a brilliant statement — the land use is underdeveloped!"

**M. Campbell:** "In other words, if a commercial venture had it they would make full use of it. It's full potential hasn't been touched at all, so we can start from there."

**D. McLaren:** "I don't believe that anyone so far has suggested demolishing or removing the facilities that we now have. What I was really talking about is having to further specialize the facilities instead of creating the foundation for another complex which may be at a more favourable location. This new complex could grow to the size of KPH and even surpass the existing size. This is the point I am getting at."

**M. Campbell:** "You cannot examine this without looking at the medical care problem that Dr. Street has mentioned. He mentioned, for instance, good comprehensive clinics."

**D. McLaren:** "It is certainly a large institution to service just the population around it with no catchment area."

**B. Riley:** "Is there in fact such a thing as general hospitalization as opposed to specialized hospitalization which we could proceed to separate?"

**Dr. Street:** "Yes, but we do not think that specialized hospitals are economically sound because all the facilities of a hospital, whether it is specialized or not, will have to be duplicated in the new one and there would be a limita-



tion of its potential. Most of the thinking now on hospital building is that these specialized hospitals are a waste of money."

**B. Riley:** "So in fact KPH will have to go on serving the immediate locality and also performing its regional function."

**Dr. Street:** "May I make a point based exactly on what you said? We have always felt that the land space on that site is under-utilized, and underdeveloped. On one area which is the medical axis, or the hub, they won't allow anybody to build. When that goes you could put up a large high-rise building. What we are now considering is like supporting a baby of three years old at the expense of your young man at University level. Should you keep everything for the baby, or should you help the young man to obtain a university education so that he can help to support the baby when the time comes. This is the key to what I am saying. We will not be able to meet the needs of specialization in Jamaica for the next fifty years unless KPH is used now, in this immediate present, to its fullest potential in training people. As you probably know from economic studies, within another five years we will have to import ten thousand people. That will be ten thousand specialists. Unless you support KPH now, you will not have trained in Jamaica, the people to fill the specialities for the other places we are going to build."

**D. McLaren:** "We are not talking about K.P.H. as an institution but as a location downtown which at the same time occupies a place within the hierarchy of health care facilities. At that location, in order to maximize its usefulness we would have to do a great deal. We would have to spend a lot of money. We would have to do a great deal of building. When you have done all of these things you will have put on that spot on North Street even a greater investment. KPH would then be the hospital catering to the nation — providing the most up-to-date facilities, the most efficient services, the only services of certain kinds to the whole nation. You would be putting all of this on that spot on North Street which in my opinion has great limitations."

**M. Campbell:** "Apart from location, I want to stress the point that if health represents a high priority on the country's list of priorities then perhaps you could have the access geared to this unit, and others as well."

**D. McLaren:** "But this is the core of the question! How are you going to arrange

that to North Street now? It is an area which you cannot get through to now under forty-five minutes from most parts of the corporate area. By contrast from certain areas of Spanish Town Road, if a man does need to communicate with you, he does not take forty minutes from the other end of Spanish Town Road at all."

**Dr. Street:** "We agree with prime facilities at that point!"

**D. McLaren:** "The more congestion you create in that area, the more difficult it is going to be. I don't see the possibility of clearing off the traffic on the street and making that area any more accessible — in spite of our road maximization, in spite of our one way systems and planned parking."

**M. Campbell:** "The record of major medical plants in nearly all the great cities of the world are, unfortunately or not, usually in this situation and countries much richer than ourselves have found it not possible to move these plants."

**D. McLaren:** "In every one of these places there is urban renewal. In Jamaica we have certain facilities and good fortune which many people much richer than ourselves don't have. It is not just a matter of wealth. How many people are able to create a new urban complex equivalent in size to the existing one, across three miles of water, on virgin soil? They are all building towns probably twelve to fifteen miles away because these are available locations. It is just an accident of fate that there is a piece of land just across the water which is being developed for the first time. We are therefore able to plan a number of things which many of the richer cities of the world are unable to do. We know that in Austria, in Paris, in Washington and in a number of major cities their hospitals grew from a postage stamp size and expanded to very expensive plants in congested areas. We have an expensive plant in Kingston which is KPH, but the population is shifting, the centre of gravity of the metropolitan area is also shifting westward. Something will have to be created over there to service those people. What form that will take? Are we going to let KPH remain as it is, maintain it and adapt it as necessary, but provide a completely new facility over there in the Ferry, Caymanas, Riverton City area, which will be able to cope with the anticipated growth of over a million in the metropolitan area in the next two decades?"

**Dr. Street:** "I would like to answer you.

Looking at the histories of other cities, in the centres of those cities, centres of learning developed. You are now looking at a living city, Kingston, with a population that is moving and I am looking at the living development of medical care in the city. Teaching at this stage is of paramount importance if we are going to meet the staffing needs for new medical complexes at the western end of the city. If we were to agree to build a new complex at the expense of KPH, it would be at least thirteen years before any training takes place."

**D. McLaren:** "We are talking about "not at the expense of" but "in addition to."

**Dr. Street:** "Fair enough!"

**D. McLaren:** "I see all of this in addition to KPH, but I also see the possibility of any increased standard of excellence being provided at a new and more accessible location. I am not by any means suggesting that KPH be abolished or even replaced."

**Dr. Street:** "I think that each situation has its own special requirements. You can afford to plan one way for expanding new cities, but you have already got something going in the centre of every city which is quite different from a suburban development."

**D. McLaren:** "I would question how important environment is to better care and what kind of environment is desirable for satisfactory health care. Is it one that is situated in a crowded, sort of industrial area or is it one that is in a residential type environment with much fresh air, sunlight and ventilation available."

**Dr. Street:** "You have moved on to the concept of progressive patient care. A sick patient, lying in bed has a range of vision of only about five feet. I am talking about the critically ill patient. There is a need for convalescent homes, you can remove patients from the hospital to your green pastures where they can sit or walk on the verandah and look around, but, believe me, for that ten to fourteen days that a patient may be in a hospital, for the first seven days he does not look beyond five feet and the visit of the nurse. This holds true for the majority of patients who require critical hospital care, which is what KPH is giving right now."

**D. McLaren:** "Then for all practical purposes this could be done in a bomb shelter."

**Dr. Street:** "Yes, for all practical purposes."



**B. Riley:** "May I suggest that we summarize this issue. First, because of the heavy capital investment at KPH we must dismiss all thoughts of removing it. Instead, it should be remodelled, intensified, and modernized. Second, as the population expands, provision must be made for the development of additional medical facilities in the direction of the expansion."

**Dr. Street:** "Third, it is important that KPH has a priority as a teaching institution. There must be no delay in providing the facilities for teaching. It is of paramount importance for the student just out of medical school to work in this particular environment. It is the only one from which he can obtain concentrated teaching on a wide variety of cases."

**D. McLaren:** "To define the second point more clearly, is it agreed that it is

necessary, as a foundation for the larger city that is coming up, to develop a complex in another location, at least equal to KPH or possibly even a bit larger, and that that location should be one that is accessible to both east and west?"

**Dr. Street:** "Agreed!"

**D. McLaren:** "There will continue to be a large population in Kingston, whether working or residential, that will require the service of a hospital in that area. It is equally true, that as the city's population increases, there will be a need for further medical facilities. Shouldn't we then acquire land for them now, and earmark it for construction twenty to thirty years from now?"

**B. Riley:** "It is going to be important to convince the population that we need to reserve these sites."

**D. McLaren:** "It is part of my occupational hazard, with regard to public facilities such as schools and hospitals, that suggestions for reserving sites are not always generally accepted. Then when the state of overcrowding is reached, with all the attendant ills, we are suddenly faced with the problem of expansion by the same people who refused to lay aside the sites."

**B. Riley:** "The important thing is that the land space is no longer available at that late stage."

**D. McLaren:** "Exactly! Here we have the rare opportunity to plan the use of a very large area of land, before the arrival of the population. Allowances must be made now to ensure the type of facilities we will eventually need to serve the tremendously expanded metropolitan area for the next fifty years."

## KINGSTON PUBLIC HOSPITAL

*Public Institutional Medicine was established with the opening of the Kingston Public Hospital on the 14th December, 1776, when a Bill was passed in the House of Assembly for the establishment of the institution.*

*The hospital was intended for the support and maintenance of poor, sick and maimed, infirm and disabled poor of the Island. The sum of Eight Hundred Pounds (£800) was voted for the purchase, and One Thousand Pounds (£1,000) per annum for maintenance.*

*The lands and buildings purchased included a small Hospital and prison for slaves, which was converted into a female hospital. The hospital was erected primarily for the use of the white population, as slaves were treated in "hot houses" on the estates to which they belonged.*

*"The Acts to Establish a Public Hospital" (draft may be seen at the Institute of Jamaica), empowered the members of the House of Assembly for Kingston, Port Royal and St. Catherine and Church Wardens of the three parishes, as a commission to obtain a proper and convenient house for the reception of the sick, maimed, and disabled transient poor, that may from time to time be in the said Parish and to support and maintain them.*

*Clause II empowered the commission to make regulations for decent, orderly behaviour of the patients and to chastise all those disobedient to the rules by confinement, stocks, or by whipping not exceeding thirty lashes, or by shortening the diet of such persons as they deem necessary.*

*Clause III — The Church Wardens of each parish were responsible to send patients by their constable to the Church Warden from parish to parish until they were conveyed to Kingston Public Hospital, every parish paying the expense incurred until the patient was delivered to Kingston Public Hospital.*

*The Institution was apparently intended to be an almshouse as well as a hospital and later as an asylum for lunatics. In 1777 there was another Act authorising monies — Eight Hundred Pounds (£800) — to purchase the present site.*

*In 1784, there was another grant towards the Hospital of One Thousand Four Hundred and Fifty Six Pounds, Eight Shillings and Twopence (£1,456. 8. 2) for the rebuilding of this Hospital after it was destroyed by a hurricane.*

*The maintenance of this Hospital soon became a burden to the Government, and in 1788, the grant per annum was reduced to Five Hundred Pounds (£500), and a tax levied on all ships entering the harbour, to provide for its finances.*

*From its inception, the Hospital was under the care of a succession of Boards of Management, but in 1885, due largely to the efforts of Dr. Lewis Bowerbank, an Act was passed regulating the institution and placing it under new management. In 1895, the powers of the Board of Management was transferred to an Officer known as the Inspector and Director.*

*The original site shown on the plan of Kingston was on the corner of East and North Streets.*

*(This information was provided through the courtesy of the West India Reference Library)*



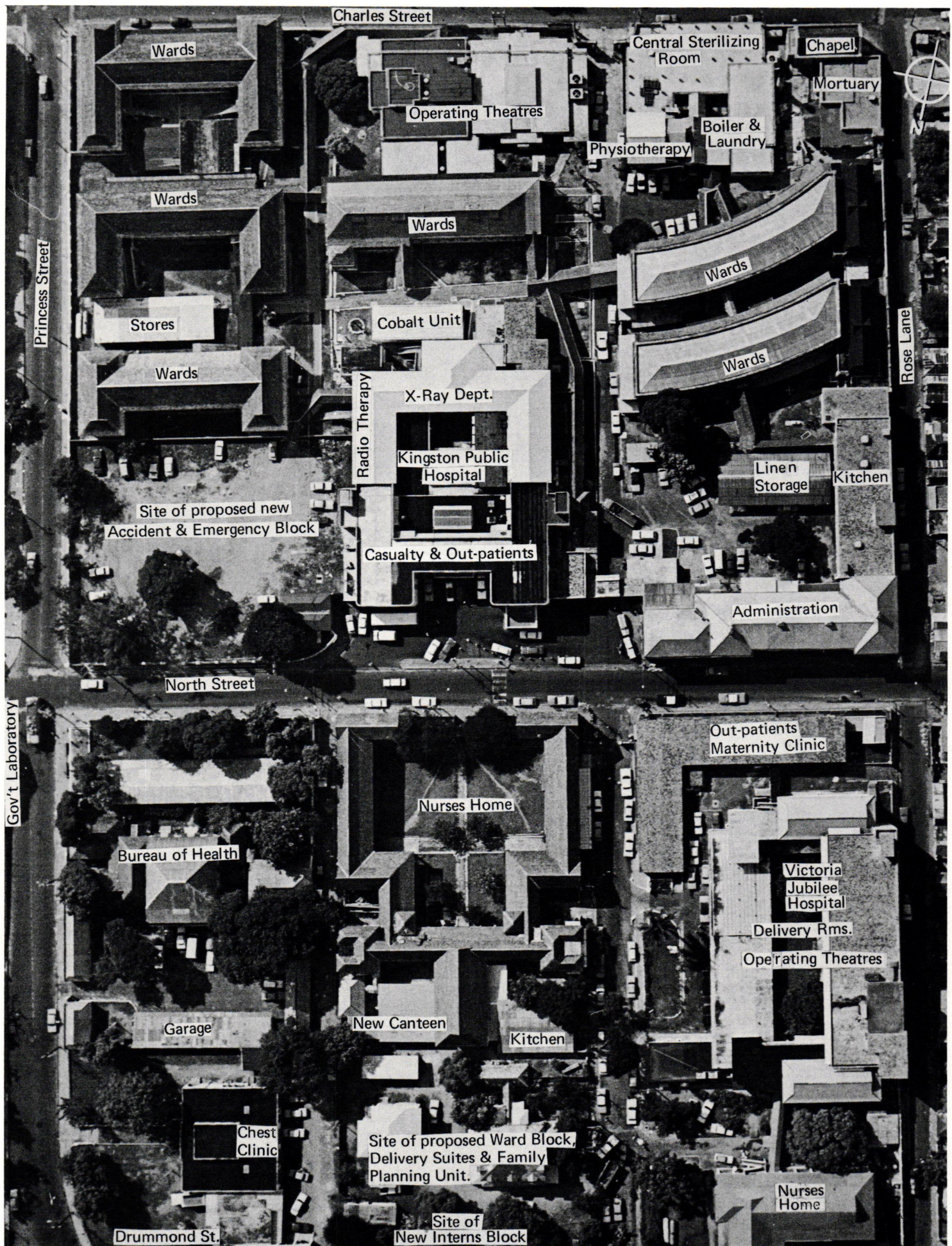


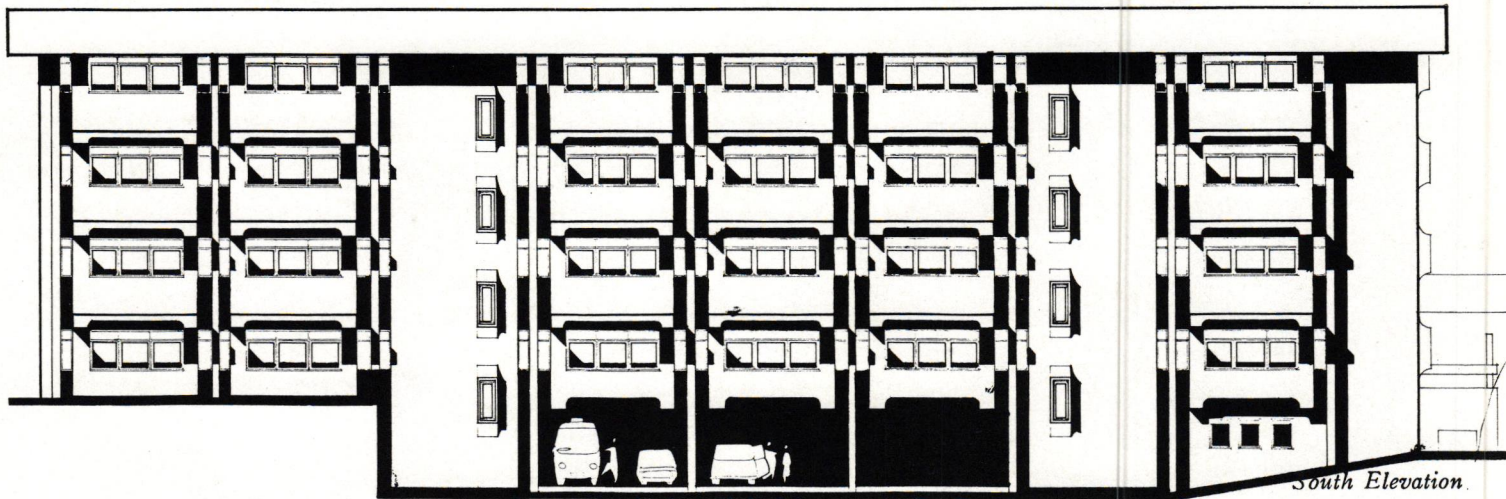
photo by J. S. Tyndale Biscoe

**KINGSTON PUBLIC HOSPITAL, Kgn.**  
 beds — 528  
 casualty admission per mth. 16,628  
 Services: Medical, Surgical, Orthopaedic  
 Facilities: Blood Bank, Clinical Lab.,  
 Pathology Lab., Electrocardiograph,  
 Electroencephalograph, Dental

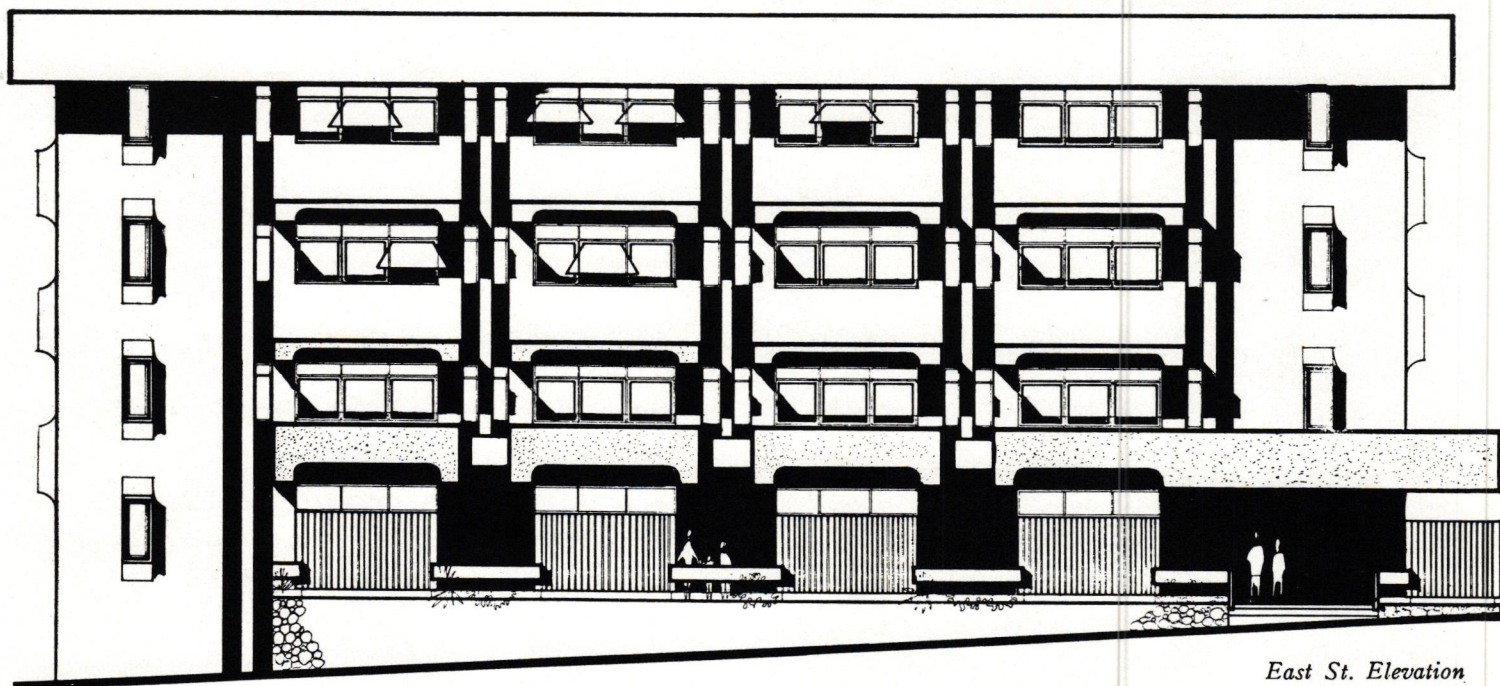
Pharmacy, Physical Therapy, Out-  
 Patient Clinic, Emergency, X-Ray  
 Diagnostic, X-Ray Therapeutic, Laundry  
 Radiotherapy

**VICTORIA JUBILEE HOSPITAL** King-  
 ston (Maternity)  
 beds — 165, bassinets 114,  
 births per yr. 13,098  
 Services: Surgical, Maternity  
 Facilities: Premature Nursery  
 Out-patient Clinic





South Elevation



East St. Elevation

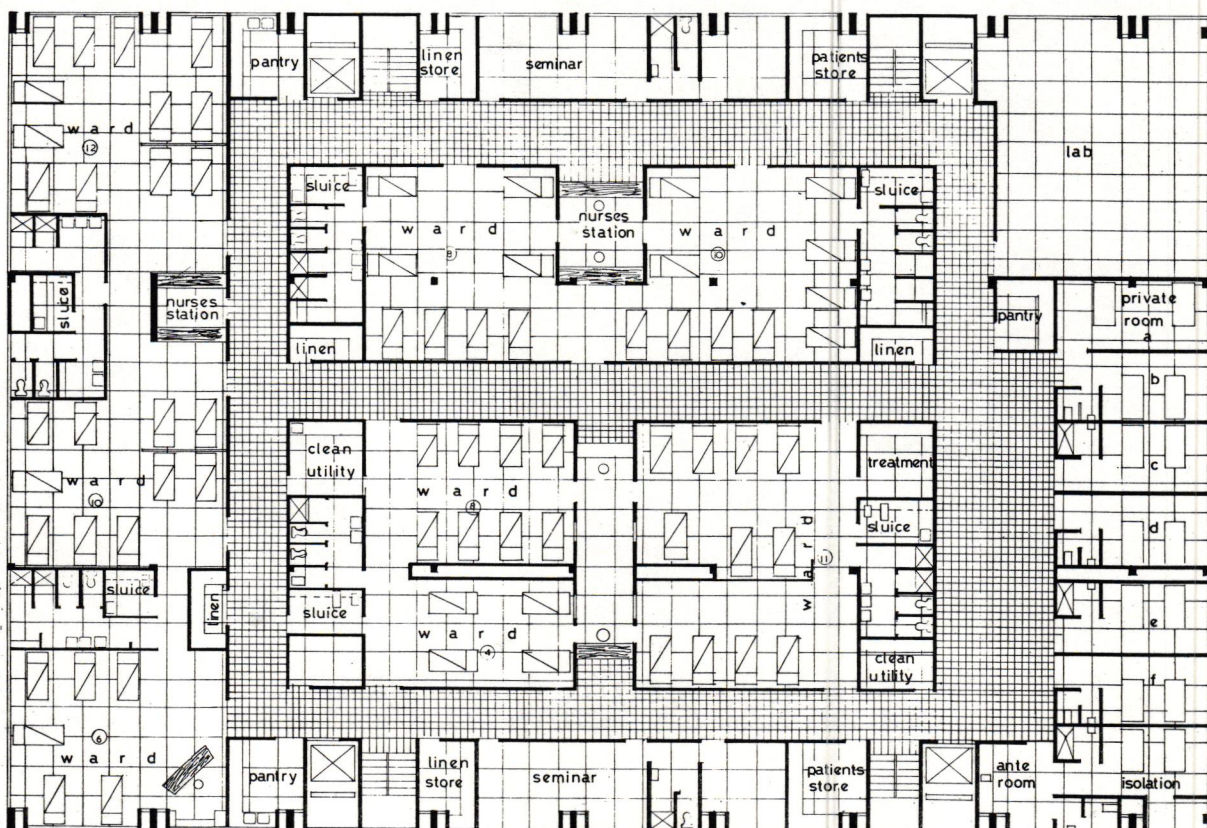
**PROPOSED NEW  
ACCIDENT & EMERGENCY DEPT. FOR  
KINGSTON PUBLIC  
HOSPITAL**

Chief Architects Branch  
Ministry of  
Communications & Works

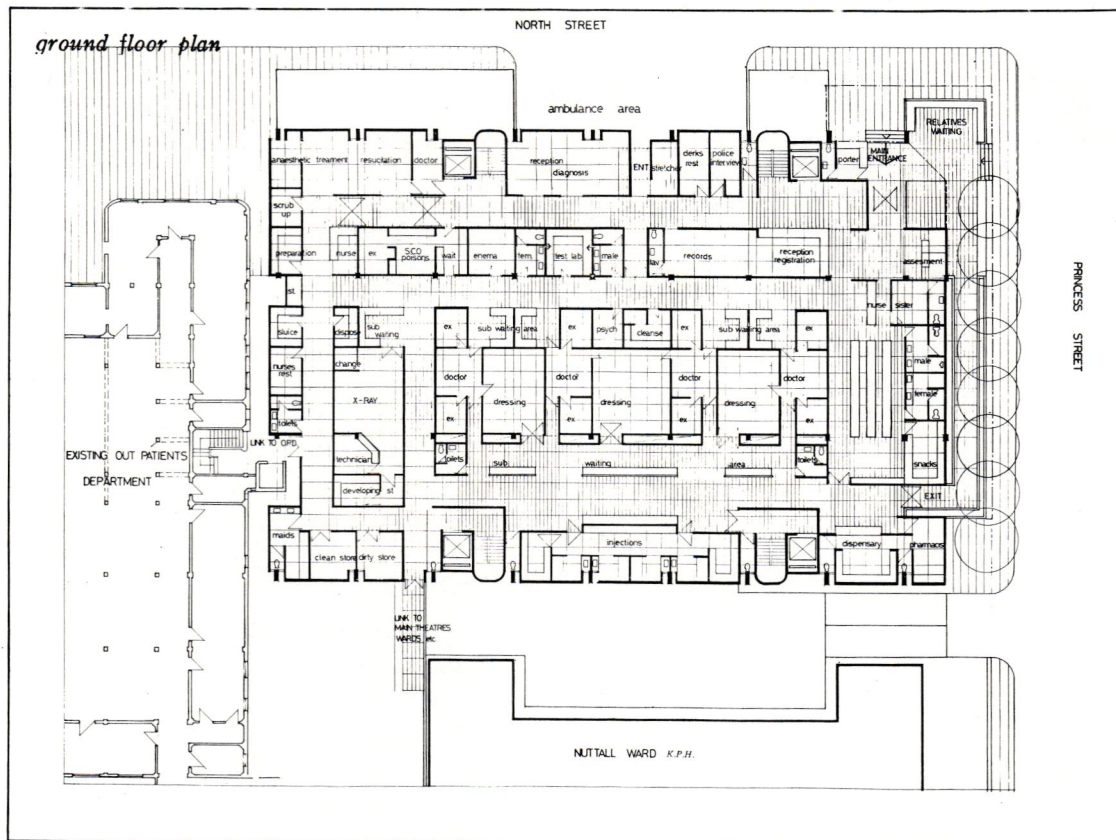
Chief Architect  
M. Campbell, F.R.S.A.,  
A.R.I.B.A.

Project Architects  
L. J. Robinson, F.R.I.B.A.  
B. G. Roberts, F.R.I.B.A.  
J. Martin, A.R.I.B.A.

third & fourth floor plan

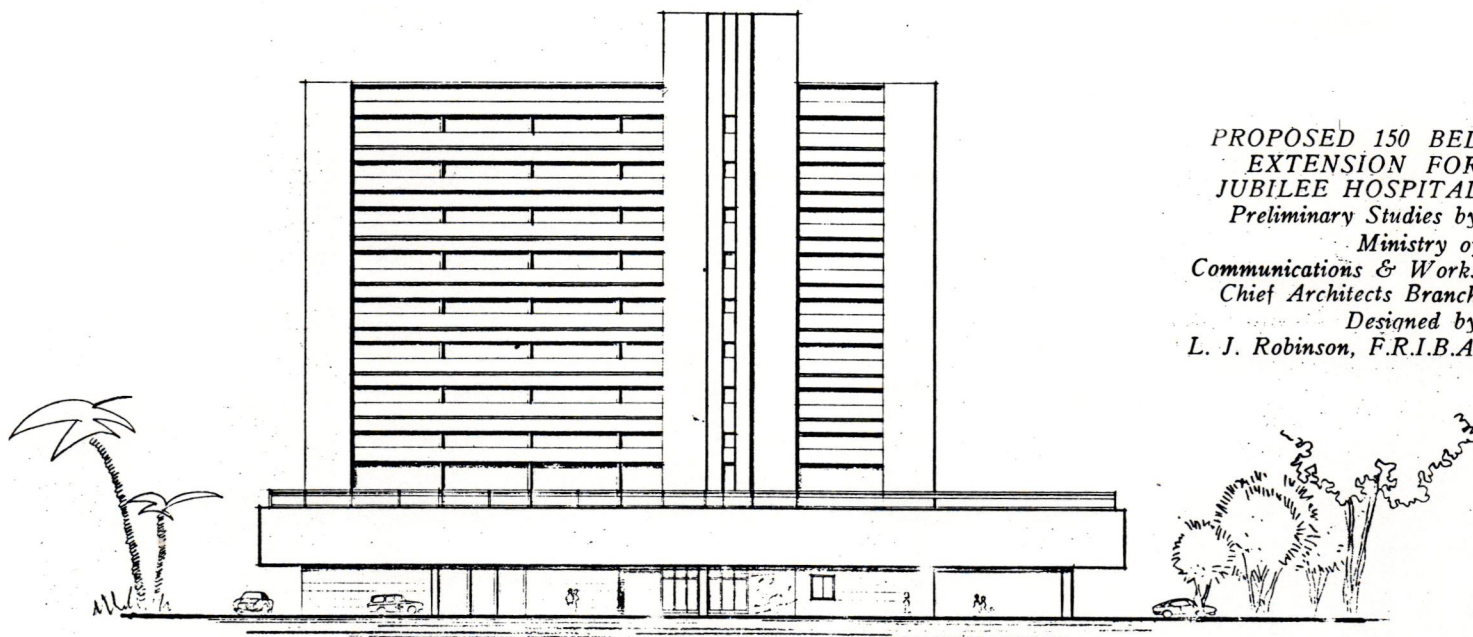




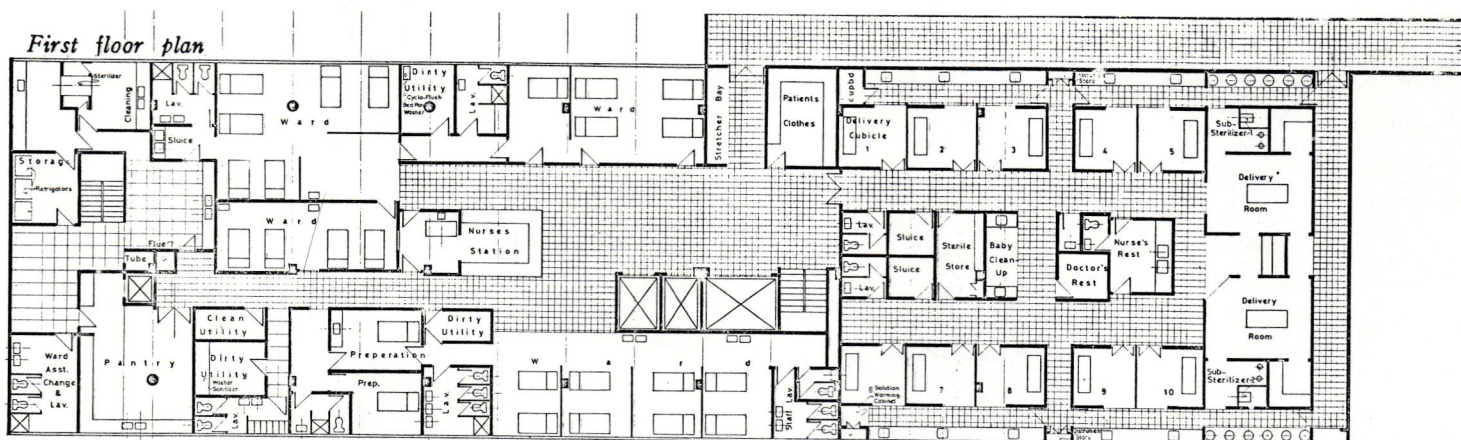


PROPOSED NEW  
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HOSPITAL

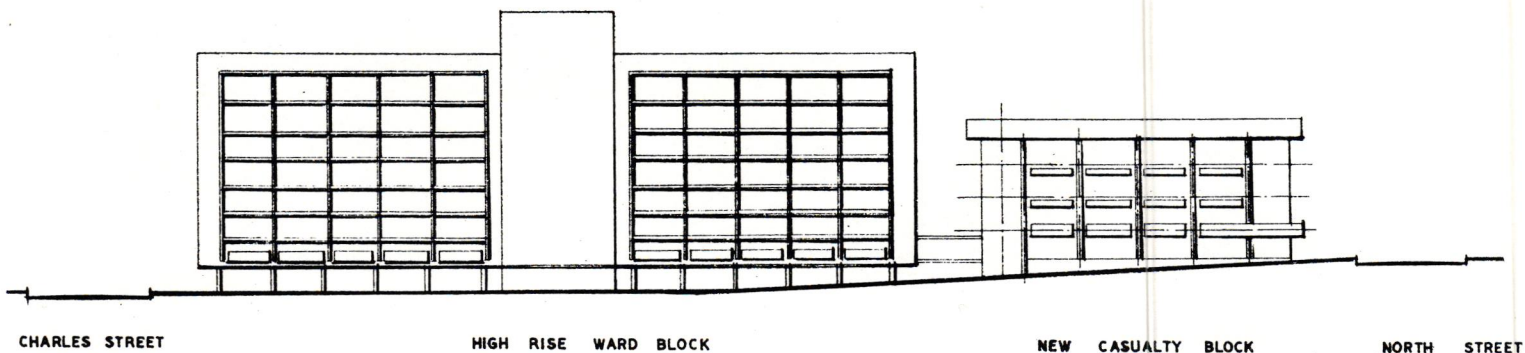
North Elevation



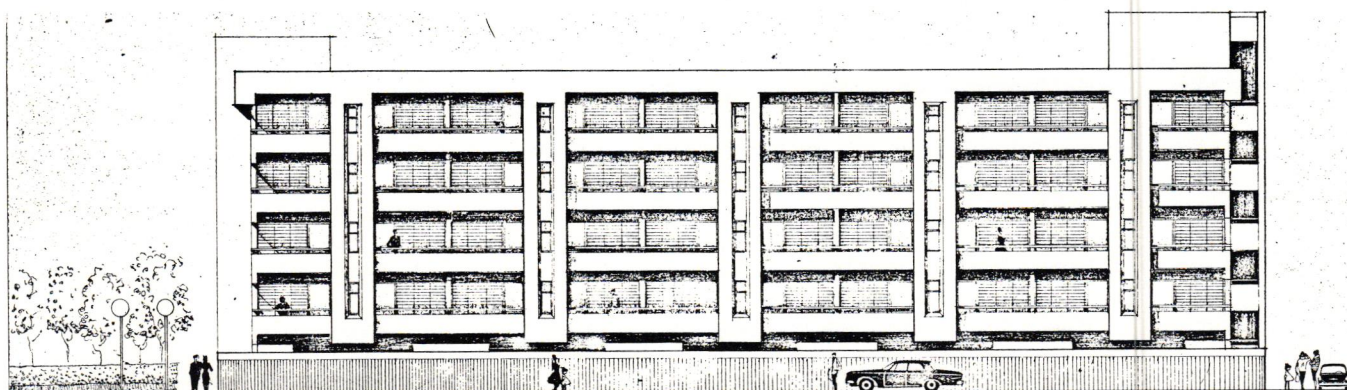
PROPOSED 150 BED  
EXTENSION FOR  
JUBILEE HOSPITAL  
Preliminary Studies by  
Ministry of  
Communications & Works  
Chief Architects Branch  
Designed by  
L. J. Robinson, F.R.I.B.A.







A CONCEPT FOR THE FUTURE K.P.H. — A SCHEMATIC VIEW LOOKING FROM PRINCESS ST.

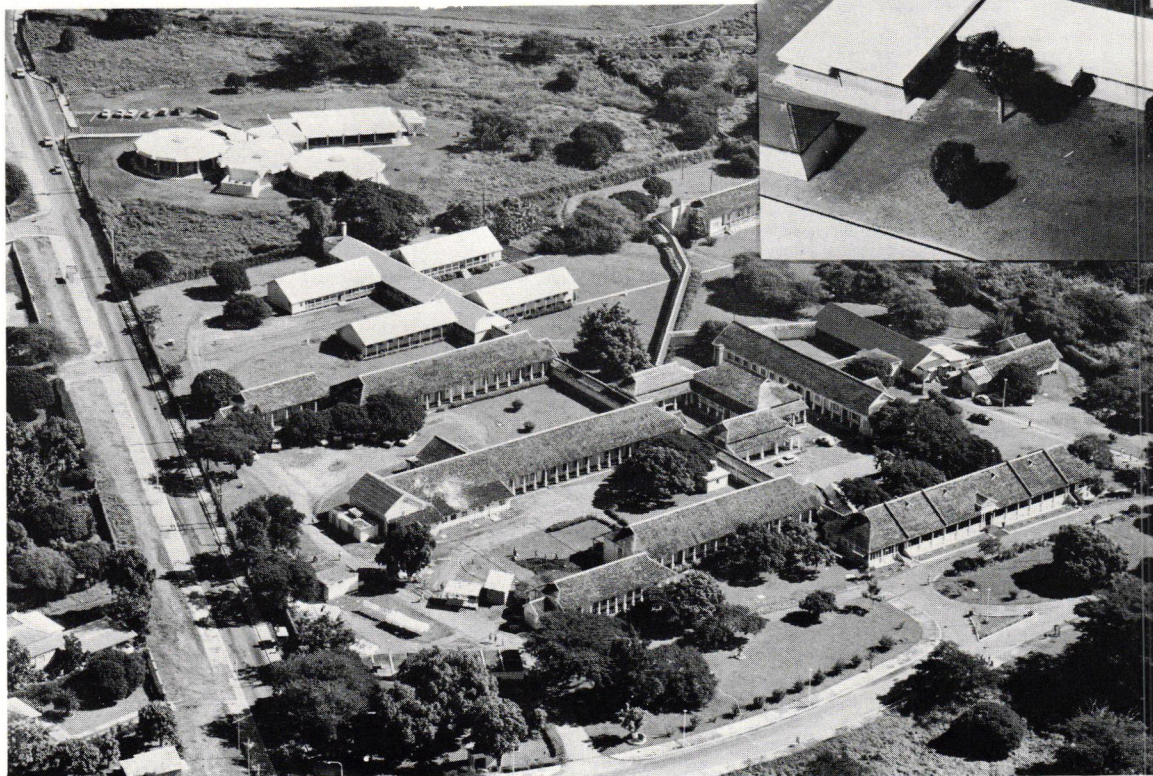
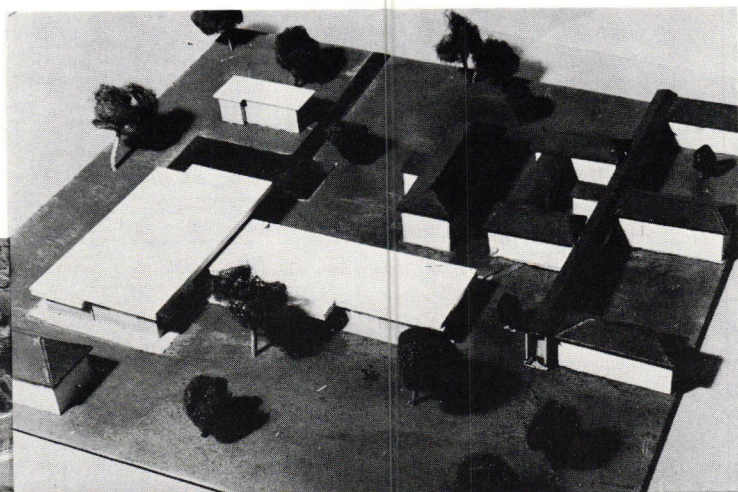


PROPOSED NEW INTERNS APARTMENTS AT KINGSTON PUBLIC Hospital — Architects: Shearer & Morrison, Chartered Architects — for the Ministry of Health in liaison with the Ministry of Communications & Works.

## Hospitals Around the Corporate Area

*Model of proposed new Casualty Block for Children's Hospital, Kingston — Min. of Comm. & Works.*

*N.B. See proposed Intensive Care Unit, Childrens Hospital in "Coronary & Intensive Care Units". This Issue.*



**CHILDREN'S HOSPITAL,**  
St. Andrew—beds — 200  
monthly attendance 6,226  
Services: Medical,  
Surgical, Paediatrics  
Facilities: Electroencephalograph  
Outpatient clinic, Emergency,  
Laundry

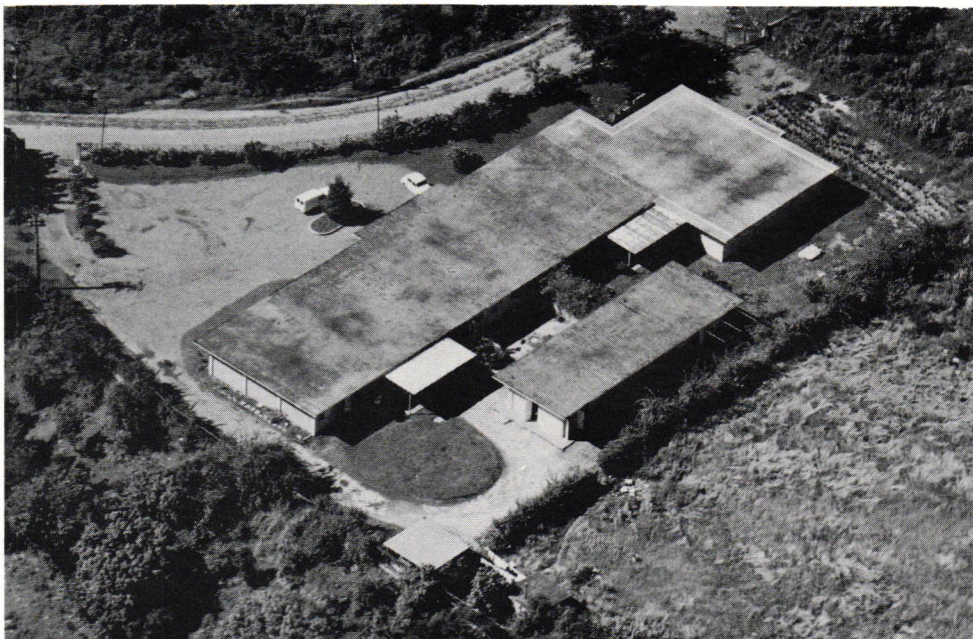
**DENTAL AUXILIARY  
SCHL. (Upper left)**

*photo by J. S. Tyndale Biscoe*

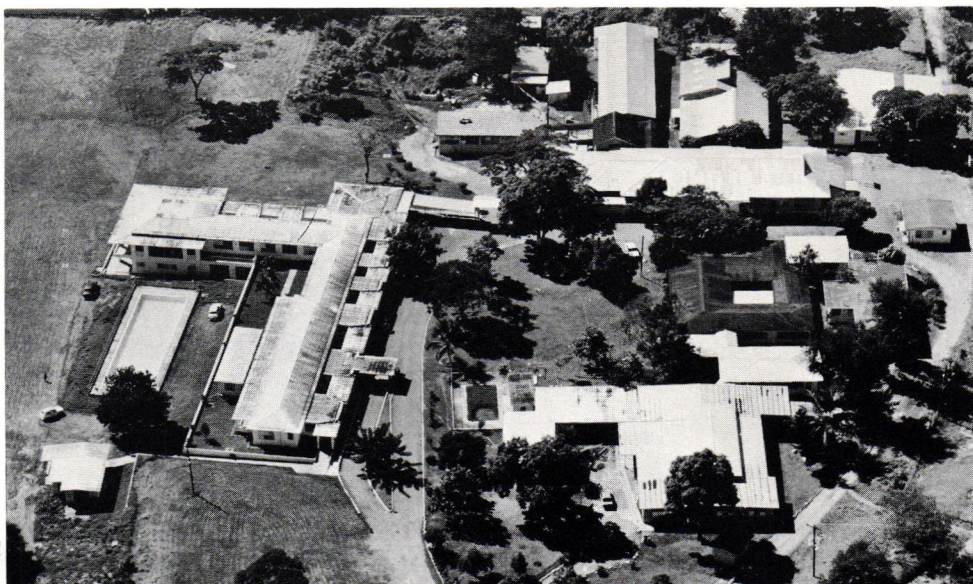


UNIVERSITY HOSPITAL OF THE  
WEST INDIES, Mona, St. Andrew  
beds 482; monthly attendance 13,283  
Services: Medical, Surgical, Paediatric  
Orthopaedic, Psychiatric, Maternity  
Facilities: Blood bank, Clinical Lab., Pathology  
Lab, Electrocardiograph, Electro-encephalo-  
graph, Pharmacy, Occ. Therapy, Physical  
Therapy, Outpatient Clinic, Emergency, X-ray,  
Diagnostic, Laundry

N.B.  
See perspective and plans of Psychiatric Block.  
University Hospital, in "The Environment for  
Mental Therapy". This Issue.



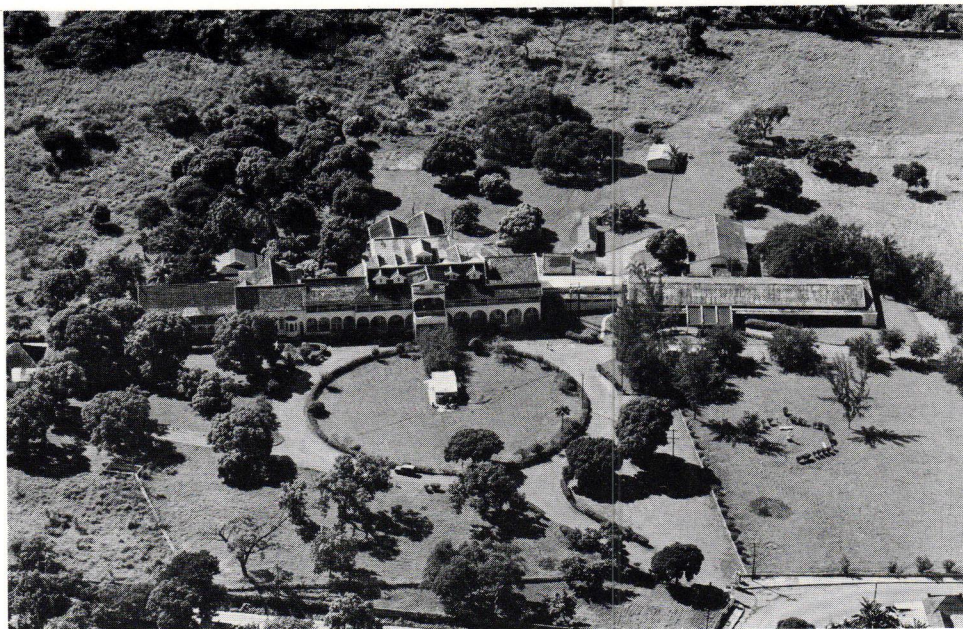
HOPE INSTITUTE (Cancer) Mona,  
St. Andrew  
beds 50



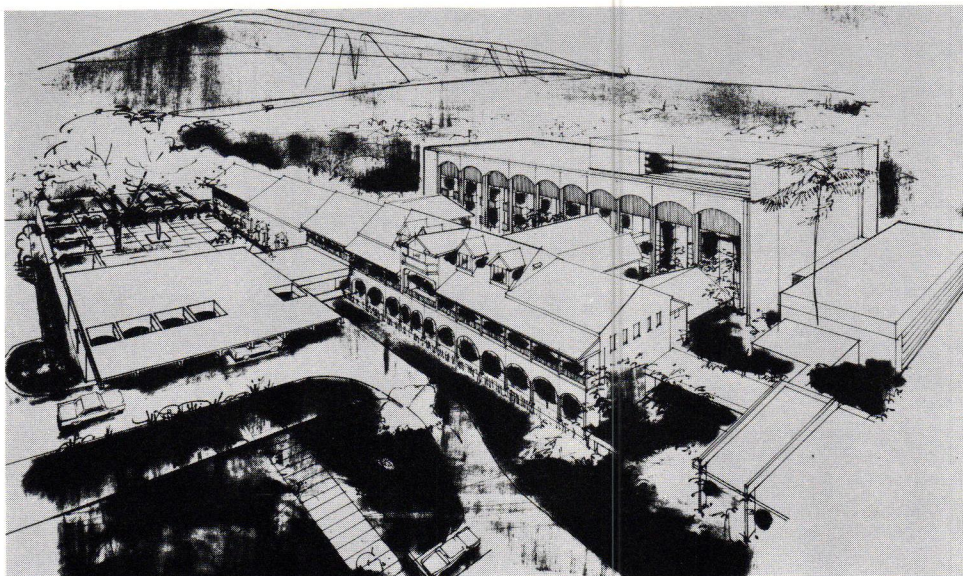
MONA REHABILITATION CENTRE  
(Polio), St. Andrew  
beds — 116;  
Services: Orthopaedic ; Facilities: Physical  
Therapy; Occ. Therapy



*ST. JOSEPHS HOSPITAL, Kingston  
beds 77; Extension being planned*

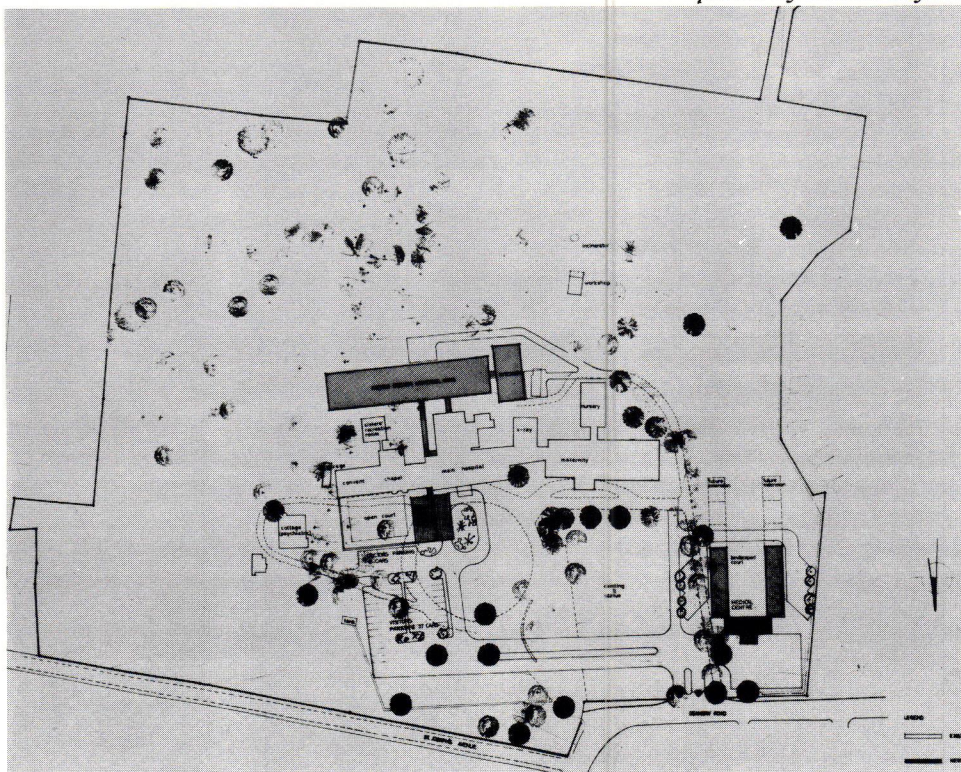


*photo by J. S. Tyndale Biscoe*

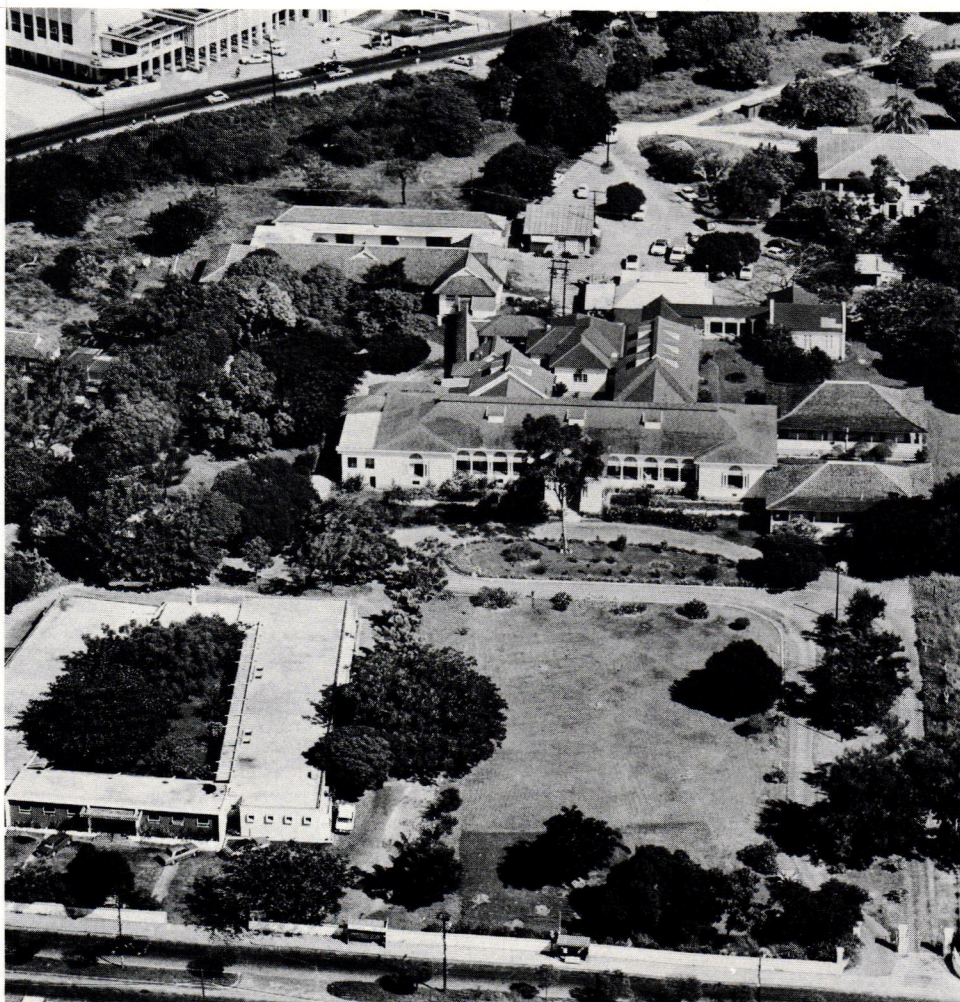


*Perspective of proposed extension  
to St. Josephs Hospital  
Architects: Shearer & Morrison, Chartered  
Architects*

*photos by Neville Hylton*

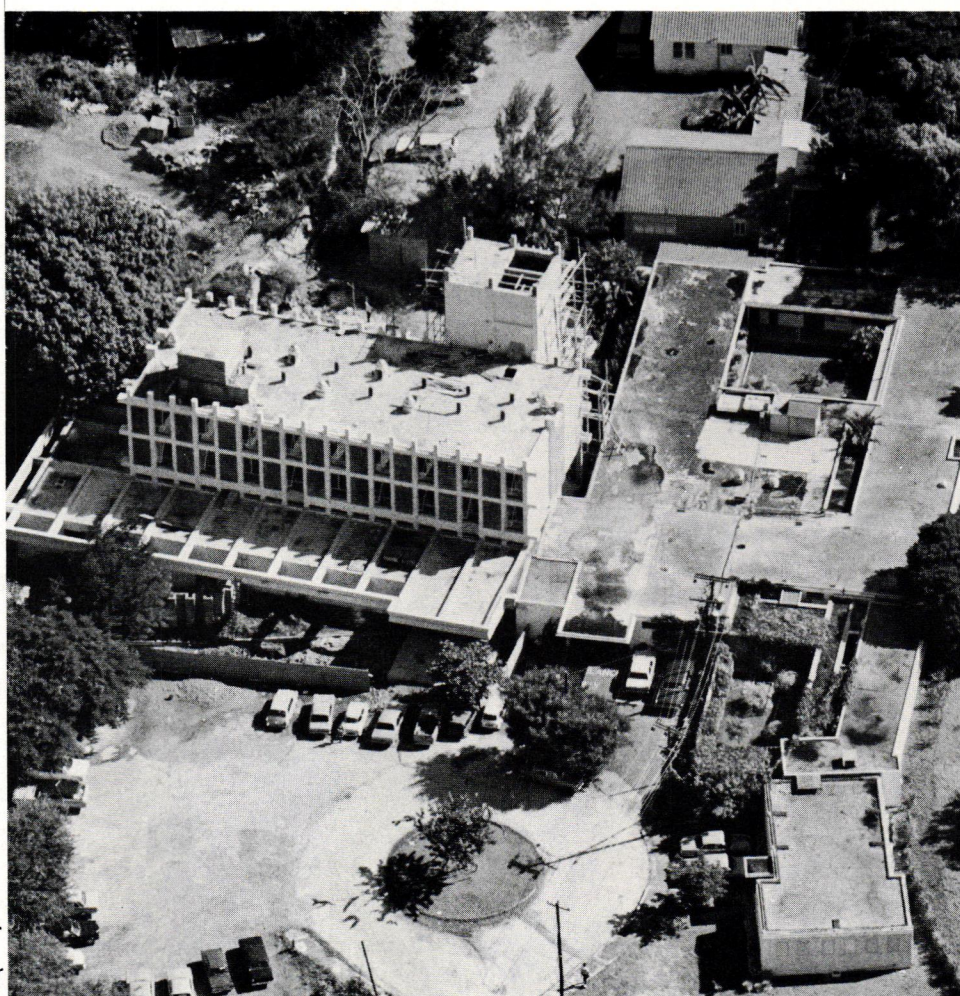






*NUTTALL HOSPITAL, St. Andrew*  
 beds — 60 —  
 Services: Medical, Surgical, Maternity  
 Facilities: Clinical Lab., Pathology Lab.,  
 Electrocardiograph, X-Ray Diagnostic

*photos by J. S. Tyndale Biscoe*

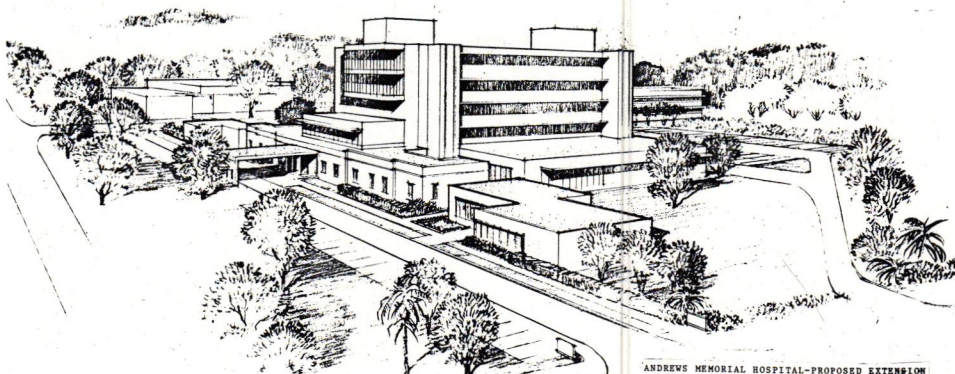
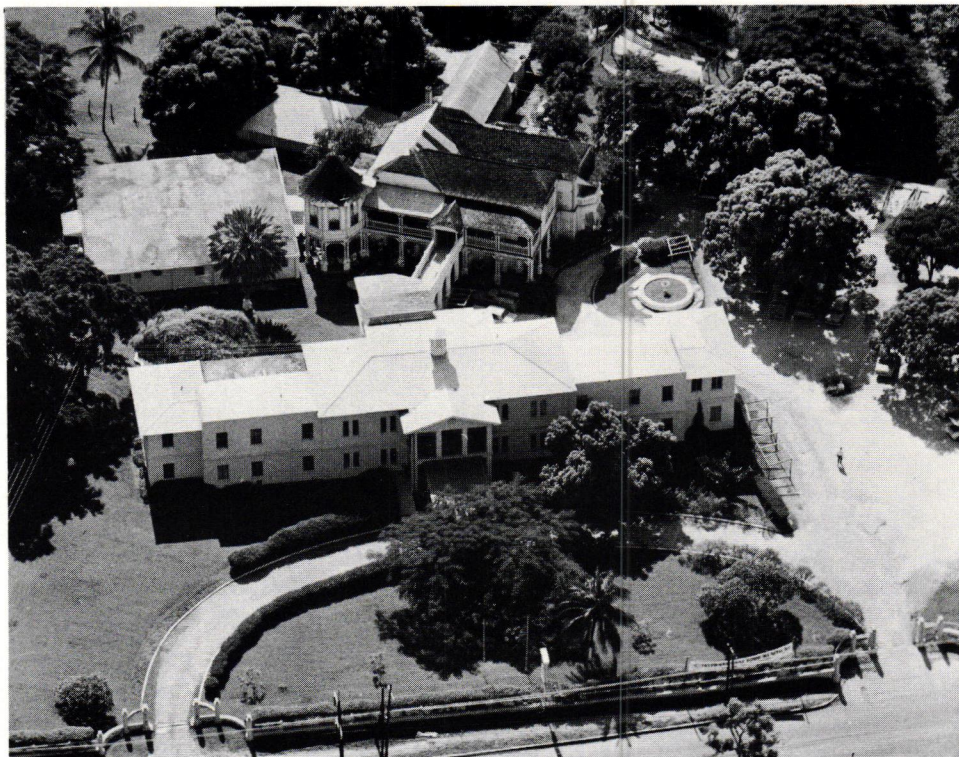


*MEDICAL ASSOCIATES HOSPITAL,*  
*St. Andrew*  
 beds — 19 — New extension now under construction to be completed early 1971.  
 6 floors; Centrally air-conditioned  
 and carpeted. Beds in new  
 extension — 44 (to be increased to  
 100 at future date)  
 Services: Medical, Surgical, Paediatric  
 Maternity, Orthopaedic, Psychiatric  
 Facilities: Clinical Lab., Pathology Lab.,  
 Premature Nursery,  
 Electrocardiograph, Electroencephalograph,  
 Dental, Pharmacy, Outpatient facilities  
 Emergency (limited), X-Ray Diagnostic  
 New, well equipped kitchen.  
 Architect: Allan A. Dunn, A.R.I.B.A., A.A.  
 Dip. (England)  
 Local Rep.: Chalmers/Gibbs/Martin/Foster  
 Partnership



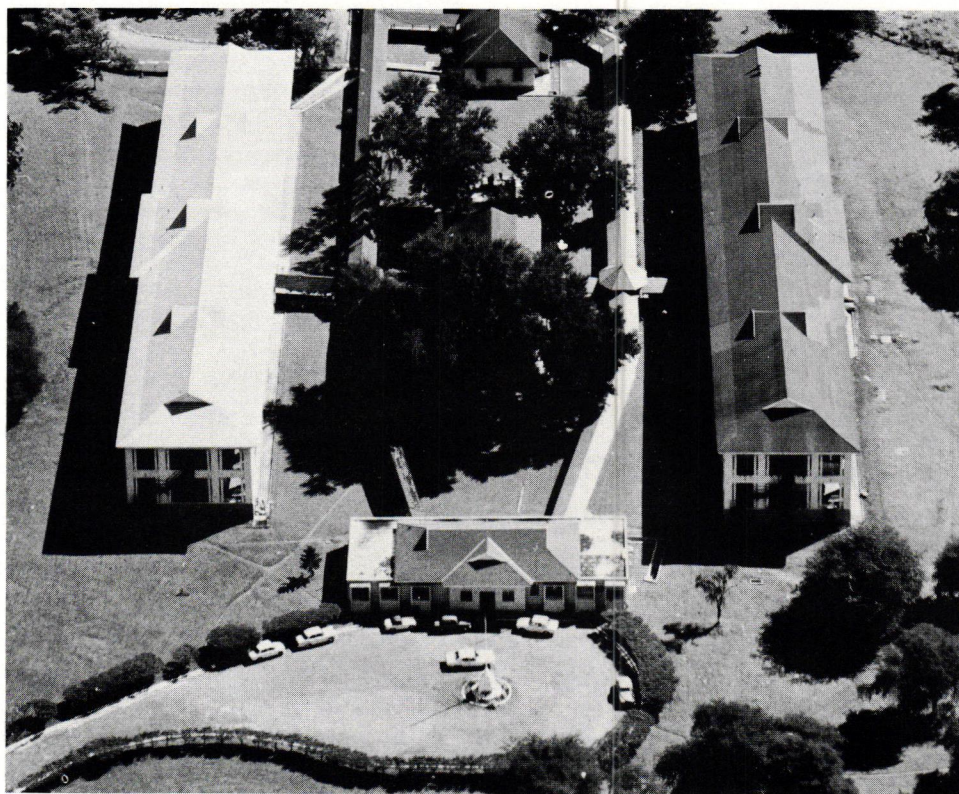
**ANDREWS MEMORIAL HOSPITAL,**  
St. Andrew  
beds — 35; Extension being planned

Extension will have:  
beds — 125  
Services: Medical, Surgical, Maternity,  
Gyn., Orthopaedic  
Facilities: Clinical Lab., X-Ray Diagnostic,  
Intensive Care Unit, laundry, new kitchen,  
Outpatient facilities — private & public  
Special feature: New student nurses dormitory — Upgraded schl. of Nursing to four year course leading to R.N. & B.Sc. in Nursing in collaboration with W.I. College, Mandeville & Andrews College, U.S.A.  
Architect: Geo. F. Roth & Ptns., Ohio, U.S.A.



ANDREWS MEMORIAL HOSPITAL-PROPOSED EXTENSION

photos by J. S. Tyndale Biscoe

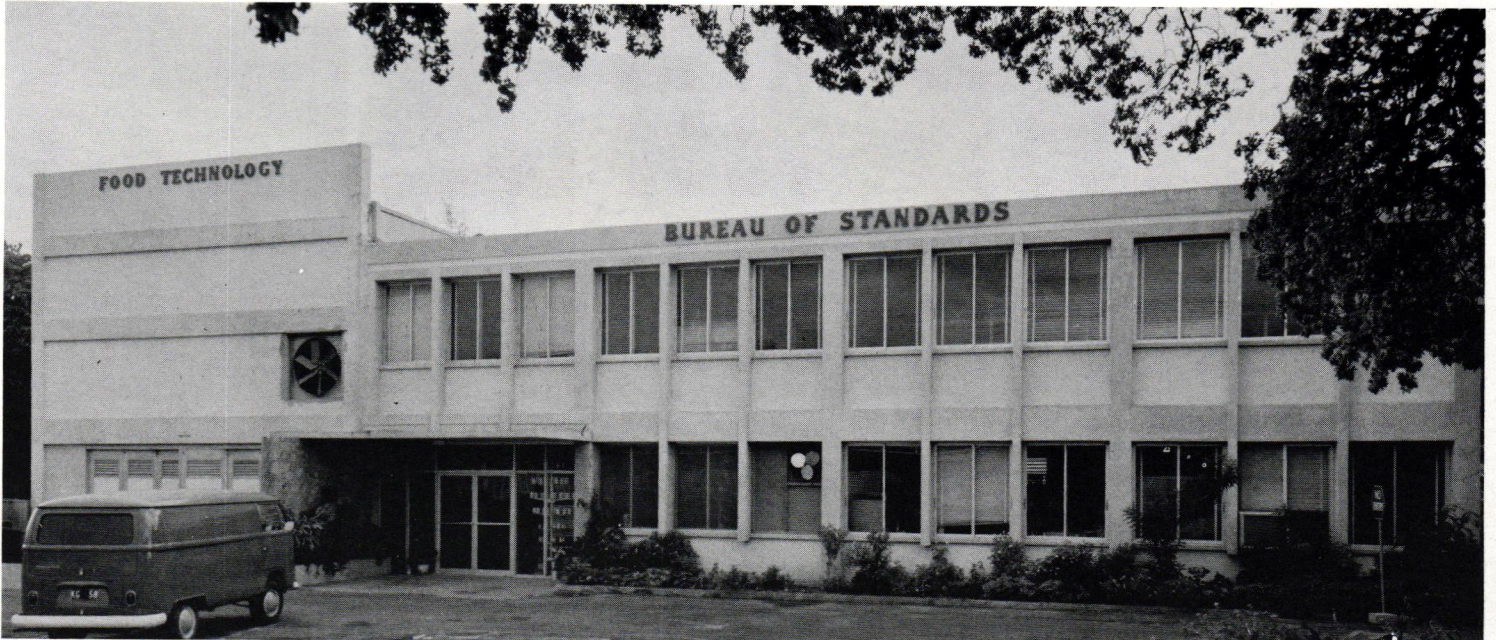


**GEORGE V SANATORIUM (Tuberculosis)**  
beds — 180  
Services: Medical, Tuberculosis  
Facilities: Laundry

N.B. See Bellevue Hospital compound photo in "The Environment for Mental Therapy" and Bellevue Hospital Kitchen in "Hospital Design" this Issue.



# Other Designs for Health Around the Corporate Area



*Bureau of Standards Architects: Wilson Chong & Assoc. in liaison with the Min. of Comm. & Wks.*



*Mural — by Duncan,  
at the Kiwanis  
Maternity Clinic,  
Tivoli Gardens  
Kingston — designing  
for health includes  
creating a pleasant  
environment.*



*Medicentre, Old Hope Rd., Kgn. Architect: H. D. Repole & Assoc.*



*Medical Offices, Treatment &  
Consulting Bldg., Eureka Rd., Kgn.  
Architect: M. D. Goodman & Assoc.*

*Examples of buildings designed  
for private single or group  
medical practitioners.*



N.B. The Jamaica Architect regrets  
that plans for extending the Blood  
Bank were unavailable in time for  
publication.







Exterior of Dental Auxiliary School shows one of the Treatment Blocks (left) Reception and Offices (centre) Classrooms (right).

# DENTAL AUXILIARY SCHOOL

## ARCHITECT:

Chief Architect's Branch  
Ministry of Communications  
and Works  
Chief Architect —  
**Mostyn F. Campbell**  
Project Architects —  
**Kevin Haughton & Charles  
Adamson.**

## ENG. ELEC. SERVICES:

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Services by Directorate of  
Mechanical and Engineering  
Services, Min. of Com—  
munications & Works

## QUANTITY SURVEYORS:

Chief Quantity Surveyor's  
Branch, Ministry of Com—  
munications and Works.

## CONTRACTOR:

Abraham, Henriques & Joy Ltd.

## STRUCTURAL SYSTEM:

Reinforced concrete columns  
and beams with reinforced  
concrete slabs.

The school is designed to train School Dental Nurses utilizing modern techniques of training and equipment. The students will be trained to carry out certain preventive and curative work on children of fifteen years old and below under the supervision of Dentists. Twenty students will be enrolled for a course lasting two years.

The building is divided into three sections —

- 1) A pre-clinical area
- 2) An Administrative area
- 3) Treatment or clinical areas.

The pre-clinical section includes the students lounge adjacent to a Lecture Room which may be used in conjunction with the Students Lounge by opening folding doors. The Lecture room will be equipped with an episcaper, a projector and screen and an adult skeleton for lectures

and demonstrations.

The Phantom Head Room is equipped with benches of the laboratory type fitted with lights, table model dental engines and Phantom Heads. The Phantom Head is a mechanical piece of equipment simulating the human jaw and its movements. The equipment will be used to develop the manual dexterity of the students involving carving, filling and extracting teeth.

The Dental Laboratory will be used to fabricate dental educational aids such as models and also to carry out routine dental laboratory work. This room is supplied with water, compressed air, electricity and propane gas.

The Administrative Section will house the administrative staff along with reception, waiting and recovery rooms for patients, X-Ray and dark rooms, a maintenance technician's room and the electrical control room housing the compressor are also provided in this section.

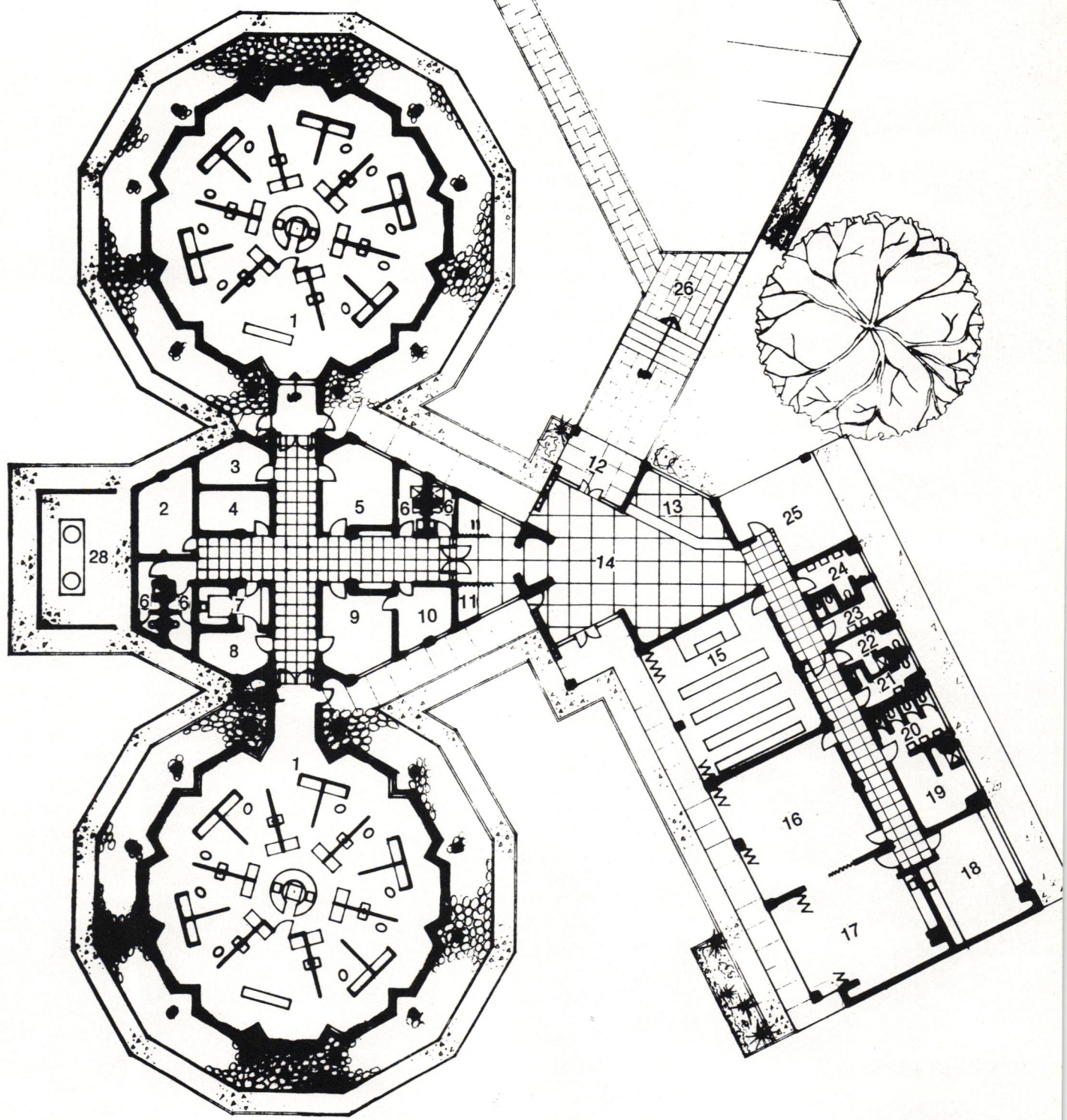
The central area is used for sterilization and the supply of clinical materials. From this central area eleven cubicals radiate, ten of similar size and one larger area for clinical demonstrations and for dentists to carry out treatment beyond the competence or training of the School dental nurse. Instructors have easy access and observation of each cubicle from the passage way surrounding the sterilizing area. Each cubicle will be equipped with a Dental chair and a dental unit supplied with water, compressed air, electricity and propane gas.

The staff will consist of the Director, and up to four dentists. The students will be girls between the ages of 20-25 and there is the possibility of extending the course to include male Dental technician trainees.

The Treatment Blocks, X-Ray and staff officers rooms are centrally air conditioned, fan coil units discharge cool air at high level.



ARTHUR WINT DRIVE



Floor plan of Dental Auxiliary School

- |                     |                        |                       |                    |
|---------------------|------------------------|-----------------------|--------------------|
| 1 TREATMENT BLOCKS  | 8 X-RAY                | 15 PHANTOM HEAD       | 22 MALE STAFF LAV. |
| 2 COMPRESSOR ROOM   | 9 DIRECTOR             | 16 LECTURES           | 23 FEM. PATIENTS   |
| 3 MAINTENANCE TECH. | 10 SECRETARY           | 17 STUDENTS' LOUNGE   | 24 MALE PATIENTS   |
| 4 STORE             | 11 RECOVERY            | 18 DENTAL TECH. LAB.  | 25 PAVED AREA      |
| 5 STAFF OFFICE      | 12 MAIN ENTRANCE       | 19 STUDENTS' LOCKERS  | 26 WALKWAY         |
| 6 STAFF LAVS.       | 13 RECEPTION, REGISTRY | 20 FEM. STUDENTS LAV. | 27 CAR PARK        |
| 7 DARK VIEW         | 14 WAITING HALL        | 21 FEM. STAFF LAV.    | 28 AIR COND. UNIT  |



# THE ENVIRONMENT FOR MENTAL THERAPY

*by Edna Francis McLaren, Psychiatric Social Worker, Bellevue Hospital, Kingston*

**T**he concept of environment is dynamic in its application and the term itself is subject to many interpretations. It comprises everything that influences the personality of an individual from the moment of conception, excluding only the genetic characteristics which are naturally inherited. Within this wider meaning we accept that the foetus **in utero** is conditioned by the environmental state of the mother's body. The amount of nourishment or lack of it that passes into the formation of the child can be measured according to the wholesomeness of the newborn or by the congenital handicaps that may be evident. After birth the environment assumes larger proportions and involves every kind of experience seen, heard or learnt. For the rest of his life surroundings, upbringing, emotional life, and cultural attitudes within the total environment are major areas of influence upon the individual.

The nature of environment is variable in terms of the criteria under observation.

It is **physical** when we consider the tangible surroundings in which the individual lives — house, neighbourhood, country, earth or space. These are essentially man-made adaptations for survival. It is **social** in terms of interaction with other persons; membership in families, or groups, kinship ties institutional associations, class and cultural patterns. Less obvious but far more serious in its ramifications we must consider the **emotional** environment from which each individual by a process of introjection incorporates into his personality those qualities and attitudes that he has adapted from other persons in his milieu; attitudes and prejudices, moods and dispositions, feeling state and general outlook on life.

We have lately recognised the concept of a **therapeutic** environment based on the hypothesis that environment plays a significant part in the precipitation of emotional illness if not in itself the underlying cause. It follows from this that the environment can be made an agent of therapy if it is so structured as to provide the individual with a testing ground for his behaviour, for making new adaptations, new patterns of response to challenges and above all in which to experience a feeling of emotional stability. A great deal might be said on this approach but this would not be relevant. Here we are simply concerned with a working definition of the concept of environment.

Therapy remains to be defined. In this context we shall accept any agent that is **healing** in the physical sense or **satisfying** in the emotional sense. This dual interpretation of therapy (healing-satisfying) removes it from the protected realm of physicians and para-medical specialists to the multidisciplinary team; from the corridors and wards of hospitals and clinics to the highways and byways of the wider community. As one patient was known to tell her doctor "I give you credit for getting my mind better, but it was the obeahman that took the duppies off me." The point is well taken that any therapy that relies entirely on the mechanics of medicine and medication to the exclusion of environmental forces may stop short of satisfying the emotional needs of the patient.

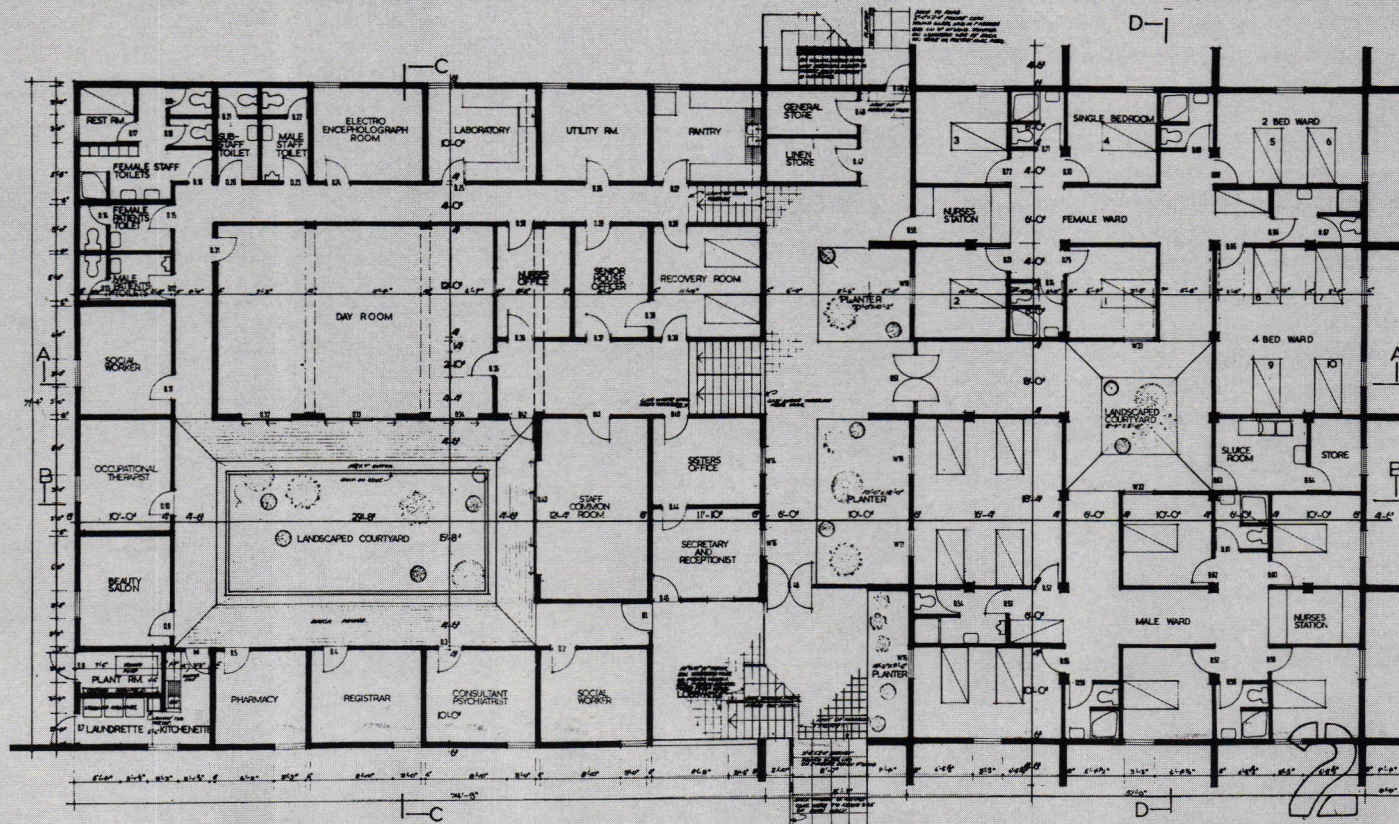
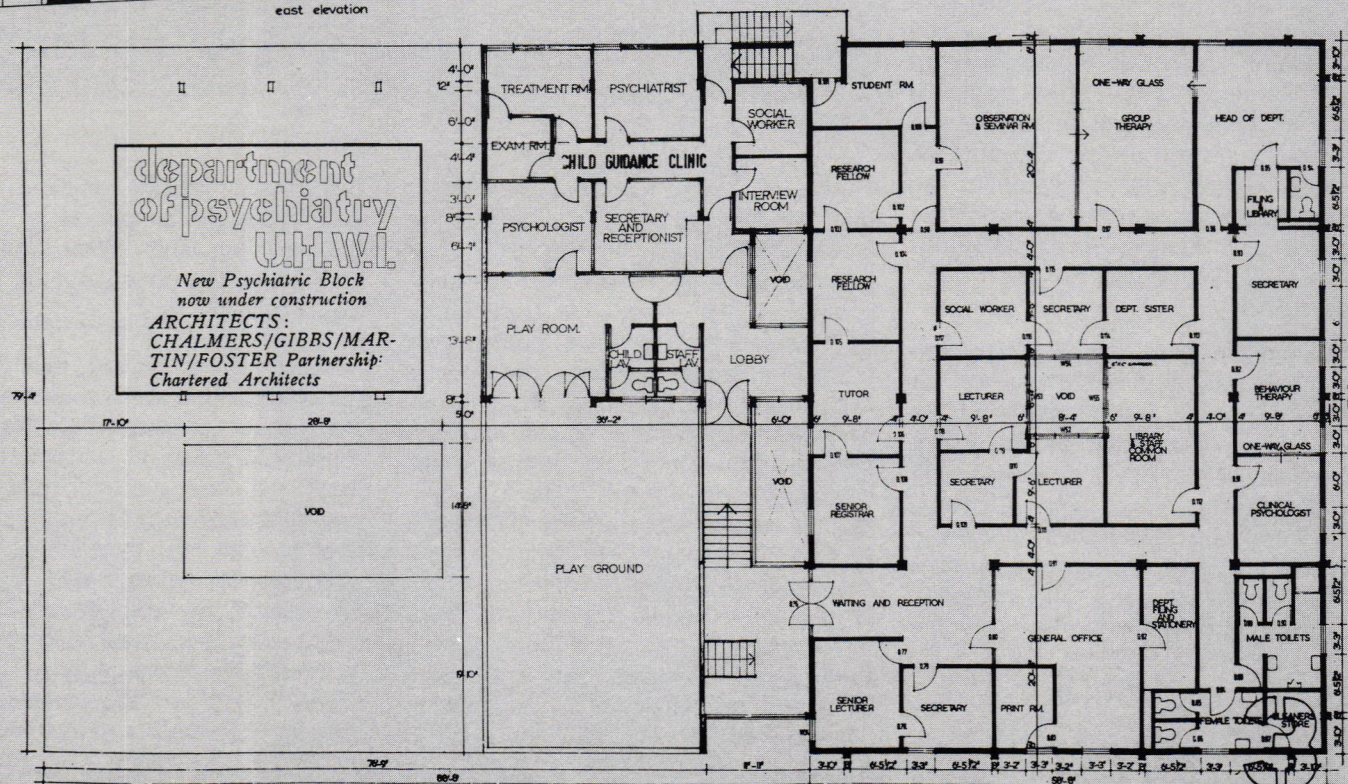
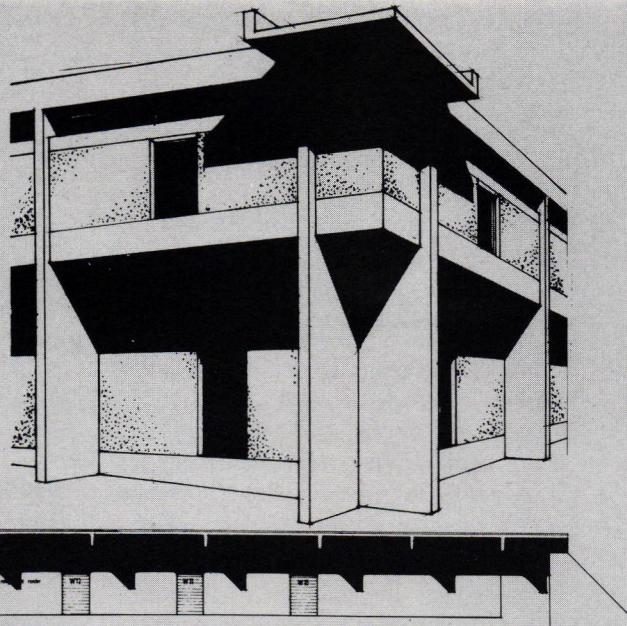
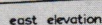
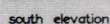
To understand how increasing a role environment plays in mental therapy let us look into the past the present and future patterns of mental treatment. At the regressive end we see the spectre of large-scale asylums for the insane littered with broken bodies and broken spirits. At the progressive end we see a smattering of cottage type community mental health centres where unstable individuals may hibernate throughout the winters of their emotional seasons, but return with spring to their own homes and their own pursuits: in the past, custodial therapy; for the future, preventive therapy.

The architecture of the mental hospital of the past era reflects the pressure of the community upon the builders of that time to render an institution in the nature of a fortress to separate them from the insane. So absolute was the security of these monumental buildings that they have survived centuries of disasters and remain a deep source of embarrassment to present day society seeking to forget the injustice of earlier forms of mental treatment. For future planning it is these same builders who must create the modern surroundings for therapy by which our communal guilt will be relieved.

## **The Picture of the Past**

The physical environment of the past era was a large estate on the outer limits of the existing city. Buildings had the character of fortifications in stone with iron bars enclosing the necessary openings for light and air. Solitude was apparently considered therapeutic since there were cells for such confinement with ghastly floor-level vents for the removal of bodily wastes. The stout but forbidding stone-walls that enclosed the







estate and at the same time excluded the concern of the community, must have jolted the heart of the average passer-by, but above all reassured him that this tangible iron curtain protected him from the aggression that was en-cased therein.

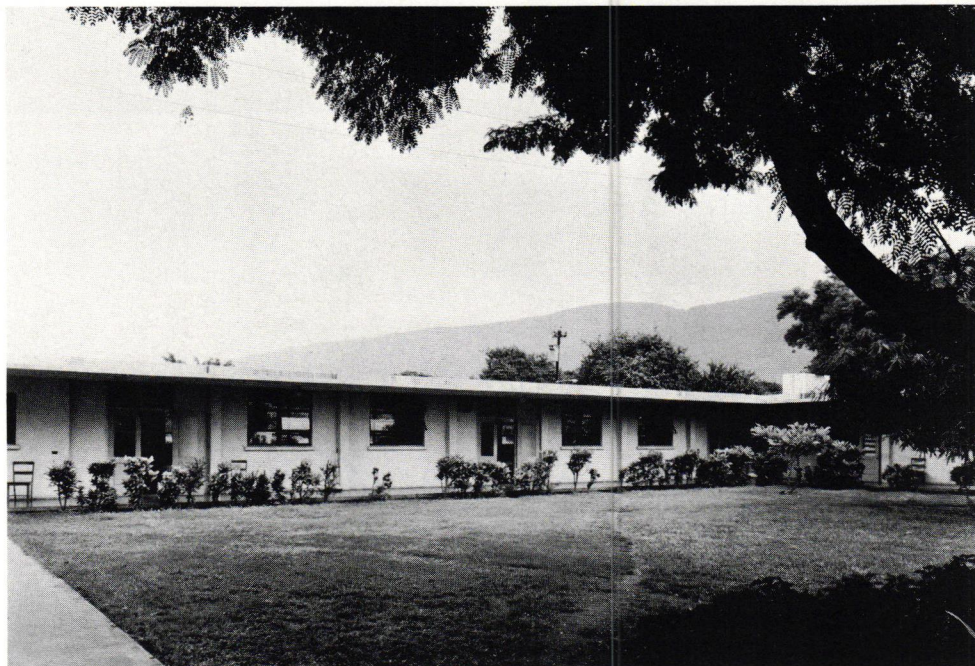
Inside this stone wall a veritable city flourished whose constituents had no suffrage, no mayor, no corporation, no sense of belonging: hundreds of forgotten souls for whom society saw hospitalization as a finality and not a therapeutic process.

The social environment was controlling, directive and sexually segregated. The steep pyramidal structure of the administration was held together between the topmost autocrat and the subservient patients at the base, by an undemocratic but paternalistic series of rules, the end result of which was to deprive the patient of any expectations for responsibility and self-direction. The psychological atmosphere was hopeless and restrictive leading to regressive, infantile dependency and chronic institutionalization.

To the observer of the past, and no less to the patient, this environment for therapy seemed a lamentable imprisonment so that despite the humane intentions of the clinical staff, hospitalization was a traumatic experience. Paradoxically there were among them those who welcomed admission as a haven from a hostile world and the only situation offering enough security to make life tolerable.

### The Present Era

The social and emotional environment in our time has been enhanced by the knowledge gathered from observations and experiments in the last century about the causes and treatment of emotional illness. The physical aspect reflects a mixture of the modern superimposed upon the obsolete. This is not surprising as the incidence of mental breakdown remains ahead of the retarded building programme for treatment centres mainly for financial reasons. In Jamaica we talk candidly about community preventive psychiatry but a century old institution is the only reality for the majority who do become seriously ill. The staff with the support of the Ministry of Health is intellectually and emotionally equipped to give therapy within the 20th century meaning of the word but are handicapped by the limitations of funds for wards in the modern concept and further impeded by community attitudes that belong to another age.

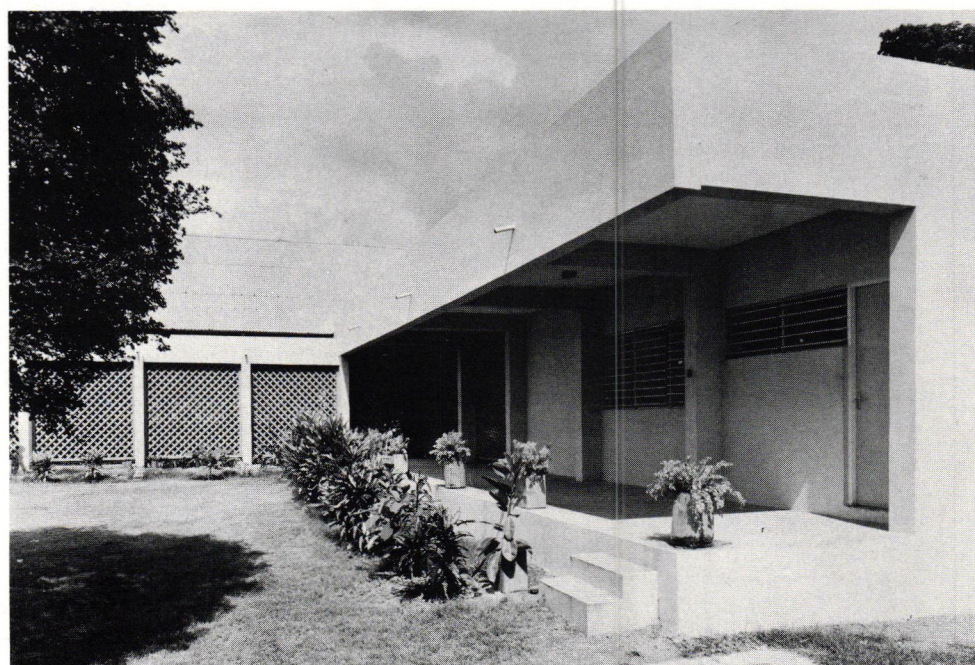


*New ward at Bellevue Hospital, Kingston Ja.*

An interesting feature of this era is that the hospitals that initially were carefully situated on the fringes of cities or remotely in the hinterland have been enveloped by urban and suburban development so that these hideous outposts of empirical medicine can now be seen in the heart of cities which have, as it were, burst their seams and surrounded that other city of lost souls. Concomitant with this juxtaposition of the institution with its catchment area, has been the inevitable outcry of the populace for its removal or for its improvement. Hopefully it is said that these institutions would serve the society better as ware houses, if patients could be treated elsewhere in the community, but faithlessly we flee from contact with

discharged mental patients. "These people should be put away" is still a popular comment. "They should never let people like those out of the mad-house" is another.

Aside from public opinion being changed by information and education, the future environment for mental therapy is going to hang on what the architects and physical planners are courageous enough to introduce into the communities that they shape. The environment for future mental therapy will be societal, not institutional. There will be no detention camps for the insane from all parts of the country. There may, however, be cottage clinics for the recently disordered personality in all



*Occupational Therapy Unit, Bellevue Hospital, Kingston, Ja.*





*Aerial View of extensive Bellevue Hospital Compound — Psychiatric care provided for outpatients and inpatients (2,000 beds)*

parts of the country, near to their homes, within reach of their families and their acquaintances. The natural social environment will be the direct agent of therapy with hospitalization as a secondary therapeutic agent.

Hospitals built in the previous century tend towards a lack of the following amenities:

**Privacy:** bathrooms, libraries, interviewing rooms.

**Comfort and cheerfulness:**

in use of colours, decor, furnishings and landscaping.

**Utilitarianism:** discussion areas, film projecting theatres and sometimes classrooms for use of long-stay adults and children.

**Sex and age groupings:** defined areas for children and geriatric cases, integration of the sexes.

**Diagnostic groupings:** for physical handicaps and mental retardation, alcoholism, senescence.

**Research:** adequate record libraries.

**Contact:** proximity to catchment area; proximity to related services viz. general hospitals, post office, stores for day to day purchases.

The individual treated near his home would avoid the trauma of estrangement and social isolation in a largescale, centralised institution. We therefore expect treatment facilities for social and emotional breakdown (which we are told is inevitable for about 1 in 20 of the population) to be incorporated into blueprints for community services. This is comparable to planning schools or playing fields in new settlements.

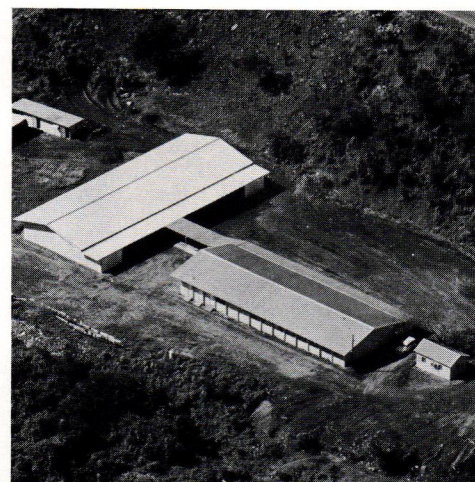
N.B. See Bellevue Hospital Kitchen in "Hospital Design" This Issue.

Treatment centres of the future will be comprehensive for all kinds of physiological and psychological disorders rather than monolithic they will be within the towns rather than on the fringe of them. No longer needing to hide the mentally disordered, we will want them to be treated within reach of their wives, husbands, sweethearts and children, who hopefully, will visit them on the way to church, when returning from shopping or directly as an interlude in their daily programme. For the best therapy we are told lies untapped in the close network of kinship and interpersonal relationships.

The hypotheses on which current therapy is based place some emphasis on the dynamics of social environment. It is said for instance that the incidence of emotional illness is directly related to social surroundings and that schizophrenias, depressions and organic psychoses predominate in the lower strata of society with a poorer prognosis on treatment. This poses the question as to whether innate predisposition to illness is responsible for the lower classification of individuals; or whether the actual rigours and stresses of slum life are the real drawback to upward social mobility and mental well being. But we can say with some certainty that whereas genetic factors are latent and not readily assessed, the environmental factors are tangible and modifiable components of emotional illness.

We come then to the role of socio-physical planning for environmental therapy. Social psychiatry will continue to draw on a wider sub-specialty of the humanitarian disciplines.

Epidemiological and ecological studies have been used in psychiatry as far



*School for the Mentally Handicapped, Elletson Flats, Mona, provides residential and day care for children. (just being completed)*

*photos by J. S. Tyndale Biscoe*

back as 1878 when Tuke discussed preventive psychiatry in his book "Insanity in Ancient and Modern Life." Questions were raised elsewhere by Durkheim about suicide as a failure of group identification, commoner in towns than in rural areas, and related to economic failure and social disorganisation. These questions are still relevant in modern therapeutic considerations and the integrated team of architects, geographers, sociologists and epidemiologists have still to decide about building more treatment centres, or alternately towards prevention, more cohesive communities. The interaction of community and personality in terms of illness and rehabilitation should be the basic hypothesis of the extended team approach.

New towns, condominiums, slums and urban drift are traumatic experiences for the incoming resident with repercussions on the host society.

A challenge is presented in social psychiatry and no less in social planning.

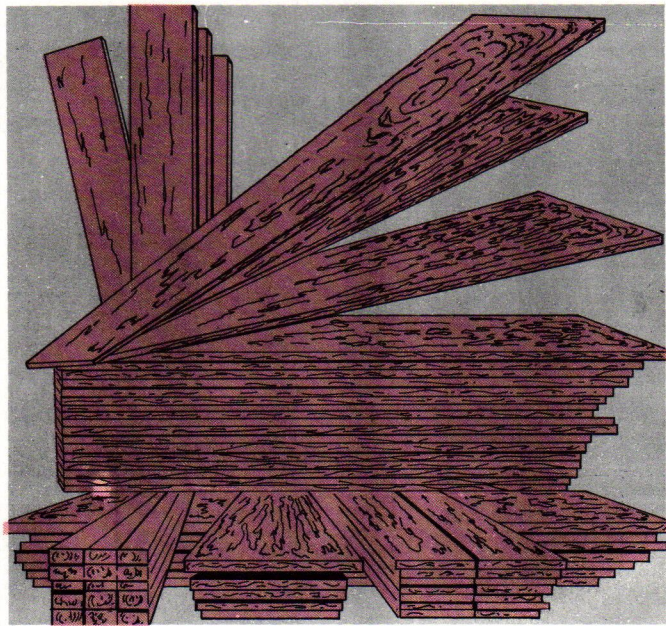
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- (4) Erving Goffman "Asylums" (Pelican)



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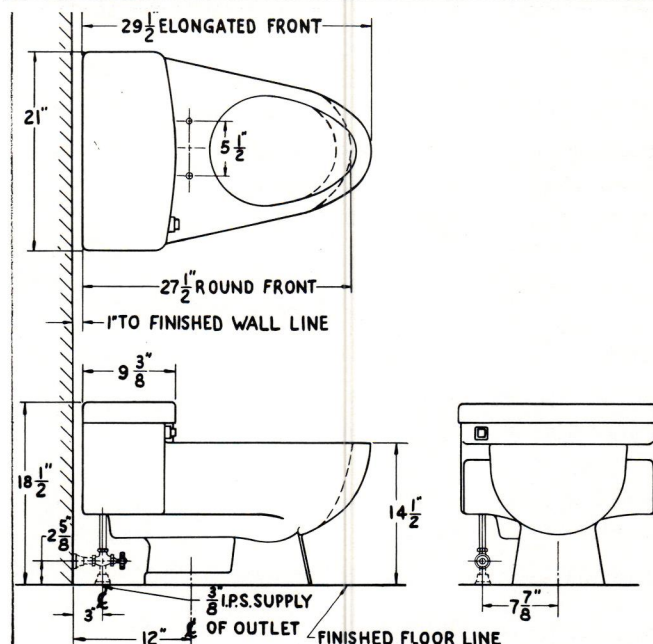
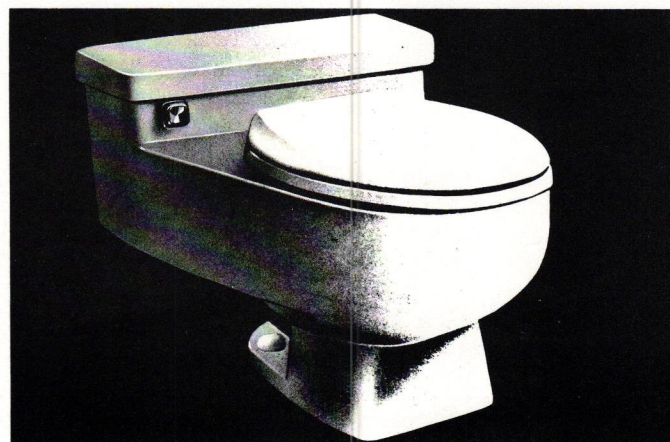
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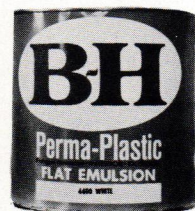




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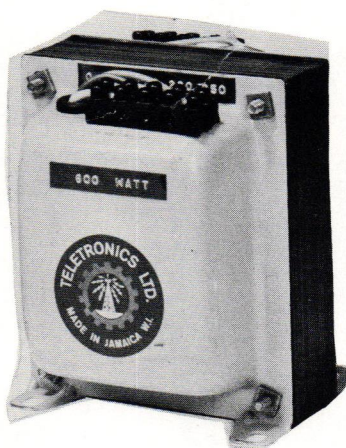
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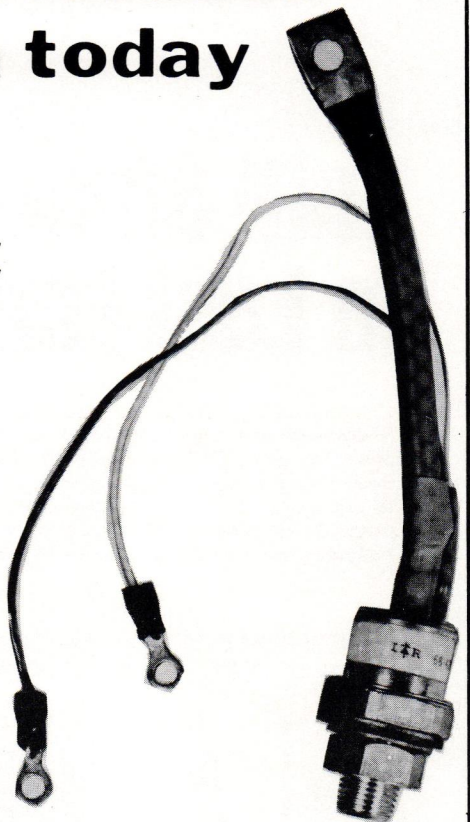
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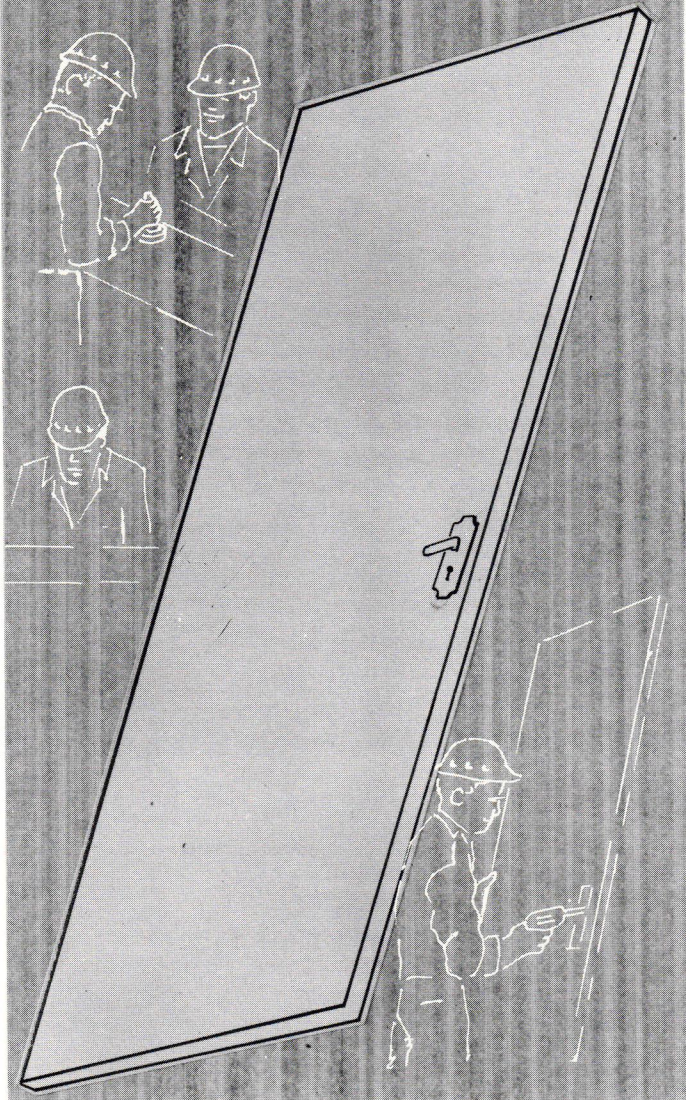
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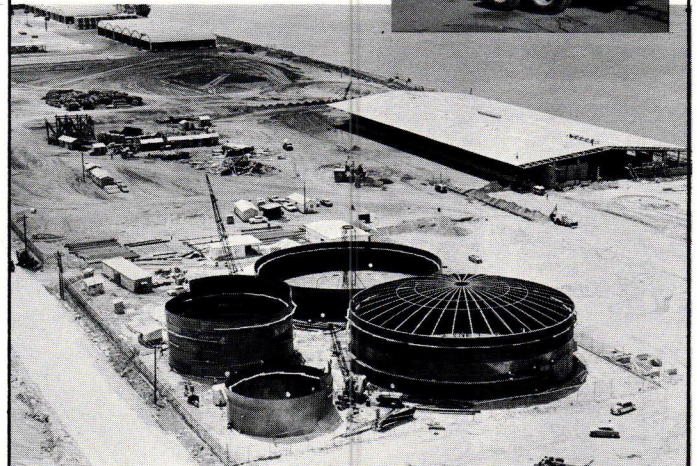
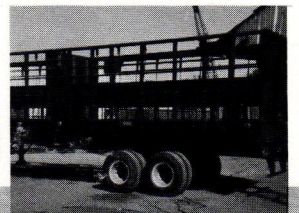
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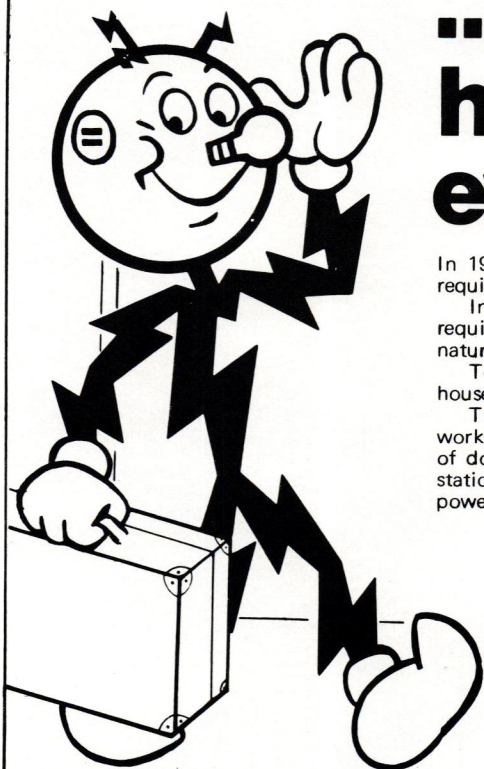
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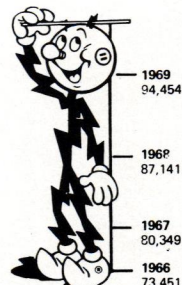
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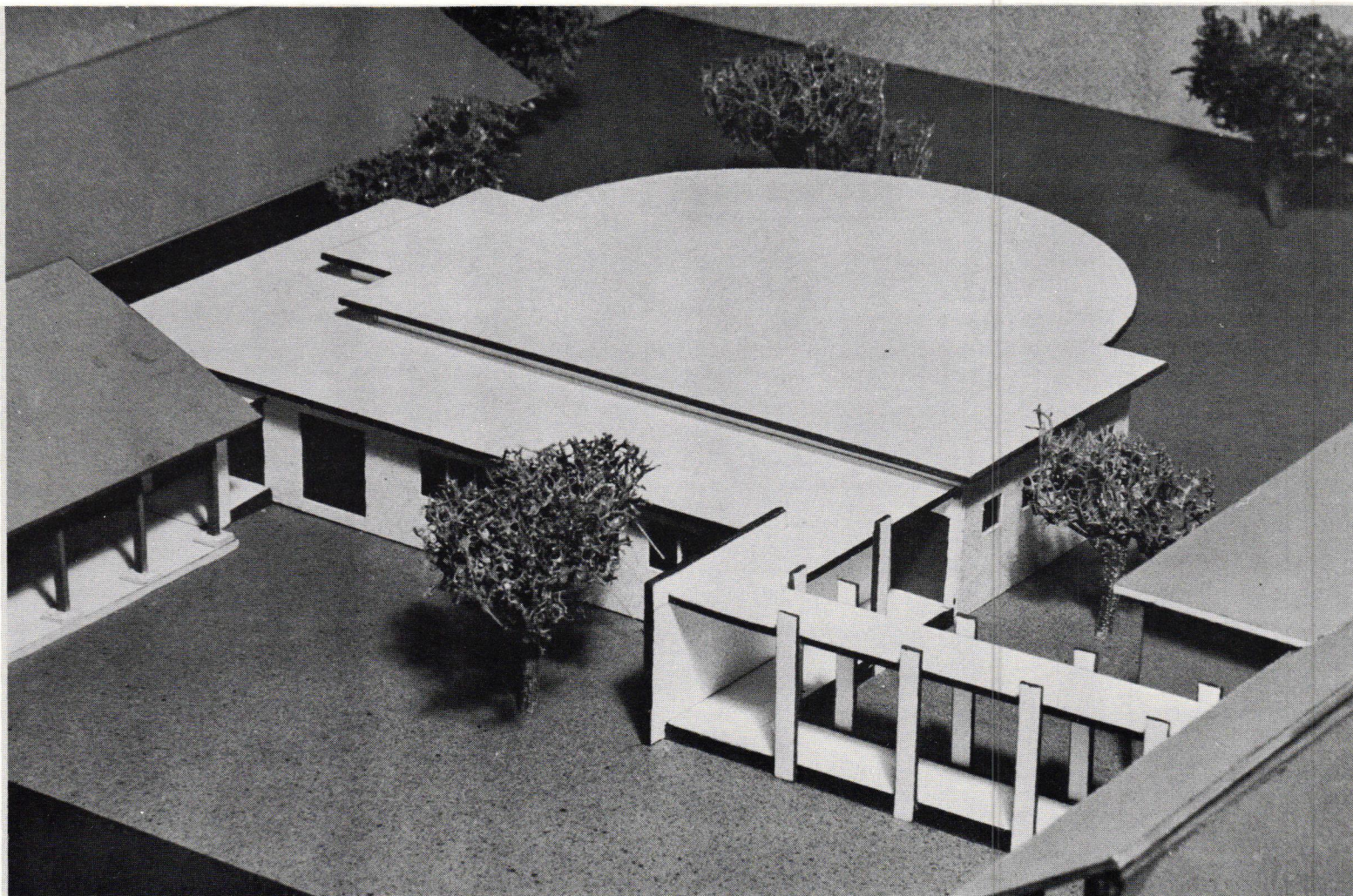
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\* Model of proposed Intensive Care Unit for Children's Hospital, Kingston, Jamaica.

# Coronary and Intensive Care Units,

## *Design, Function and Relationship*

by **Lloyd J. Robinson, F.R.I.B.A.**

*Senior Executive Architect, Ministry of Communications and Works.*

**FOREWORD:** *This report was made possible through the generosity of the Pan American Health Organization which awarded four Fellowships to enable a team (listed below) from Jamaica to visit various hospitals in Washington, Northern Virginia, Maryland and Baltimore, to study Intensive Care and the special environments for Coronary Care. The team also visited the offices of the Veterans Administration and U.S. Public Health Department and was able to collect a wealth of interesting and valuable information. The programme included conferences, personal interviews, detailed observation and research.*

*The four recipients of the Pan American Health Organization Research Fellowships in Intensive Care Technology were:*

Dr. Elaine Read, *D.C.H., M.R.C.P. (Edinburgh),  
Senior Paediatrician,  
Paediatrics Hospital, Kingston*

Mr. Lloyd Robinson, *F.R.I.B.A., Senior Executive  
Architect, Ministry of Communica-  
tions and Works.*

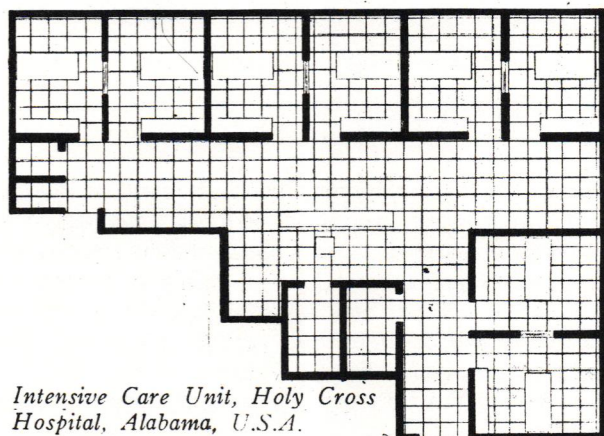
Mr. Desmond Marks, *C. Eng., M.I.E.E., M.G. APE.,  
M.I.E.J., Senior Executive En-  
gineer, Ministry of Communica-  
tions and Works.*

Mr. Michael Envil, *B.Sc., M.I.E.J.,  
Senior Executive Engineer,  
Ministry of Communications and  
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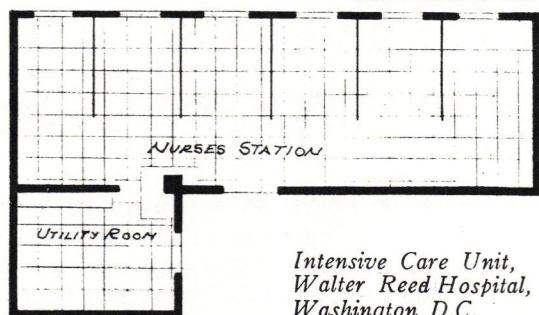


## THE DEVELOPMENT OF CORONARY CARE AND INTENSIVE CARE UNITS

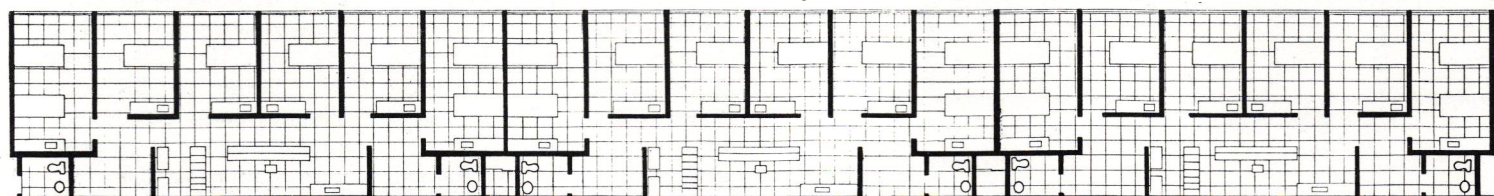
The concentration of specially skilled personnel and equipment in one area is the basic concept of an Intensive Care Unit and a Coronary Care Unit. This idea has developed from experience gained in the Recovery Rooms and in the early specialized fields of medicine. During the first and second World War both the allies and the Germans discovered the value of highly trained medical teams attached to their field Hospital. Later, the Americans developed highly specialized medico teams in Japan to treat the Korean and Vietnam wounded. Each team was known simply by its type of specialization — Cardiac team, Burns team, Lung team, etc. In post war years the discoveries and advances in the realm of respiration, physiology and biochemistry as well as lack of staff and finance impelled the introduction of Progressive Patients Care in American and European hospitals. Hospital planners and consultants, using their war time experience, combined the idea of the specialized post-surgical care of constant supervision by specialist staff with the resources of its therapeutic equipment to formulate the Intensive Care Unit and Coronary Care Unit. These were originally known under various headings such as: Special Care Unit, Resuscitation Unit, Acute Care, Shock Unit etc. Hospitals which have the necessary funds available such as the Holy Cross hospital in Montgomery County, Alabama, Walter Reed in Washington D.C., and Sinai in Baltimore, maintain two different types of units: a Coronary Care Unit that deals with all patients in whom acute Myocardial Infraction has been suspected or established and a general Intensive Care Unit which provides concentrated nursing care and constant observation of cases ranging from Post Operative care to Accidents, Shock, Burns etc. As soon as the need for the facilities of the ICU is over, the patient is returned to the ward.



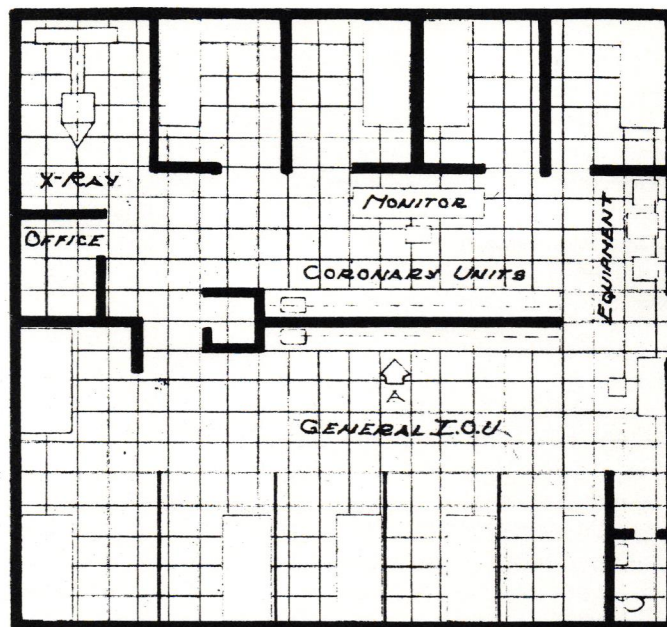
*Intensive Care Unit, Holy Cross Hospital, Alabama, U.S.A.*



*Intensive Care Unit, Walter Reed Hospital, Washington D.C.*



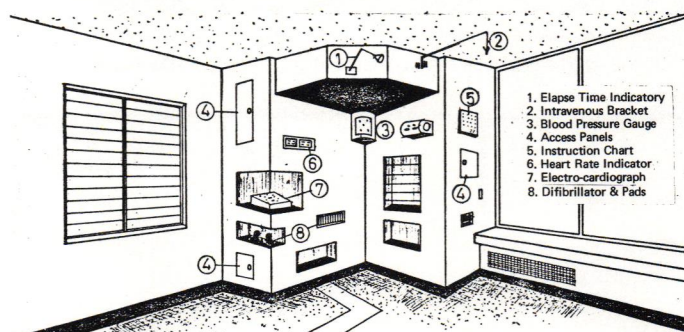
*Coronary Care and Intensive Care Units in 8-bed groupings, Fairfax Hospital, Northern Virginia*



*Coronary and Intensive Care Unit — 10 beds — Freedman's Hospital, Washington D.C.*

Freedman Hospital has one unit divided into two areas, on one side there is a General Intensive Care Unit and on the other side are patients suspected or suffering from Acute Coronary disease.

The Children's Hospital in Washington D.C. had a general purpose unit for all cases. The requirements of the General Intensive Care Unit differed among the various hospitals in size, floor plan, electronic equipment and environmental considerations. Amidst the sophistication of having all of this new equipment resulting from joint efforts by technologists and scientists to save the lives of the critically ill, discussions with surgeons, doctors and nurses revealed a diversity of opinion regarding the degree to which extensive monitoring equipment should be used. Most of them felt that electronic monitoring will never be as satisfactory as good continual personal nursing care. There are hospitals in the Chicago area which recommend the minimum of monitoring equipment. On the other hand the Sinai Hospital in Baltimore and Fairfax in Northern Virginia were using monitoring equipment and a simulator which had not yet been made available for general use. A total of nine Electronic Engineers will be needed to look after the vital pieces of medical equipment for monitoring patients at Sinai Hospital when their Intensive Therapy Construction programme is completed.



*Equipment Layout, Sinai Hospital, Baltimore, Md., U.S.A.*



At the Sinai Hospital, on July 10, 1970, a most impressive Coronary Care Unit was being prepared for occupation. This Coronary Unit consisted of ten patients rooms with two Dirty Utility rooms and one Clean Utility area. A room had also been reserved for a Hyperbaric Unit. Patients rooms are 11' x 11' — All necessary equipment and storage requirements are built into a special cabinet behind the patient's bed; this allowed easy access to all installations for maintenance purposes.

Underfloor ducting also provided power for each of the specially designed, electrically operated, beds which were adequately insulated and isolated to eliminate current leak. The only lead that was visible on the patient, was from the electrodes to the electrocardiograph machine. A special intravenous bracket was incorporated into the design. This is only in experimental use. It consists of a simple telescopic arm made of plastic material — and this is pivoted from a base and fixed at high level to the equipment panel.

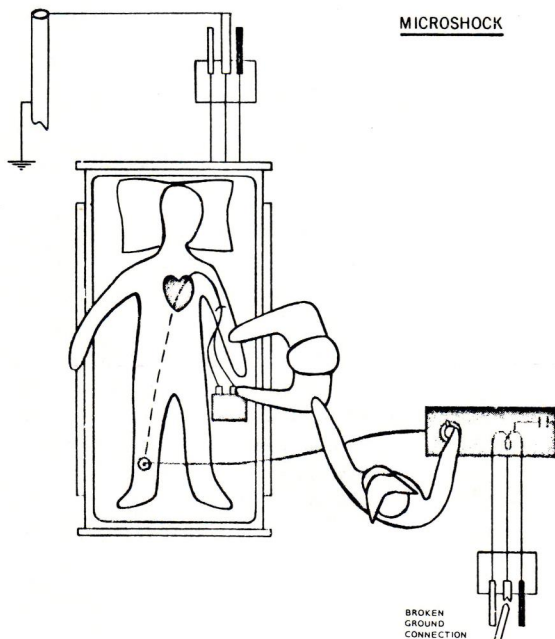
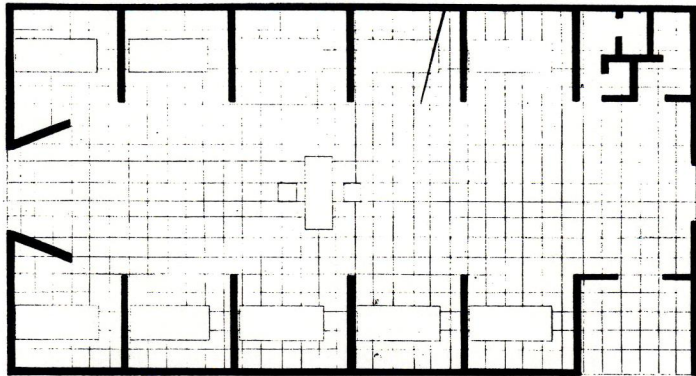
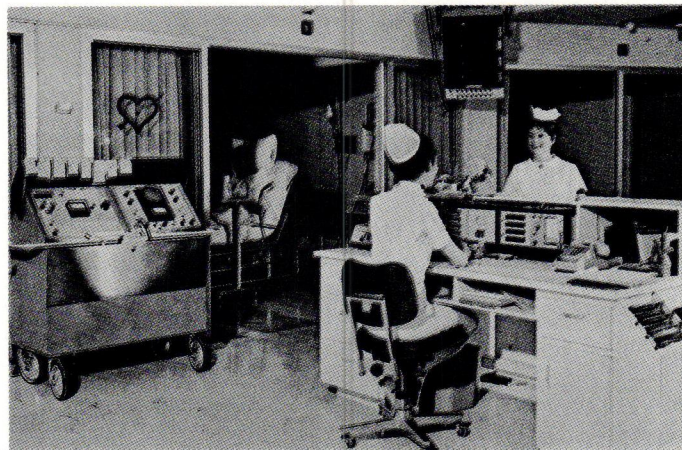


Illustration shows potential danger of current leakage and defibrillation hazards.

Six years ago there was very little data on the Intensive Care Unit; even Testing equipment was clumsy and inaccurate. At the Northern Virginia Doctors Hospital, Mr. Ray Hemness pointed out that the old Intensive Care Unit, which was replaced by his present impressive efficient unit was obsolete in layout and equipment after only four years of use.

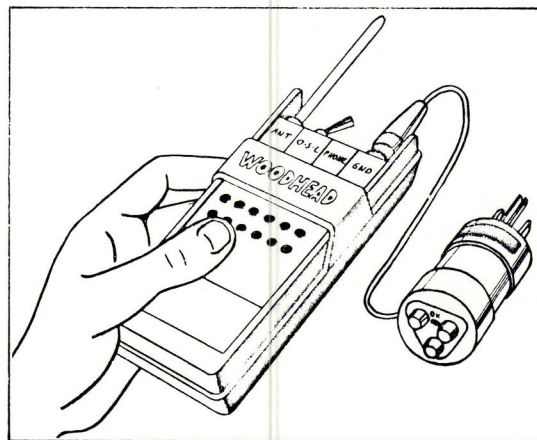


Intensive Care Unit, Northern Virginia Doctors Hospital, Arlington, Va., U.S.A.



Cardiac Intensive Care Unit, Northern Virginia Doctors Hospital, Arlington, Va., U.S.A.  
Courtesy of their Annual Report March, 1970

As a safety precaution the Doctors and Nurses do simple sonic checks on the equipment to make sure that current leak will not exceed ten micro amps and that electrostatic charges do not build up beyond the static voltage safety margin.



A Sonic Testing Unit

Simple testing equipment can be bought for this purpose. This precaution will soon become unnecessary as experimental equipment is now being manufactured with built-in grounding devices. Until we can fully control current leakage — we can only learn to live with it and take the necessary precautions. (See report on Intensive Care by Messrs. Marks and Envil — the Electrical Engineer members of the P.A.H.O. team Ministry of Communications and Works).

It is generally felt that an intensive care unit should contain 2% to 6% of the total acute hospital beds, but Dr. Erik Wiklund in his thesis on Intensive Care Units gave a guideline for calculating the number of beds and wrote as follows:

"In the small hospital (100-200 beds), intensive care may be given in a recovery room supplemented with one, two or more isolation rooms for post-operative care, intensive care, intensive observation and intensive therapy. The middle-sized hospital will have a separate recovery room and an ICU with a number of beds which correspond to 2-6 per cent of the bed occupancy ratio. The ICU can be a smaller intensive therapy unit or a larger unit for combined intensive therapy, intensive observation and heavy-duty nursing and surveillance of patients who require more than average nursing care and observation (dialysis treatment units, etc.). Very large hospitals are usually provided



### Design

\* The design of the unit, like the size, will depend on the use to which the unit is to be put. The case breakdown for 1967 at Barnet General Hospital with five beds in the intensive therapy unit is shown in the table (mortality is enclosed in brackets).

Myocardial infarction	21 ( 5 )
'Medical chests' including status asthmaticus	13 ( 3 )
Neurological	21 ( 6 )
Injuries including fractured skulls	28 ( 4 )
Poisoning	52 ( 1 )
Tetanus	7 ( 2 )
Post-operative kept for 12 hours or more	98 (13)
Miscellaneous	36 ( 7 )
<b>Total</b>	<b>276 (41)</b>

### Bed Occupancy Ratio

The bed occupancy ratio is the average daily number of persons hospitalized per unit of population. It is obtained by dividing the average daily number of beds occupied by the mean population of the same year and multiplying by 1,000.

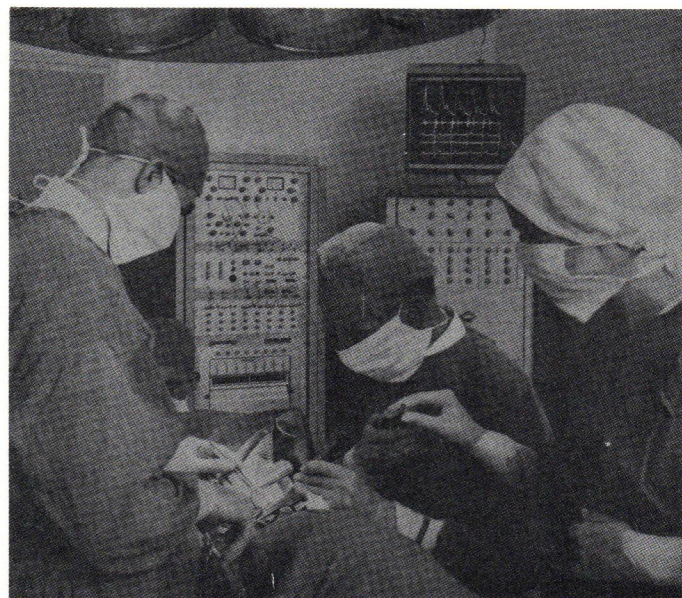
$$B = \frac{N}{P} \times \frac{1,000}{1}$$

Allow for a 5 year population forecast and add 10% of the acute beds if they are continually occupied.

\*Excerpt from article "Intensive Therapy Units" by E. K. Gardiner, M.B., FRCS, FFARCS: British Hospitals, Home & Overseas 1968/69.

with special ICU's for children, neuro-surgery and thoracic surgery."

To quote Mr. David Lubin of the Sinai Hospital "only with good Architectural Design, good equipment with built-in safety factors and a conventional preventive maintenance programme based on a regularly scheduled inspection system, can we be sure of creating and maintaining a good Intensive Care Unit, the successful design and construction of which can only be through the team work of the Architect, Engineers and Medical staff. It is only by careful thought and diligent research that we can get the best results and get away from current leakage and defibrillation hazards which can be lethal to the patient we are trying so hard to save." Even with good design and sound construction we are at the mercy of the various electronic devices which are becoming more complicated and sophisticated, it therefore is imperative that the operator should be well trained and dedicated.



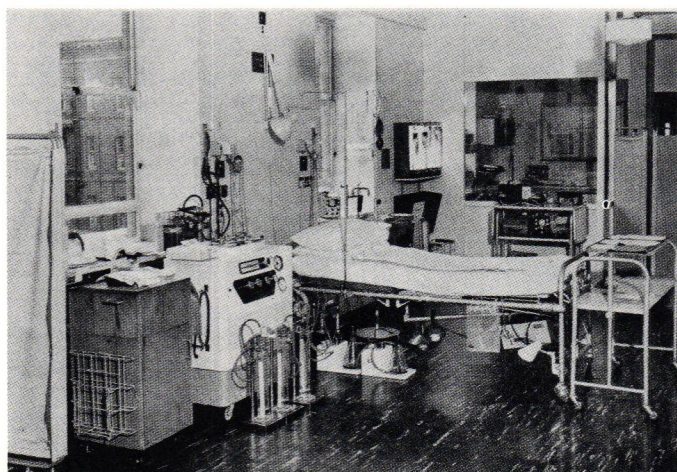
Courtesy Philips Medical Systems

bed for the special equipment and to facilitate the large number of personnel sometimes involved in emergency care of a patient. Rooms that are approximately eleven feet square are reasonable for most situations. Various arrangements are possible but the best visual module would be that based on a circular pattern. This however has extreme limitations regarding the number of beds and the relationship of work space.

On the other hand a rectangular pattern if catering for more than five beds, may not be ideal from the point of view of easy and constant observation from a centrally placed nursing station. Naturally, this is difficult to achieve when an existing area is being converted.

With this in mind it may be possible to achieve the happy medium by using a semi-circular layout. This provides for good control and observation from the nursing station, and the ancillary facilities.

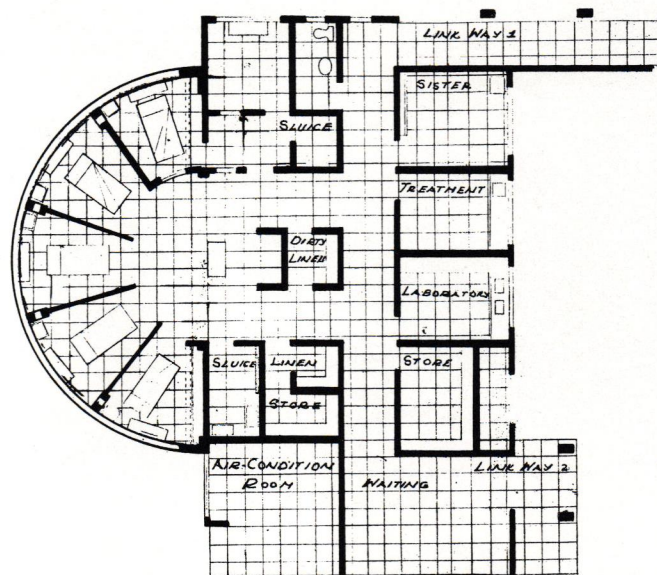
Coronary Patients are usually separated from other patients in the Intensive Care Unit. In the general purpose I.C.U. the patient is a short term occupant and for the most part is unconscious and therefore not greatly influenced by the disturbance and confusion accompanying emer-



Intensive therapy and associated equipment at Guy's Hospital, London — photo from British Hospitals, Home & Overseas 1968/69

### PLANNING THE INTENSIVE CARE UNIT

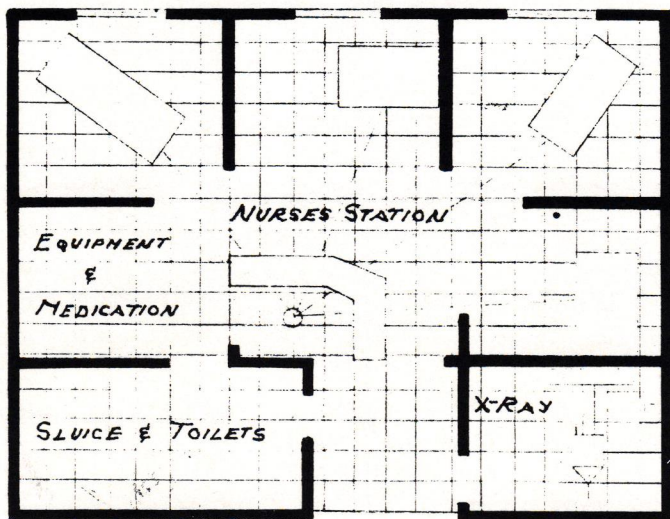
The unit may be located within a general intensive care or other patient care unit where other services such as a nurses' station, doctors' consultation and sleeping room, nurses' lounge, family waiting room, utility rooms, medication room, dietary facilities, and equipment storage rooms are readily available. It is also a general opinion that if anaesthetists are frequently involved, the Unit should be sited near to an operating theatre. Rooms should be large enough to provide adequate uncluttered space around the



Plan of proposed Intensive Care Unit for Children's Hospital, Kingston, Jamaica.

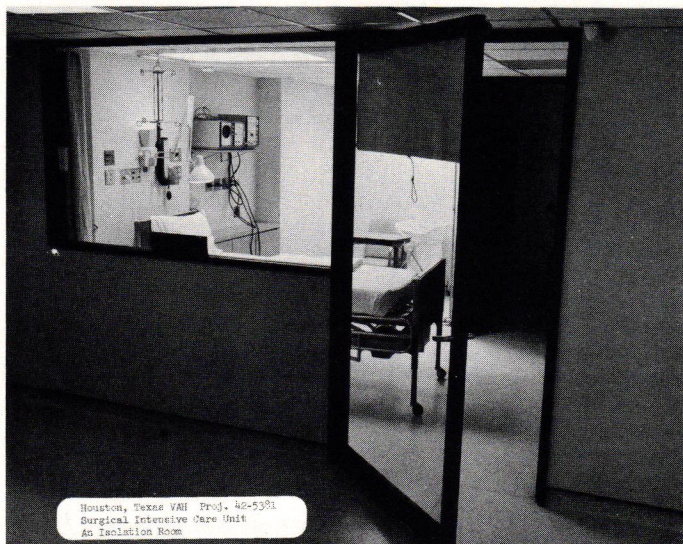


gency cases. There is also a more concentrated use of nursing skills. Therefore like a General Recovery Room, it is an advantage to have an open type General I.C. Unit, but with the area divided into sections. The beds should be so located that the nurses can view all patients from the working area as well as from the nurses desk. The I.C.U. at Walter Reed Hospital, which in fact was a conversion of an existing ward illustrates this.



*Coronary Care Unit, Walter Reed Hospital, Washington D.C.*

**CORONARY CARE UNIT** — If possible, the CCU should be adjacent to the ICU, or at least inside the intensive care area, because prompt treatment and cooperation between the anaesthesiologist and cardiologist are vital for a coronary patient in distress; it is also an advantage to be able to share the different service facilities readily available in the intensive care area, such as locker-rooms, family waiting room, equipment storage room, conference room etc. In small hospitals a combined ICU and coronary surveillance unit, with several single-bed cubicles, is more practical, as outlined above, since this promotes interchangeability and better staffing. In that case every effort should be made to keep the noise level low in the isolation room. Glass partitions for nursing supervision is essential, but opaque curtains must also be provided when privacy is needed.

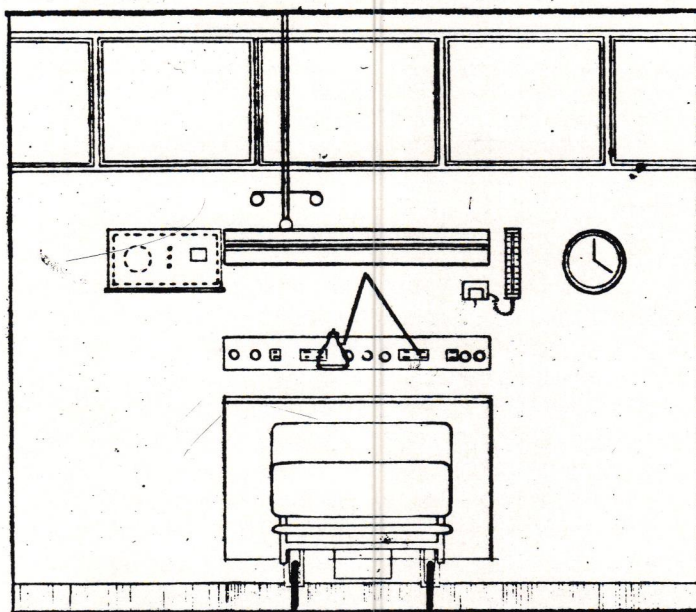


*I.C.U. room showing glass partitions and curtaining*

**WINDOWS** — All nurses and staff that we spoke with felt very strongly that windows should be made available in the I.C.U. The Nurses complained of claustrophobia in the older units that were built without windows and also spoke

of the psychological strain on the patients' inability to distinguish day from night. When metal windows are used, care should be taken to see that they are grounded.

The Intensive Care Unit at Northern Virginian Doctors Hospital was specially designed without windows — This however, was built around an inner courtyard with good roof lighting which is very effective. This method of bringing light into the buildings also received the enthusiastic approval of the nursing staff. It is my opinion, nevertheless, that high up windows are the most functional as they leave wall space for equipment and lessen the conductivity hazard, particularly when metal windows are used.



*Interior of patients room in Intensive Care Unit proposed for Children's Hospital, Kingston, Jamaica.*

**NURSES STATION** — This should be placed to enable all patients to be observed from this position and conversely, all patients should be able to see the Nurse seated at the Nurses Station. The Nurses Monitoring Console should be elevated and a high chair provided to enable her to view the patients while seated. The desk should be large enough to provide sufficient work space as well as to accommodate the central monitoring equipment and charts, and an acoustically shielded telephone.

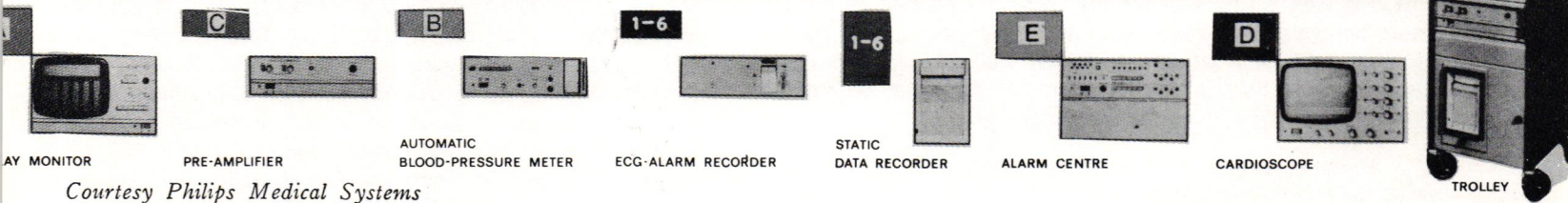
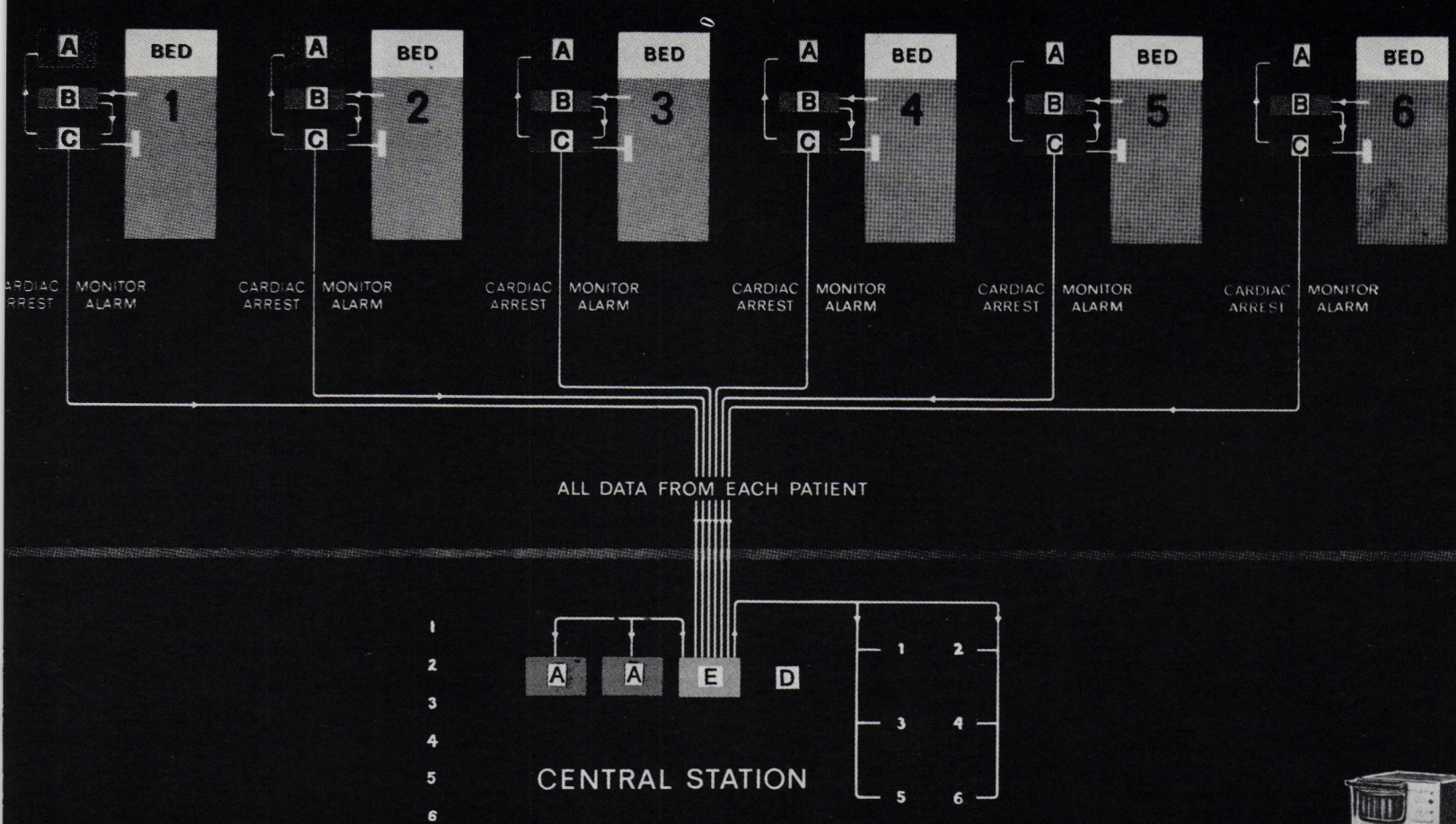
**WORK AREA** — Adequate space is required for the utility room; this area need not be a room but can be a space with a line of cupboards and countertops centrally connected with or in the Nurses Station. This will serve as a preparation area with drugs, perenteral solution flasks, blood emergency supplies, sterile tray sets etc.

**DIRTY UTILITY** — The soil utility should have facilities for the cleaning up of equipment, the disposal of waste material and the handling of dirty linen. It would be an advantage if the staff could take this used linen out of the Intensive Care Unit without actually entering the work area. A bed pan shelf, flush rim (or some other type of slop sink) is essential for this area; a double sink and drain board are also necessary. A fluoroscope was within easy access of the Coronary Care Unit at Walter Reed Hospital. The I.C.U. at the Freeman Hospital contained a permanent X-ray room. Although a permanent X-ray room is not absolutely necessary, it is essential to have a portable X-ray within reach of the I.C.U. If space for this is not available the portable X-ray could be kept in the equipment store.



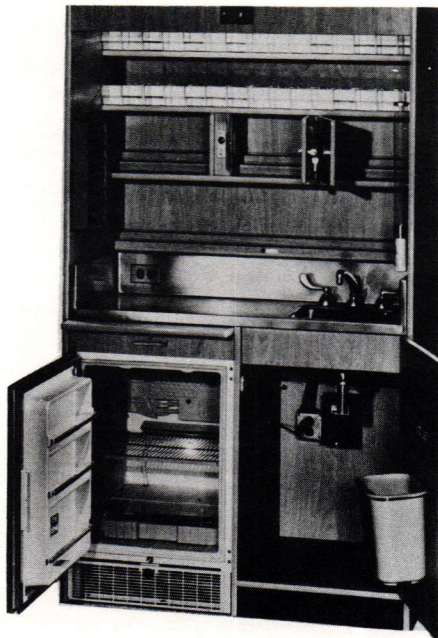
# PATIENT MONITORING SYSTEM

## INTENSIVE CARE WARD

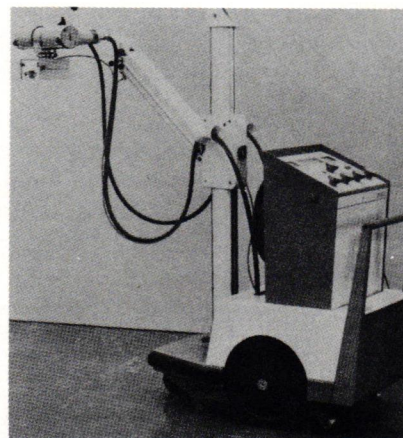


*Courtesy Philips Medical Systems*

**STORAGE** — Medication and small pieces of equipment and supplies such as diagnostic instruments, sterile tray sets, perenteral and solution flasks etc. could be stored in carts or cabinets.



*One type of Nursing Unit available on the market. courtesy of Armorclad; National Industries, Inc., Odenton, Md. U.S.A.*

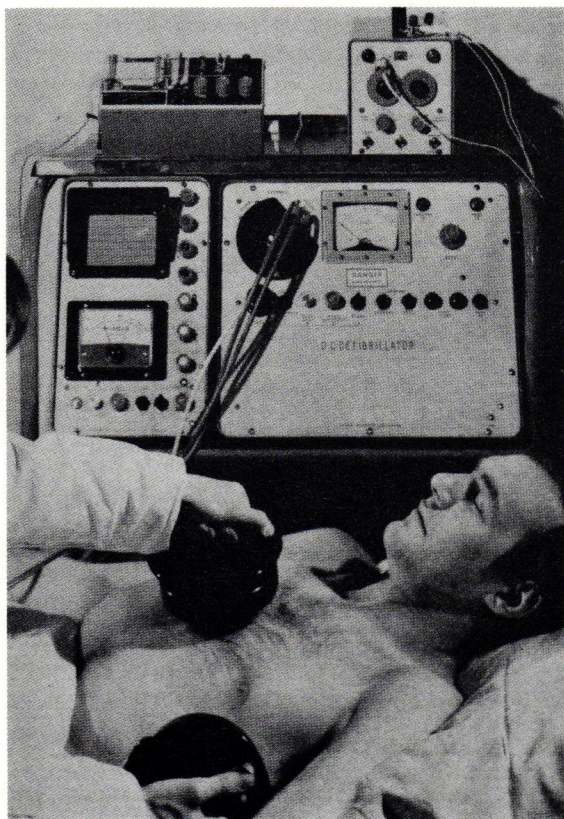


*Portable X-Ray Unit*

A standard type nursing unit, such as one used at Children's Hospital, Washington D.C., is now available on the market. It is ideal for stocking this type of equipment. The various compartments are designed to hold all of the basic supplies as well as special items.

**EQUIPMENT STOREROOM** — It is essential to have a storage area, preferably with double doors, for larger pieces of equipment such as respirators, defibrillators, oxygen tents and a portable X-ray if there is no permanent X-ray room. This equipment store could be a converted room within easy reach of the I.C.U. or C.C.U.





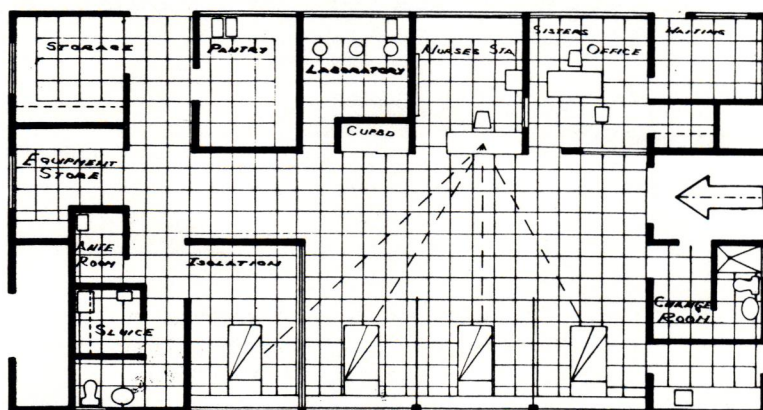
*Defibrillator (which enables passage of a short pulse of high energy direct current through the chest or by direct application to the heart) used in conjunction with an electrocardiograph machine*

**W. C. —** Toilets should be provided for male and female staff. It was the general feeling among the nursing staff that it is less distressing for the Coronary Patient to go a short distance to a toilet than to try to use a bed pan, but the problem of patients W.C. was solved ideally at the Sinai Hospital by the use of a mobile electrical comode similar to the type used on passenger aircraft.

Patients toilets should be equipped with a divertor valve for flushing of bed pans.

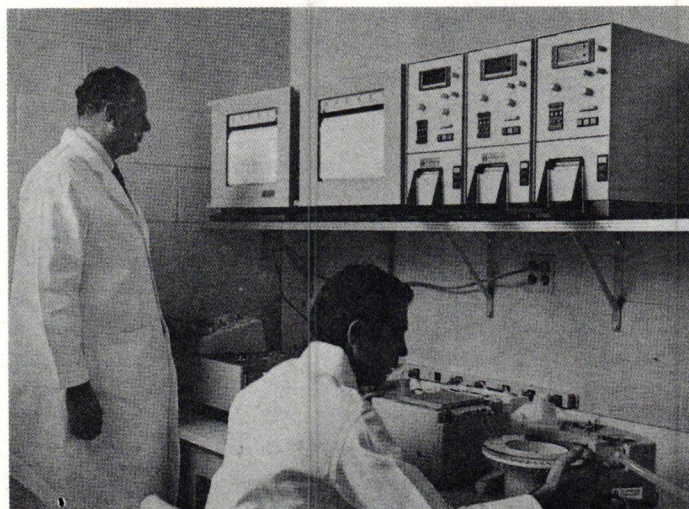
**OFFICE AND SEMINAR ROOMS —** It is an added convenience to provide a place where physicians can write reports. This can be part of the nurses station or may be an existing facility within easy reach of the I.C.U.

In all the hospitals visited, close relatives were able to visit the patients in the ICU and Coronary Unit. If this is the intended policy of the Hospital for which the unit is being designed, a waiting area for relatives should be situated near to the Head Nurse or Sister.



*\*\* Intensive Care Unit, proposed for Lionel Town Hospital, Ja.*

**LABORATORY FACILITIES —** Because of the 24 hour concentrated care given in an ICU or Coronary Unit and because these units are always on emergency status it is necessary for the I.C.U. and C.C.U. units to have easy access to Laboratory services at all hours of the day and night. If this service is not available the necessity for a special laboratory adjacent to the Unit becomes inevitable.



*Laboratory Auto Analyzer — courtesy Northern Va. Doctors Hospital Annual Report March 1970*

**FLOORS —** There is diversity of opinions regarding the type of floor best suitable for an Intensive Care Unit. Most schools of thought feel that since explosive type gases are not used in the unit, an antistatic type floor is unnecessary. The other view is that an antistatic floor will assist in the grounding of leaking current. The floor in the new Coronary Unit at Sinai Hospital is an antistatic floor. Mr. David Lubin, the Hospital Engineer, as mentioned before, is an authority on current leakage. A vinyl asbestos tile has the longest wearing capacity. This has been borne out by the extensive tests made by the U.S. Public Health. Carpeted floors are quiet and much used, but have proven difficult to clean. If carpet is chosen it should be acrylic as this material has the highest fireproof rating, but care should be taken in choosing the underlay as this may have a lower fireproof rating.

Mr. Kingshore of the Department of Public Health, U.S., has done extensive research on this aspect and his paper on the subject is soon to be issued by the U.S. Public Health Department.

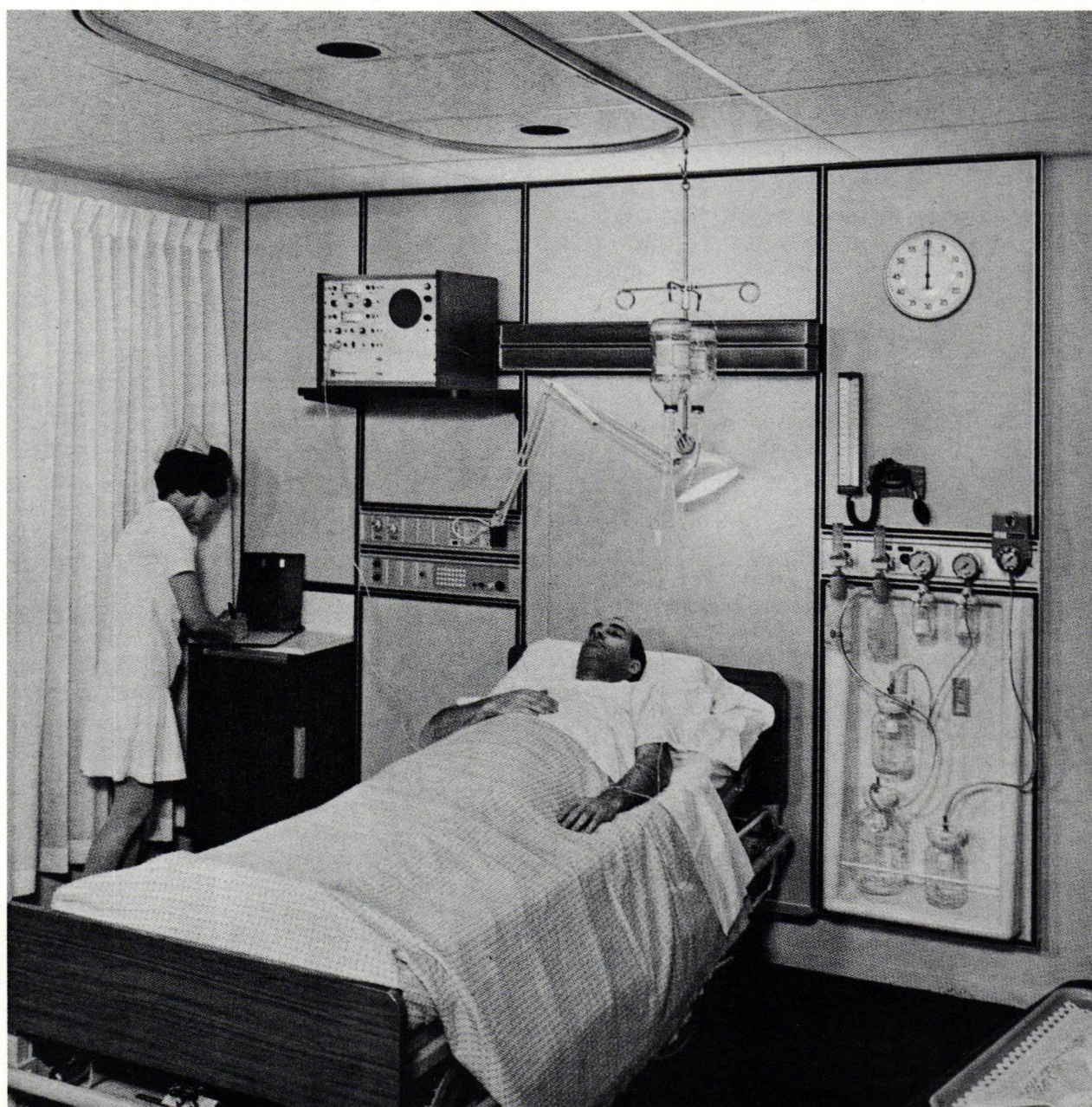
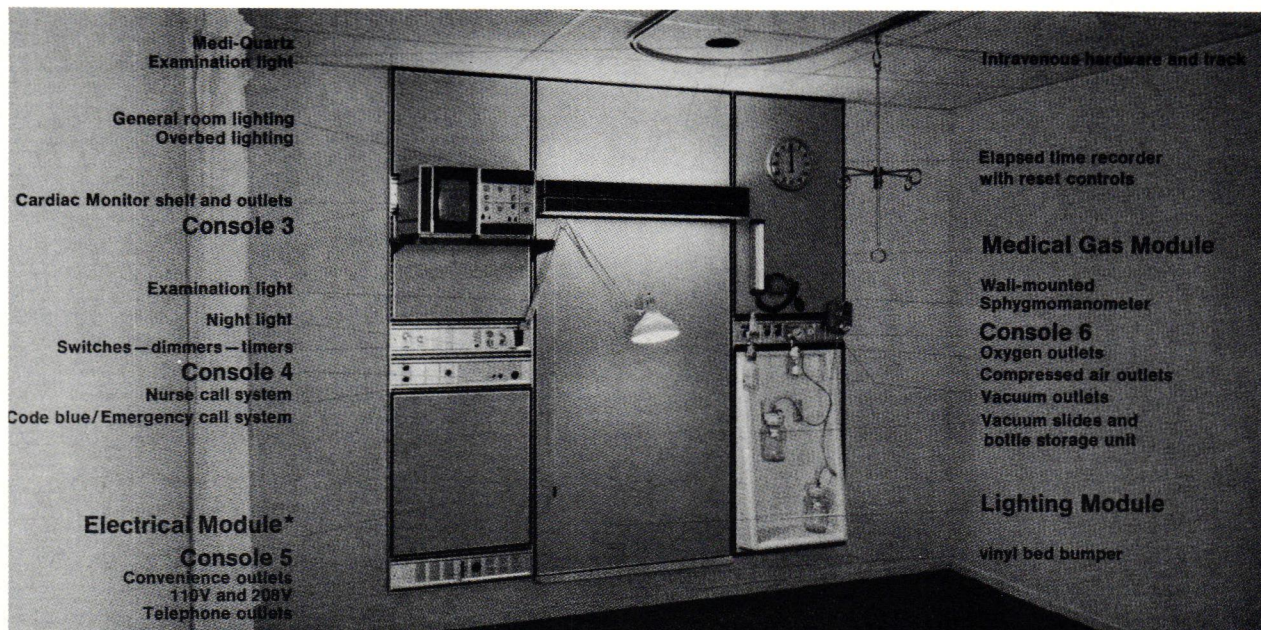
Vinyl asbestos has high resistance to scuffing from wheel traffic, abrasion, cleaning solutions and the various chemicals commonly used in this area of the Hospital.

(See Vinyl Covering — Maintenance & Operation by Caemens I Polesz, Modern Hospital issue dated April 1959).

**CRASH CARTS —** Equipment and Medical Supplies needed for emergency treatment are normally assembled on carts and ready to roll at any time. At the Northern Virginian Doctors Hospital they had their high priority emergency worked out to a fine point and could, by only broadcasting a code, have a crack coronary team at the required area in a couple of minutes ready to attend to a patient with a Respiratory Obstruction, Cardiac Arrest or Massive Haemorrhage.

**CEILING —** This is a bit of a problem as it is necessary to have a ceiling that will not encourage the culture of micro organisms. At the same time the design of the ceiling should provide easy accessibility to the overhead installations for maintenance purposes. If all the wiring and pipes are put into floor ducts and behind moveable cabinets as in the

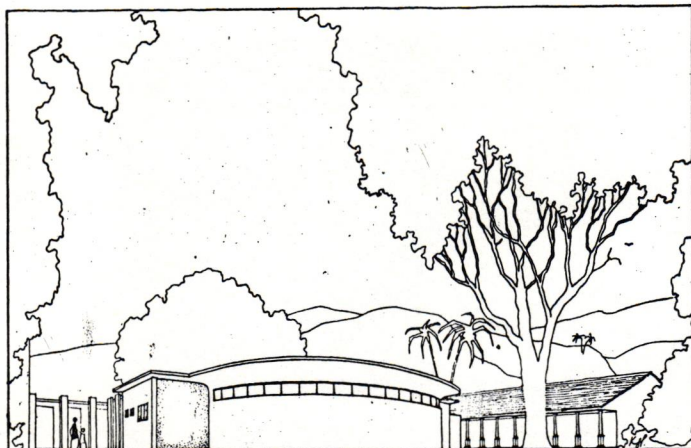




*A prefabricated standard type of wall module which is fitted behind patients bed-head as shown.*

*courtesy of Multi-Wall Electro/Systems, Inc.  
Richmond, Calif., U.S.A.*





*Perspective of proposed Intensive Care Unit, Children's Hospital, Kingston, Jamaica.*

\* *Proposed Intensive Care Unit, Children's Hospital*  
 Designed by Chief Architects Branch  
 Ministry of Communications and Works  
 Chief Architect — Mostyn Campbell  
 Project Architect — Lloyd J. Robinson  
 Electrical and Mechanical Services by  
 Directorate of Mechanical and Engineering  
 Services, Min. of Communications and Works  
 Project Engineer — Desmond Marks

\*\* *Proposed Intensive Care Unit, Lionel Town Hospital*  
 Designed by Chief Architects Branch  
 Ministry of Communications and Works  
 Chief Architect — Mostyn Campbell  
 Project Architect — Lloyd Robinson

case of the Sinai Hospital then the ceiling could be of expanded metal on Hyrib and plaster and the surface sprayed with an asbestos compound. If by necessity the installation has to be put into the ceiling a mineral tile could be used.

An easy to clean and demountable type ceiling made of a perforated alloy similar to aluminium, was seen in the corridors of Sinai Hospital but there was not sufficient information available yet to make a definite recommendation.

**BEDS** — Generally there was a preference for hydraulically operated beds, because of the possibility of current leakage from electric beds, but a well grounded and electrically isolated bed of the type now being experimented with at Sinai Hospital could prove best for the purpose. It should be mentioned here that the U.S. Public Health Department does not recommend electric beds in Coronary Intensive Care Units because of the electric hazards that occur in hospitals through the use of the standard electric bed. This was made crystal clear on page four of their monthly issue "Equipment Consultive Notes", Vol. I. No. 3. Dated November, 1969.

**THE HEART MOBILE** — The Heart Mobile is a fully equipped Mobile Intensive Care Unit. There are six such units in operation in the United States at present. The team from Jamaica inspected the Heart Mobile attached to the Holy Cross Hospital in Montgomery County. These units are on standby emergency twenty-four hours per day, ready to go to the aid of anyone in difficulty with chest pains, asphyxiation or suspected cardiac arrest. It is fully equipped electronically for defibrillation and resuscitation. It is constantly in touch with all hospitals in the area, the police and the fire brigade. All equipment is duplicated and it is operated by a specially trained nurse and a technician.

**PREFABRICATED UNITS** — In converting existing areas it is economical and convenient to use a prefabricated standard type of wall module. This would include the necessary electric circuits to suit the required electronic equipment and built in service installations such as Oxygen and Suction.

**PAINTING & ENVIRONMENTAL CONTROL** — In discussions with the Nurses of the Intensive Care Unit, it seems that because of the continued battle between life and death even the specially selected and highly trained Nurses at times suffer some emotional and psychological effect as a result of this tension. To alleviate the starkness, the

Intensive Care Unit should be decorated with strong accent colours. In general, pastel colour latex paints were used in most of the units visited; this type of paint seemed to stand up well under continual scrubbing. At Sinai Hospital, vinyl wall covering was used. The prime consideration for the selection of a colour should be on its reflective value, and its psychological effect. The reflection from the walls should at all times show up the patients natural colour. In the Caribbean the use of pastel grey and off whites should be encouraged but the furniture and accessories should be of bright, warm and happy colours.

### LOOKING AHEAD

Looking at the changing scene in science and medicine, with advances in the use of atomic and nuclear power; with spare part surgery on an ever increasing scale, one feels that it is the beginning of a new era in which the orthodox hospital ward as we know it today will be a thing of the past. Jamaica must now start thinking seriously in terms of progressive patient care. Studying and planning for Intensive Care is only the start. It is necessary to follow through and implement new trends and concepts in ward design, the intermediate care, the self care unit and the long term care unit. Above all the public should be educated to accept the fact that the least expensive and most satisfactory patient care is preventive medicine.

And what of the future — the shortage of nurses and technicians is international. On the other hand medical science continues to increase the life expectancy. If we couple these two facts with the present population explosion we can see why without any doubt over-crowding and understaffing have already become a problem for most hospitals.

As the situation gets worse, the Hospital of the Future must be designed to cope not only with spare part surgery, but with the most complicated type of electronic device — all with less staff. Therefore, it is quite possible in the next decade that we will see the fully automated hospital. At Sinai Hospital robot trolleys were seen moving freely along corridors and even using lifts. In a hospital just outside Stockholm, a patient's progress is followed by a Computer from the minute he or she enters the hospital to the time of leaving. It is therefore inevitable that in the near future when a patient arrives at emergency he or she will be examined and documented and sent by a robot sleigh to what will probably be termed an Intensive Care Centre. This will be the core of the hospital with a high concentration of Doctors and Nurses working in an area built substantially to withstand atomic blast and fallout.



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On behalf of the team, I would like to express my thanks to all the individuals who helped to complete this Fellowship Programme. We were all impressed by the willingness of all who, although extremely busy, not only gave generously of available information, but took time to discuss their views on various factors relating to the Intensive Care and Coronary Care Units.

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Mr. Herbert R. Hunt	Assistant Hospital Director, Freedmans Hospital
Mrs. Parker	Nursing Supervisor, Freedmans Hospital
Dr. Leon I. Block	Registrar, Fairfax Hospital
Mr. Cecil P. Greene	Bio-Medical Engineer, Fairfax Hospital
Mr. Ray Hemness	Administrator, Northern Virginia Doctors Hospital
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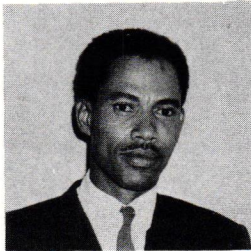
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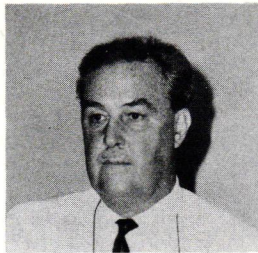


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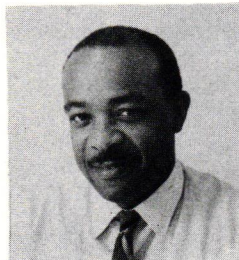
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