HOBaste W.A. STEEL and W.E. BARDGETT STUDY TOUR

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UXBRIDGE GROUP HOSPITAL MANAGEMENT COMMITTEE

A

TOUR OF HOSPITALS

IN THE

U.S.A. AND CANADA

by

Dr. W.A. Steel, Medical Director, Hillingdon Hospital.

and

Mr. W.E. Bardgett, Group Secretary

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By Dr. W.A. Steel, Medical Director, Hillingdon Hospital, Uxbridge, and
Mr. W.E. Bardgett, Group Secretary, Uxbridge Group Hospital Management Committee.

The joint purpose of our visit was to note developments in the design and planning of new general hospitals and their equipment, and to assess to what extent these might be incorporated in the detailed planning and equipping of the new Hillingdon Hospital, on which construction is due to begin during 1961. Mr. Bardgett had a separate objective in the preparation of a report on the Course in Hospital Administration at the University of Toronto for the King's Fund's Hospital Administrative Staff College. Our visit, which took place in September and part of October 1960, was made possible in Mr. Bardgett's case by a grant from the King Edward's Hospital Fund for London, and in Dr. Steel's case from the Uxbridge Group Hospital Management Committee.

STRUCTURE OF REPORT AND ACKNOWLEDGMENTS

This report begins with a brief general account of the extent of our tour and this is followed by general descriptions of the hospital systems in the U.S.A. and Canada. We have then described some general trends in North America and its hospitals which we think may have a bearing on long-term hospital planning. Items for further consideration in the planning of the new Hillingdon Hospital are listed next and these have been divided into three sections:-

(a) Recommendations for consideration of certain criticisms of the plans of the new Hospital following a discussion which Mr. Bardgett had with Professor Harvey Agnew of Toronto.

(b) On fitments, installations and equipment as a result of points noted during our tour.

(c) Confirmation of planning decisions on the new Hospital previously taken.

We have placed at the end of our report the lengthy detailed accounts of the points noted in various hospitals visited, as not all readers will wish to go through these.

Finally there are appendices listing the people met during our visit (apart from those met by Mr. Bardgett on his assignment in Toronto) and listing the hospital photographs taken during the visit.

Mr. Bardgett has prepared a separate report on the Course in Hospital Administration at the University of Toronto.

We are pleased to have this opportunity of expressing our gratitude to the King Edward's Hospital Fund for London and its Hospital Administrative Staff College, and to the Uxbridge Group Hospital Management Committee, who made our visits financially possible; to the North West Metropolitan Regional Hospital Board and the Uxbridge Group Hospital Management Committee for approving our absence from normal duties, and to the many Hospital Administrators throughout the United States and Canada, who extended to us such outstanding hospitality and kindness and such willingness to give up their time to show us their new buildings.

GENERAL DESCRIPTION OF VISIT

We spent just under six weeks on our visit. During the first fortnight we participated in the Study Tour of Hospitals in the U.S.A. arranged by the International Hospital Federation. This study tour had two hundred and fifty participants from thirty-four different countries. At each centre in the U.S.A. it was necessary to choose between different hospitals and we visited the following during the Study Tour:

Massachusetts General Hospital.	Boston, Mass.
Rhode Island Hospital.	Providence, R.I.
New York Hospital.	New York City.
St. Vincent's Hospital.	New York City.
Princeton Hospital.	Princeton, N.J.
Lankenau Hospital.	Philadelphia, Pa.
Sinai Hospital of Baltimore.	Baltimore, Ma.
U.S. Naval Hospital.	Bethesda, Ma.

We also visited the surgical dressings factory of Messrs. Johnson and Johnson at North Brunswick, N.J., and Mr. Bardgett visited the U.S. Naval School of Hospital Administration at Bethesda, Maryland. Whilst in New York we visited the United Nations Headquarters, and were given an account of the work of the World Health Organisation.

On the completion of the International Hospital Federation Study Tour, and on the advice of Senior American Participants in the tour, we then made privately arranged visits to the following hospitals, which had been selected because of our special interest in new general hospital planning.

Ochsner Foundation Hospital.	New Orleans, La.
Jewish Hospital of Saint Louis.	St. Louis, Mo.
Henry Ford Hospital.	Detroit, Mich.
University of Chicago Clinics.	Chicago, Ill.

Whilst we were in Saint Louis, Dr. Littauer, of the Jewish Hospital arranged for us to spend an afternoon looking at new equipment with the President and the Vice-President in Charge of Developments of the A.S. Aloe Company of St. Louis, the second largest suppliers of Hospital furniture and equipment in the U.S.A.

From Chicago Mr. Bardgett went to spend approximately a fortnight with Dr. Harvey Agnew, the Professor of Hospital Administration at the University of Toronto, and his associates, and he visited the following Canadian Hospitals before returning to England:

Niagara Falls Hospital,	Niagara Falls, Ontario.
Hospital for Sick Children.	Toronto.
Toronto General Hospital.	
Montreal General Hospital.	
Royal Victoria Hospital.	Montreal.
Cabrini Hospital.	Montreal.
St. Justine Children's Hospital.	Montreal.

He also visited the Institut Superieur d'Administration Hospitaliere, at the University of Montreal.

Dr. Steel meanwhile paid a private visit to the Pacific Coast, calling at the following Hospitals en route:

Latter Day Saints Hospital.	Salt Lake City.
Memorial Hospital of Long Beach.	California.

THE HOSPITAL SYSTEM IN THE U.S.A. AND CANADA

Although our main concern was with hospital building and equipment, we were naturally interested in the hospital systems of the U.S.A. and Canada, and these are briefly described below.

The U.S.A.

Here Hospitals are operated under three major types of controlling authorities:

Non-profit - This is a type of corporate organization created under the laws of the state in which it operates. It is governed by a board of unpaid citizens who are usually elected by members of the corporation. It is not controlled in its day-to-day operations by any governmental agency, although it must comply

with Governmental regulations concerning such things as patient safety, fire hazards, food handling, drug controls, and qualifications of the medical and nursing staffs. Most of the hospitals in this category provide care for short term general illnesses.

Proprietary - These are hospitals owned and operated by a single individual or by a group of persons. They are incorporated under state laws. Any income earned by these corporations is the property of the Owners. They pay taxes on property and income just as any other business enterprise. About 13 % of all hospitals in the U.S.A. fall in this category but they have only 2 % of all the beds. They are relatively small institutions, the average having 40 beds.

Governmental - All levels of governmental authorities may own and operate hospitals, although not all units of governments do so. The Federal Government operates hospitals for members of the armed services, veterans of past wars, such miscellaneous groups as employees of the Public Health Service, certain governmental agencies, seamen in the Merchant Marine, and Indians. Care in these institutions is financed from federal tax funds. Most states operate hospitals for the care of patients with nervous and mental illnesses, and some for tuberculosis, usually at no cost to those patients. Such hospitals are financed from state tax funds. A number of states also subsidize care in teaching hospitals that are associated with medical colleges and operated as part of state Universities. County and city hospitals for the most part restrict their services to persons judged unable to pay for care for general illnesses. These hospitals are financed from county and city taxes. Generally speaking, only large metropolitan areas (cities and counties) operate their own hospitals. In others, the local government purchases care for the indigent from non-profit general hospitals.

About 94 % of all income to all hospitals comes from non-government (non-tax) sources, and about 89 % is either paid direct by the patient at the completion of his hospital stay or through some non-government voluntary agency to which the patient has made regular payments in advance of illness.

The largest of these agencies are the Blue Cross Plans. This is essentially a social movement functioning through local autonomous hospital-sponsored non-profit corporations. At the end of 1959, the eighty three Blue Cross Plans approved by the American Hospital Association reported a combined enrollment of nearly 57 million subscribers. Ten million of these subscribers used their membership benefits during the year. Payment to hospitals on behalf of these patients totalled almost 1.5 billion dollars. This represented 93 % of the total income of Blue Cross Plans. The balance was used for operating expense and reserves.

More and more every year people are voluntarily prepaying hospital bills through the purchase of hospital care benefit contracts with Blue Cross Plans, commercial insurance companies or private group organizations. Governments are moving toward payment of full cost of care in non-government hospitals for groups in the population for which the various levels of government have assumed responsibility.

A recent study by the American Hospital Association indicated the following sources of hospital income:

Blue Cross Plans	34%
Self-paying patients	29%
Commercial insurance	26%
Governments (all levels)	6%
Other sources	5%

Medical Staff - Most physicians receiving appointments to the medical staffs of hospitals are not employees of those hospitals. They earn their privileges of practising there by virtue of proven competence in their special fields of medicine. They arrange for admission of their patients, and they collect their own medical fees directly from these patients. There are, of course, some exceptions to this general rule in some hospitals, such as the physicians in charge of the departments of laboratory, X-ray, anaesthesia, and

physical medicine. Also some hospitals affiliated with medical schools employ the chiefs of their medical departments, and a few hospitals, such as the Henry Ford Hospital at Detroit, and the University of Chicago Clinics, employ their entire medical staffs on a full-time basis.

Volunteer Services - In United States Hospitals a large amount of voluntary assistance is provided to hospitals by members of the general community, either through formally organized groups (called Hospital Auxiliaries) or by individuals (women, men and young people, usually in their teens). This assistance may take the form of active fund-raising or, more important, it may provide volunteer assistance within the hospital to supplement the work of the professional personnel; it may also provide additional services, such as a library service, for the patient. Volunteers working within the hospital are part of an organized department of the hospital, the director of auxiliaries being a paid officer of the hospital. It has been estimated that more than 2 million persons are voluntarily contributing a portion of their time in this way. At the same time they are of course providing a closer link between the hospital and the outside community.

Canada.

(Information on the Canadian Hospital system was obtained mainly from the Ontario Hospital Services Commission, during Mr. Bardgett's stay in Toronto.) By 1961, all the provinces in Canada will have hospital insurance plans. The pioneer province was Saskatchewan, which started its hospital insurance plan in 1947. In a recent election the province of Quebec has returned a government which has undertaken to bring into effect a similar insurance plan in Quebec (the last province to start a plan) from January 1961.

The Ontario Hospital Services Commission was created by the Ontario legislature in 1956, and charged with two main responsibilities. The first of these was to prepare and administer a plan for hospital insurance, and the second to ensure a balanced and integrated system of hospitals and related health facilities. In order to avoid opposition from the hospitals and the public, the commission has been anxious to stress that it is not "taking over" the hospitals of Ontario, and that they will remain autonomous community institutions. So far it has mainly been concerned with the institution of the insurance programme rather than with the planning of an integrated hospital service.

The Insurance benefits cover the regular and usual hospital services, the use of the operating theatre, X-rays, drugs, laboratory services, all in standard ward accommodation of approved hospitals in Ontario for as many days as such services are medically necessary. The plan also covers emergency out-patient Hospital services, within 24 hours following an accident. The plan does not provide benefits for any extra hospital charges for semi-private or private accommodation but individuals either from their own means or from additional insurance may pay a statutorily determined differential charge so that they may be accommodated in semi-private or private rooms. Nor does the plan cover ambulance services or transportation costs, any admission to hospital solely for diagnostic services, or any diagnostic services received as an out-patient, except in the course of treatment immediately following an accident. The plan does not cover physicians' fees, except in so far as these are charged by the hospital for insured services and result from pathology and X-ray and similar procedures. Other medical doctors, such as surgeons, anaesthetists, etc., render their own accounts to the patients.

Emergency care outside Ontario is provided in Canada in the case of a sudden illness or accident away from home by reimbursing for the cost of such emergency hospital care the sum which would have been paid for up to the value of similar care which the plan would have provided in a comparable hospital in Ontario.

For these benefits the individual pays monthly premium rates of two dollars ten cents a month for a single person, and four dollars twenty cents a month for the family, which would include the husband, wife and all unemployed, unmarried children under the age of nineteen. Employers with more than fifteen employees are required by law to enroll their employees in an employed group,

and to collect the monthly premiums for the Government. Employers with less than fifteen employees may undertake this facility if they wish. Credit Unions, Co-operatives, Labour Unions and professional associations may if they wish form collectors groups, to collect the premiums of their members.

The Insurance plan was brought into being after close consultation with the Blue Cross and other insurance agencies in the province. The Commission Insurance Plan is now the only agency offering standard, public ward hospital care insurance in Ontario. The other private plans are now providing additional coverage such as insurance to cover the difference in cost between standard ward and semi-private or private accommodation, and medical fees, etc.

The budgets and statistics of the various hospitals are scrutinised by the Commission, before making both maintenance grants and capital grants for developments. The Federal Government assists the provinces in this hospital provision by making an approximately dollar for dollar contribution.

In Saskatchewan, which pioneered the hospital insurance scheme in 1947, a pilot project has been undertaken in the Swift Current area of providing as part of an insurance scheme, both hospital care and medical care. The Insurance Commission in this area has paid the fees of the hospital medical staff, with their agreement. A recent election in Saskatchewan gave a mandate from the people to introduce the Swift Current scheme of medical care insurance as well as Hospital insurance, throughout Saskatchewan, although this has not yet been brought into effect. As Saskatchewan had pioneered the hospital insurance scheme thirteen years ago, there is widespread belief among hospital people in Canada that the scheme for hospital medical care insurance as well as hospital insurance will eventually be brought into effect in all the provinces.

Although the hospital commissions have been anxious not to interfere with the autonomy of community hospitals, they have begun programmes of extensive research into hospital facilities, and the use of these facilities, with a view to guiding the development of hospitals along the most efficient and economical lines. They will be able to guide the hospitals gradually into the provision of an integrated service by giving grants for capital extensions and new buildings and with-holding them where this is thought desirable. It seems, however, that there will be considerable resistance to any change in the use of hospitals such as has taken place in England, and to the kind of overall planning undertaken by our R gional Hospital Boards.

SOME GENERAL TRENDS

Whilst some of the following observations of trends in America are necessarily superficial, they may have a lesson for Hospital planning in England.

(a) The Motor Car Parking Problem.

This problem is of course extremely acute in America, where in Los Angeles, for example, there are 2.2 motor cars per family, and very little public transport. The problem of parking in "downtown" areas (i.e. city centres) has altered, and is still altering, methods of living. As is well known, shopping centres consisting of one or more supermarkets, with marked out car parks several times the area of the stores themselves, have been built outside most cities, so that the housewife can park her car near to the shops. Shops, and even department stores, in many built up central areas are scheduled for demolition. Near New Orleans, a Hospital (The Ochsner Foundation Hospital) has been deliberately built well out of town on one of the main highways. It has its own Motel, for patients and relatives, and all staff, patients and visitors must reach it by motor car.

To provide parking facilities for their staff and for visitors, established hospitals in built-up areas, such as the Henry Ford Hospital in Detroit, are building or have already built their own multi-storey parking garages. Hospitals such as Lankenau at Philadelphia, which has been recently re-built out of town in the middle of what was a golf course, have found that their extensive surrounding parking areas are nevertheless none too large. The cost of surfacing the vast amount of parking space needed has been so great that at Lankenau they have installed parking meters beside each marked position to pay for it. The effect of the increased use of the motor car by housewives as well as their husbands may well provide in the British Isles in the future a strong pressure to build hospitals outside the centres of cities where adequate parking space may be retained.

(b) Food Distribution Systems and "Radar" Cooking.

The present British system of food preparation and distribution in Hospitals in heated food trolleys is regarded as unsatisfactory both in the United States and in Canada, because much of the distribution work, including the serving of food onto plates, is decentralised to the wards. In North America, the general practice, and certainly the trend is towards the preparation of trays with ready-plated food in the main kitchen. There are five main methods of arranging this. In all of them the food to be given to the individual patient is decided by reference to pre-printed menu cards covering the three meals the following day, and on which are circled in ink by the patient himself or by the ward sister those items chosen for the meal. The different methods are:

(1) A System of electrically heated, insulated tureen-like containers for the hot dishes.

(2) The "Meals on Wheels", or air-line food system, using trolleys with both heated and refrigerated sections, with the trays partially made up on the cold side, but with the heated food on plates inside drawers in the heated section of the trolley, ready for matching when the trolley reaches the ward floor.

(3) The "Trayveyor" System, which is a continuous vertical belt tray elevator, positioned at the end of the assembly belt for food trays in the main kitchen. The Trayveyor System relies on speed of distribution to ensure that food is hot and in good condition by the time it reaches the patient. Trayveyors and assembly belts are usually duplicated to avoid difficulties should breakdowns occur.

(4) The Tureen and Heated Pellet System, for containing hot dishes. This has already been seen in demonstration form in England, although it has not been installed in the British Isles. Pellets heated in an oven are fitted

inside tureens, and continue to radiate heat to the plate whilst it is in the tureen passing between the main kitchen and the patients' bedside.

(5) This, which is probably the most satisfactory system, is a combination of the Trayveyor and the heated pellet system.

In all these centralised food distrabution systems, the dietary or catering staff move from ward floor to ward floor, undertaking the distribution of food to the patient's bedside. In some hospitals, however, they combine these duties with housekeeping or domestic duties, at other times of the day.

In Canada, the British nursing tradition has retained closer control of the the food distribution by the ward sisters or floor supervisors. This has proved quite practicable with the central delivery systems, the sisters being involved in the checking or choice of food from the pre-printed menus, and in supervising the distribution of it when it arrives on trays on the ward floors.

A recent development which it is thought may well expand throughout North America in the future, and which has been started at the Kaiser Permanente Hospitals in San Francisco, is the introduction of so-called "Radar" cooking. Under this system, food for each patient is three quarters cooked a number of hours beforehand, and this is consequently possible with a very much reduced number of cooks. The food is then retained in refrigerators, or may even be kept for some considerable time in deep freeze cabinets. The food is plated and trays are made up in "Meals on Wheels" carts, well in advance of the meal times, and without the need for speed and bustle which result from the need to serve food before it goes cold. The plates of food are then covered with plastic cellophane-type envelopes called "Saran-wraps", which have ventilating holes in them.

Installed in the main kitchen are micro-wave or radar ovens, which will hold four plates at a time. A test meal is placed in the oven to assess the number of seconds required to cook it completely. This will vary between ten and fifty seconds for each set of four plates. Food given the final cooking by this radar system is very hot indeed and retains its heat, usually without the need for insulated containers, until it is delivered by trayveyor or other system to the patient's bedside.

An alternative method of employing radar or micro-wave cooking is to have decentralised micro-wave cookers on each ward or ward floor, and to have the semi-cooked meals sent to the ward, a little in advance of meal times, where they may be selected, depending on the patient's choice.

The system is said to result in substantial savings in kitchen staff, only one cook being used in a 250 bed Hospital. A further development of the system, and one in which the General Foods Corporation of California is said to be interested, is the use of commercially, pre-frozen, ready plated meals, giving an a la carte choice, and needing only the final brief radar cooking in the hospitals before the meals are served. There is already a large supply of pre-packaged, ready prepared foods in California and pioneering work on this system is likely to be undertaken there. The radar or micro-wave cooking is similar to infra-red cooking, which is known in England, but unlike infra-red heating it is said to give the food a more acceptable appearance.

(c) Use of Individual Packaged Items.

American and Canadian hotels, restaurants, and now their hospitals, use a great many individually packaged items. One remembers wrapped lump sugar having been used in the United States since at least the early years of the second world war but this has now been extended to include sachets of granulated sugar, moulded plastic containers for individual portions of jam and marmalade, small individual disposable cardboard containers of milk or cream, individual sealed sachets containing impregnated paper towels for after-meal toilet, plastic wrapped and sanitised tumblers and plastic wrapped and steralized individual kits of tumblers, tooth mugs, wash-bowls, for use in hospitals.

It is difficult to decide to what extent these individually packaged items are used on the grounds that they are hygienic and a preventive health measure, on the grounds that the alternative of using communal articles is now distasteful to the public generally, on the grounds that it is good patient relations for those who are paying for their treatment, or on the grounds that the handling of the items ready-packed saves a good deal of time and labour. The issue of pre-packaged individual sachets and containers of sugar, milk, jam and marmalade, together with the "wash and dri" kits on patients trays is certainly said to save nursing time on the wards.

Central Sterile Supply Departments, and Commercial Pre-Sterilization.

One of the main interests of British hospital administrators visiting the North American continent at this time, is in the design of Central Sterile Supply Departments, which have been common there since before the second world war. Although the Americans and Canadians are still including Central Sterile Supply Departments in their new hospitals, they have pointed out that just at the time when Europe is beginning to be interested in them, they are expecting the eventual replacement of these departments by commercial pre-sterilization.

In the British Isles it is now thought to be an inopportune time to establish central syringe services, because it is expected that commercial firms may be able to produce more cheaply pre-sterilized and pre-packaged and possibly disposable syringes of the various sizes, and these are expected to be supplied through the Ministry of Health's Central Supply organization.

A number of firms, both in the British Isles and in America, are beginning to be interested in the pre-sterilization and packaging of other items used in hospitals, and the Americans and Canadians foresee that sterilization commercially on a large scale may eventually produce a product which is quite satisfactory and cheaper than can be produced by individual dispersed Central Sterile Supply Departments in various hospitals. The reliance on commercially sterilised materials in this way may have dangers, but they will probably be greater in North America because of the difficulties of transport, and the possibility of isolation in winter time.

(d) Mobile Beds

Although two or three years ago the use of mobile beds was being increasingly introduced in North America, as it has been on the continent of Europe the trend has now been reversed and is against the use of mobile beds. This is because of the use in most hospitals of the electrically operated high-low bed which has however the disadvantage of being too heavy to be moved easily along hospital corridors. Secondly, the increasing use of recovery rooms adjoining operating theatres for post operative care or of intensive care units over longer periods has meant that patients are cared for in these recovery rooms in a special kind of trolley with side rails attached.

(e) Floor Manager Pattern for the Nursing Unit.

Although it cannot be regarded as a trend, an interesting experiment at the Sinai Hospital of Baltimore has been the introduction of "Floor Managers" who are intended to relieve the equivalent of ward sisters of some administrative and supervisory duties.

The experiment was supported in part by a research grant from the National Institutes of Health in co-operation with the Division of Nursing Resources of the United States Public Health Service.

In the experiment at Baltimore it was stressed that it differed from previous experiments which had merely called for a higher type of ward secretary. The duties and responsibilities of the Floor Manager at Baltimore were to co-ordinate, supervise and participate in the non-nursing, non-professional functions performed in a hospital nursing unit of between twenty-eight and thirty-two beds, including housekeeping, preparation and serving of meal trays, requisitioning and control of supplies and linen, care of equipment, messenger service and related responsibilities. The floor manager supervises between three and six maids.

The intention is that the "Floor Manager should be to the nurse what the nurse is to the Doctor". The women employed as Floor Managers at Baltimore were mature women over 40. The experiment has been described at some length in a booklet published by the hospital, a copy of which was obtained.

Items for further consideration in Planning of new Hillingdon Hospital.

These have been divided into 3 sections:-

I. Recommendations for consideration of certain criticisms of the plans of the new Hillingdon Hospital following a discussion with Professor Agnew of Toronto.

II. Details of fitments, installations and equipment noted on our tour of Hospitals.

III. Confirmation of planning decisions already taken.

Recommendations I.

Recommendations for consideration of certain criticisms of the plans of the new Hillingdon Hospital following a discussion between Mr. Bardgett and Professor Agnew, Professor of Hospital Administration at Toronto and a Hospital Planning Consultant of Messrs. Agnew, Peckham and Associates.

(a) External to Main Building.

(i) Laundry.

It would have been preferable to have the hospital laundry within the main hospital block for although this would have meant long steam lines from the boiler house, the extra running costs would have been more than offset by the saving in the handling of soiled and clean linen between the hospital block and the laundry. It is suggested however, that the system of having mobile racks made up to a standard issue be used in the laundry, and that these be covered with a plastic cover to take to the hospital in inclement weather.

(ii) Hospital Incinerator.

Although it is at present planned to have the main incinerator near the Boiler House, Professor Agnew suggests that it might be preferable to have such an incinerator in the basement of the main building, and to take its stack to the top of the building well clear of the air inlet vents to the ventilation system. This would avoid the need for carrying rubbish dressings etc. for incineration to the 'main' site of the hospital.

(iii) Mattress Disinfector.

A mattress disinfector probably of the Sparkhall disinfection type should be provided near the boiler house.

(b) Lower Ground Floor.

(i) Positioning of Central Sterile Supply Dept.

It would have been preferable to have had the Central Sterile Supply Department and if possible the Pharmacy as well as the main kitchen coming under the vertical axis of the ward blocks so that easier and mechanised distribution of supplies could have been arranged. The present position of the Central Sterile Supply Dept. next to the Pharmacy does however allow the bringing of responsibility for medical and surgical equipment under the Central Sterile Supply Department on the American pattern if this is felt to be desirable in the future. More space should be provided for receiving the C.S.S.D. carts, and cleaning the instruments and equipment. A stable-type door with a shelf should be positioned on

this receiving bay for articles returned individually by hand. The extra space might be provided by sectioning off a part of the packing room to provide a glove preparation room, and making the present glove and instrument room part of a larger receiving bay. The glove room operative should have a boomerang shaped work bench, and the glove cubicle should have mechanical ventilation because of the irritation from the talcum powder. In the packing room some makeup counters should be at sitting down height and others at standing up height, as some tasks are more easily undertaken standing up. There should be exhaust ventilation in the autoclave room because of the excessive heat. In the despatch area of the C. S.S.D. the Trolley Bay should be enlarged so that trolleys for the different deliveries could be loaded in the early morning at the same time.

(ii) Medical Records Store.

It might be worth altering the access to the hoist to the opposite side from at present in order to reduce the walking distance from the record racks.

(iii) Supplies Department.

It is thought that the printing room should be larger and it should be ventilated because of the irritation from certain ink solvents.

(iv) Pharmacy.

A simple requisition chute should be provided from the Out-patient Dispensary on the ground floor to the Pharmacy below alongside the dumb-waiter. The sterile filling room seems to be too small.

(v) Non-Resident Staff Locker Rooms.

Consideration might be given to replacing the baths with showers, as showers are probably more suitable in a public facility such as this. Disposable shower caps could be provided or the shower nozzles could be positioned at a height that would not wet people's hair.

(vi) Telephonists Rest Room.

The door should be moved a little up the corridor to be nearer the telephone exchange.

(vii) All Locker Rooms.

Strong mechanical ventilation should be provided to reduce the smells of smoking and clothing.

(viii) Supplies Receiving Dock.

The double doors shown should be avoided, and should be replaced by wider single doors, or by sliding doors on perhaps nylon rollers. This is because double doors tend to have trolleys pushed through them, rather than to be opened first, and soon get badly damaged.

(ix) Mortuary Body Refrigerator Room.

One of the supporting pillars seems to be in the way of one of the body refrigerators.

(x) Post Mortem Room.

Doubt was expressed about the need for having four autopsy tables, and it was suggested that a separate side table for dissecting specimens might be preferred to one of them.

(xi) Chapel.

It was suggested that a more direct access staircase should be provided at the end of the corridor of the main entrance hall to ensure that the main chapel is used more fully by patients' relatives.

(xii) Dining Rooms.

If there is to be a cafeteria system, it might be better to have one longer cafeteria tray line giving a much wider choice of dishes and to have this serving all three dining rooms.

(xiii) Main Kitchen.

The Swill Room should be refrigerated to avoid it attracting flies and to avoid the smell of the swill. It is suggested that a deep freeze room should be provided opening off the ordinary cold room, so as to let only cold air into the deep freeze room which would be likely to be increasingly used in future. The kitchen cold store might be made into a deep freeze room of this kind. It is suggested that the double doors should not be provided on the fish and kitchen cold storage rooms.

(xiv) A Root Vegetable Cellar might be provided under ground level with a ventilator. This would keep such vegetables away from the heat, and yet they would not freeze.

(c) Ground Floor.

(i) Out-Patiert Dept.
Orthopaed_c Clinic Suite.
Because of the difficulties orthopaedic patients are likely to meet in undressing, it is suggested that the undressing cubicles be enlarged and reduced to two for each consulting room.

(ii) Hydro-Therapy and Gymnasium.

Lockers for valuables should be provided in the changing rooms for these departments.

(iii) Physical Medicine and Occupational Therapy.

Some fitted arm and leg baths should be provided in some of the cubicles together with a small sluice. Greater space should be provided for toilets in this area, because of handicapped patients in wheel-chairs, and grab-bars should be fitted in these lavatories. In the daily living section of the Occupational Department, apart from the daily living kitchen and bathroom, there should be mock bus steps, keys, locks, and a telephone for practice by handicapped patients.

(iv) Postal Sorting Room.

It is suggested that this room be re-positioned nearer the entrance as the General Post Office might not agree to bring the mail so far inside the building.

(v) Administrative Offices File Store.

It is suggested that this be fireproofed to contain minute books, plans etc.

(vi) X-Ray Department.

A secondary dark room will be needed in addition to the one for the Xomat automatic processor as the automatic processor would not be used at night-time and at weekends as it is un-economical to do so, and of course a second dark room would be needed for breakdowns. This has in fact already been provided, although it may not have been realised that it would need to be used so frequently.

(vii) Angiography Room.

It has been suggested that this room be larger than shown because of the increasing amount of equipment which it is necessary to have surrounding the patient in angiography examinations.

(viii) Doctors Lockers Room.

As the WC's and wash rooms are divided between men and women here it is suggested that there be separate doctors locker rooms for men and women, because doctors are likely to change near the lockers and not in fact to go inside any changing cubicle, and then return with their clothes. It might also be worth while providing a small doctors lounge adjoining the locker rooms, in addition to the existing consultants common room and library.

(ix) Main Entrance.

A storage area should be provided for wheel chairs here.

(x) X-Ray Department, In-patients Waiting Areas.

It is suggested that this area which is at present an elongated alcove off a corridor be replaced by a more rectangular bay which would be less draughty. An additional lavatory might be provided for barium enemas. The existing ones might be occupied for prolonged periods by patients after enemas.

(xi) Bio-Chemistry Laboratory.

Doubt was expressed about the need of having a 'hot laboratory' for radio active isotope materials, which are usually obtained only in the quantities required at a particular time for diagnostic purposes. It might however be wise to provide a radio active scanning room preferably at some distance from any hot laboratory which is planned in order to reduce interference with the geiger counters.

(d) First Floor.

(i) Operating Theatres.

The fact that these theatres inter-connect is likely to cause difficulties in the air-conditioning, and will result in inter-change of air between theatres. The sterilising rooms seem too large, ten foot wide being ample. It is suggested that one large recovery room and no individual theatre recovery room would be preferable, the large recovery room being staffed on the American pattern by highly qualified staff for intensive post-operative care. There should be between 1.8 to 2 recovery beds per operating theatre. There should

be one large recovery room for both sexes. A small sub-utility room should be provided off the recovery room with a sluice hopper, work counter, sink, cupboards, and a small charting table. Suction and oxygen have been proviced, but it is suggested that the suction points and the oxygen points be positioned at some little distance apart, so that the equipment and apparatus do not encroach on each other. The Anaesthetists' office might be re-positioned adjoining the recovery room with a glazed partition between the two.

(ii) Pathology Laboratories.

The Bacteriologist's office might with advantage be positioned next to the Bacteriology Laboratory without having a Virology Laboratory between the two. Doubt was expressed about the need to have a Virology Laboratory as it was thought that this work was so specialised that it might be better concentrated at a regional centre.

(e) Wards.

Double doors should be avoided and single doors used, especially on ward kitchens. The single bedrooms may not be large enough but it is suggested that if possible they be provided with individual WC's to save nursing time. Sitz baths might be provided in the smaller bathrooms at the end of the wards, as these are proving increasingly useful. It is suggested that one of the single rooms, perhaps the one with its own existing WC should have a Sub-utility room so that it might be available for suspected infectious cases to be nursed by barrier techniques.

Although it is an American conception, consideration might be given to providing a charting area for dealing with medical records having access from both the doctors and nurses, perhaps from different sides of a dividing partition which could contain a "Lazy Susan" type of revolving chart holder between the two rooms or double ended shelves. Negative Pressure Exhaust Fans should be provided in toilets, bathrooms and kitchens, and showers might be incorporated i.. the existing WC areas leading off the single rooms on each ward floor.

Childrens Wards.

Although these may not be built until phase II, it is suggested that they be provided with storage rooms containing a local supply of cots and beds, so that a suitably sized bed or cot can be easily obtained for children of different ages on admission.

Recommendations II.

Details of Fitments, Installations and Equipment, noted on our tour of Hospitals.

We recommend that consideration be given to incorporating the following features in the planning and equipping of the New Hillingdon Hospital, fuller descriptions of the items being given in the later sections on the hospitals visited.

(1) Electrically operated elevator file for medical records master index.

(2) Introduction of progressive nursing care systems where appropriate.

(3) Staffing and running of hospital shop in main entrance hall by League of Friends (equivalent of Women's Auxiliaries who are responsible for gift shops in the U.S.A.)

(4) Standardization of drawers in ward ancillary rooms to take standard stocks throughout the hospital and introduction of non-requisitioning issuing system to bring these stocks up to set levels.

(5) Possible issue of small hand operated punch printers to wards so that by distributing addressograph plates to wards additional printing of requests etc., may be undertaken there, if this is assessed as more economical than the issue and use of adhesive addressograph labels.

(6) Fitting of angled tile coving between walls and floors in all corridors to prevent trolleys damaging walls.

(7) Issue of cellophane packs of sterilised personal wash bowls, drinking cups etc. to each patient on admission.

(8) Use of plastic wrist bands containing identification information from Addressograph printer enabling patients to be positively identified when asleep, unconscious or anaesthetised (or dead).

(9) Provision of special vacuum cleaner for cleaning bone-saw after post mortems and installation of foot operated loud-speaking telephone to obviate telephone handling in autopsy theatre.

(10) Fitting on ward ancillary room doors of pull handles which may be operated by the crook of the elbow.

(11) Use of disposable plastic Petrie dishes in laboratories if this proves economical.

(12) Use of transparent fronted postal chutes for mail and for delivery of requisitions (alongside dumb waiters).

(13) Provision of disposable kraft-paper slippers for use in hydro-therapy department to prevent infections.

(14) Possible use of terminal digit system for medical records with last two digits colour coded on edge of case note folders to make any misfiling immediately obvious.

(15) Consideration to be given to the use of electric typewriters for typists engaged full-time as this has been shown to increase their productivity 30%.

(16) Possible use of foot-operated pneumatic hexachlorophene soap dispensers for surgeons basins.

(17) The installation of an ultra-sonic syringe and instrument washer should be in a separate room because of the high frequency noise produced.

(18) Provision of ward kitchens with two way swinging doors.

(19) Possible use of ultra violet radiators to reduce airborne bacteria in main kitchens.

(20) Use of Schwartz type drug filing cupboards to save space in Pharmacy.

(21) Provision of mono-rail wetwork conveyors in hospital laundry.

(22) Use of heat sealing patching machine for simpler, better and quicker repairs in the sewing rooms.

(23) Provision of refrigerated cold water dispensers (as equipment items) in main public places.

(24) Possible establishment of a 'health museum' as at Lankenau Hospital in the main entrance hall of the new hospital.

(25) Provision of an auditorium either in later phases of the new Hillingdon Hospital or in the existing dining rooms of the Nurses Home when this is vacated. Such an auditorium preferably with a sloping floor, cinema type seats, and film projection and public address facilities would be used for medical and nursing education as well as for gatherings of visitors which a new hospital is bound to attract. In years to come it would be a useful centre for health education addresses etc.

(26) The preparation now of a master plan for eventual parking facilities in the grounds of the new hospital, this to provide space for cars for all staff and all visitors.

(27) The eventual employment of a combined fire and security officer (in place of the present fire officer) and the provision of an office for him overlooking the staff time clocks in the new building.

(28) Provision of automatic dispenser for barium swallows in X-Ray Department.

(29) Possible development in England of a mobile food trolley with both heated and refrigerated compartments and with beverage dispenser and electric toaster fitted on top.

(30) Installation of Sagar spreader and shaking-out tumbler in hospital laundry.

(31) Provision of purpose-built Medicart type of medicine trolleys and medicine card rack indicating times for particular medicines.

(32) Inclusion of telephone, typewriter and mock bus steps in daily living section of Occupational Therapy Department.

(33) Use of monorail with electric motorised hoist above hydro-therapy pool.

(34) If microfilming is ever used for old medical records this to be done on 5x3 card-films instead of on spools.

(35) Possible use of thermo-couple skin temperature thermometers to reduce nursing time spent on temperature taking.

(36) Reconsideration of possibility of having carpet in entrance hall to reduce cleaning in rest of hospital.

(37) Introduction of American system of no-counting linen distribution with mobile rack trolleys made up to pre-determined levels.

(38) Use of slide projector for sight test cards in ophthalmic clinic.

(39) Possible introduction of routine blood tests and urinalysis as well as routine M. M.R. X-Rays for out-patients as preventive health measure.

(40) Possible use of British made electronic capsule counter in pharmacy.

(41) Dyeing of C.S. S.D. linen a distinctive colour to ensure its return from wards and departments.

(42) Further consideration to be given to the centralised food system, using trays made up in the main kitchen, with two assembly belts, the trays then being taken to the wards in trolleys or by vertical trayveyors; this if necessary to be combined with the heated pellet system or by using "meals on wheels" type trolleys.

(43) The system of returning dirty crockery and cutlery from the dining rooms to the central dishwasher to follow the Toronto General Hospital system to reduce noise in the dining rooms.

(44) Possible installation of foot-operated call system switches in theatres.

(45) Provision of snap-lock valuables drawers in base of patients clothes lockers.

(46) Provision of linen chutes of the type which have sealed doors on the ward floors.

(47) Refrigeration of swill storage room and provision of hot water and steam rubbish bin washer in garbage room.

(48) Inclusion of uniform exchange room with racks for uniforms and white coats and stable door type exchange counter.

(49) Inclusion of adequate noise insulation between air conditioning equipment and wards.

(50) Re-consideration of night security arrangements and night roundsmens systems.

(51) Possible use of aluminium for windows to obviate painting costs.

(52) Possible use of self-coloured resin impregnated fibreglass blanket for corridor wall-covering to obviate corridor wall damage and need for painting.

(53) Possible use of Elliott automatic tissue processor in laboratories.

(54) Possible staggering of lifts architecturally to form zig-zag pattern of entrances as at Cabrini Hospital, Montreal.

Recommendations III.

Confirmation of Planning Decisions Already Taken.

Apart from the new ideas gleaned on our tour, the visit enabled us to see in action a number of new features which it had already been agreed should be incorporated in the new Hillingdon Hospital. What we saw confirmed us in our support of the decisions to provide the following:-

(1) An automatic X-Ray processing machine, although we noted that it would be uneconomical to operate this at night time and at weekends so that a separate dark room would be needed for X-Ray development at these times. Space is also needed near the X-Ray automatic processor for large containers of the made-up chemical solutions used.

(2) The pneumatic tube system for the delivery of requisitions, medical records, X-Rays, investigation requests and urgent drugs in other than liquid form.

(3) A nursery and nursing mothers room as well as a perambulator park in the outpatients department. This facility may need staffing by volunteers from the League of Friends.

DETAILS OF HOSPITAL VISITS.

Massachusetts General Hospital, Front Street, Boston 14, Mass.

General Director - Dean P. Clark.

Boston is accepted as being the greatest medical centre in the U.S.A., and the Massachusetts General Hospital attracts medical men from all over the world. Over the years the hospital has been extended and now consists of a number of buildings of various ages on adjoining sites. For those with an especial interest in the planning of buildings it inevitably proved to be rather disappointing. Some points of organisation were however, of interest.

The wives of members of the medical staff have formed a so-called Distaff Club which helps the large number of foreign mainly medical visitors by arranging accommodation and operating a furniture exchange. As might be expected in such a centre of medical learning the hospital possesses a magnificent medical library and reading room, the Treadwell Library founded just over a century ago. Vending machines, selling hot and cold beverages, ice cream, sweets, and pastries, were in use in the ambulatory or out-patient department and a change giving machine and large liquid-holding refuse containers for disposable cups had met the obvious objections to these machines. The out-patient department deals with an average of 740 patients a day. This was exceptionally large for the U.S.A. where hospital out-patient departments often deal only with the "medically indigent", all private patients seeing the hospital medical staff in their own consulting rooms sometimes in 'Medical Arts' buildings downtown. Out-patients as well as inpatients were provided with very helpful information booklets dealing with the facilities available, the appointments systems and changing appointments, articles lost and found, and how medical reports will be sent to their family doctors. Patients are screened for their ability to pay or to be provided with one free visit to the outpatient department. A limited number of free-treatment clinics are held each week.

In the Medical Records Department we saw for the first time electrically operated elevator files for housing the patients' master index although we later discovered that these were in fairly widespread use in large hospitals. By pressing a lettered button the appropriate section of the filed cards is mechanically and quickly brought to hand. The total number of index cards in the 3 machines of this type used here was 5 million, and they were filed under the Soundex System which is based in consonants in the patients surnames.

The wards have 48 beds, 40 of them in four-bedded wards and 8 in single rooms. A system of progressive nursing care is in use, intensive nursing care being given to patients on admission or after operation, the patients then being moved to part of the ward with less nursing care and finally to an area where they largely help to look after themselves. Apart from requiring fewer nursing staff this system is said to assist rehabilitation.

The Central Supply Department deals with centrally sterilized supplies such as dressings, syringes, gloves, and non theatre instruments, and also issues non-sterilized items of medical and surgical equipment, which are usually issued by the Supplies Department, Pharmacy or by an Instrument Curator in England. The Central Supply Room was originally supervised by a nurse but more recently the Room has been placed under the charge of a lay officer coming under the administration. Although student nurses

originally spent some time in the Central Supply Room, it was eventually decided that this was not necessary, and the students themselves have felt that it was not really a matter of learning sterilising in any form in which they would use it even in private nursing.

Rhode Island Hospital, 593, Eddy Street, Providence 2, R.I.

Executive Director, Mr. Oliver G. Pratt.

This hospital, completed in 1959 and designed like the earlier and relatively near-by Grace-New Haven Hospital on the double Y principle, had obviously benefited from a great deal of careful thought in its fundamental and detailed planning and we were more impressed by it than by any other hospital during our tour.

As in many other American hospitals, new and old, space had been set aside adjoining the main entrance hall for a very extensive gift shop staffed and organised by the Womens' Auxilliary.

The cancer clinic had one examination room served by two undressing rooms with fitments for gowns and clothes, and a slot in the door with a receptacle on the examination side to receive the case notes. The patients kept to one side of the undressing cubicles, and the staff to the other side of the examination rooms. The double Y wards had two nurses stations which allow vision up the short corridors, but the ward rooms lead off the corridors and are not visible from the nurses stations. On the ward floor, there are 37 patients on one side and 39 on another. The nurses station has a pneumatic tube system, a separate package conveyor coming from the Pharmacy and Central Supply Room, and a nurse to patient intercom system. There is a stretcher stowage bay in the wall, which is enclosed from about four feet high to the ceiling to provide a separate store. Cubicle curtain tracking is fitted direct to the ceiling and the first two feet of the curtains consists of netting in order to provide ventilation. Wards are in either single bedded or four bedded units. Ward doors have pull handles which can be operated by the crook of the elbow. The Utility Room has stainless steel fitments with drawers labelled for different kinds of stores, and these are standardised throughout the wards of the hospital and are filled up to a fixed capacity by people from the Stores Dept., without reference to the ward staff.

The addressograph system is in use throughout the hospital including at the nurses stations. Addressograph plates are sent inside the medical records to the ward unit and each ward unit has a small printing machine so that extra printed matter can be produced on the ward from these plates.

The Intensive Care Unit has a sub nurses station with a view of all the beds through an angled panel. The corners of pillars and corners of corridors are protected by stainless steel angle plates, and also by a chamfered surface between the floor and the wall covered in tiling which prevents the trolleys going up against the wall.

Each patient on admission is issued with a bag containing various sterilised items, including a wash bowl, drinking cup, etc. In the Admitting Unit, the addressograph system is in use and in addition to providing the usual printed information it prints an insert for plastic wrist bands which the patients wear. An extension of the addressograph system consists of producing patient information in a much detailed form on a multigraph machine on a large card which is then divided into various sections which are sent at two hourly

intervals through the pneumatic tube system to the various departments of the hospitals needing them.

The Trayveyor food distribution system is in use and the various stages of assembly of the trays were photographed.

In the laboratories the Petrie dishes used are made of disposable plastic. The Pathologist in charge advocated providing one third of the size of the laboratory unoccupied and available for later expansion and development.

In the Autopsy Room was a special vacuum cleaner for cleaning the bone saw and a pedal-operated telephone for dictation. This had a loud speaker and a sensitive microphone both with foot pedals so that the telephone itself did not have to be handled.

Items stored in formalin jars are kept in a stainless steel cupboard with exhaust fans at the top to take the formalin vapour away.

A part of the Laboratory Suite in the hospital was a Blood Donor Clinic Room with a blood bank. The hospital endeavours to get patients and volunteers to give blood and to avoid professional blood donors who are unlikely to reveal that they may have had infectious diseases.

Facilities for blood donation were found in most hospitals, neither the U.S.A. or Canada having anything similar to our National Blood Transfusion Service.

Society of New York Hospital, New York.

525, East 68th Street, New York 21, New York.

Director - Dr. Henry W. Pratt.

This hospital, originally established in the eighteenth century, is now housed in a number of large white buildings with windows with rounded tops designed in the 'cinema organ' architectural style of the late 1930's. It has 1200 beds and its tallest blocks are 22 storeys high.

In the maternity unit, babies' nurseries have plastic basinettes fitted on top of metal trolleys with casters and with drawer or cupboards to store the babies linen, a five day supply being kept underneath each plastic cot.

In the Hydro-therapy Unit they provide disposable Kraft paper slippers to prevent infection from athletes foot etc.

In the X-ray Dept. was an X-omat automatic processing unit, which takes only 7 minutes to process x-rays. Fitted near to it was a standby dark room for emergency processing, and a room with slotted racks for sorting films. Just off this room was a dictating room for radiologists' reports. The X-ray screen rooms had their windows fitted with air-conditioning units.

The patients index cards are contained in electrically operated filing systems, and the telephones alongside the different filing cabinets are coded so that by means of the terminal digit system, those wanting particular records may dial the appropriate number ending in certain figures and consequently reach the clerk with that particular set of files. The use of electric typewriters has increased their production by 30%, this being ascertained by a special study.

The hospital has the addressograph system as well as I.B.M. machines for obtaining statistics and the analysis of accounts.

This is obviously one of the most efficient Hospital Medical Records Departments in America.

St. Vincents Hospital of the City of New York.

153, West 11th Street, New York 11, New York.

Administrator - Sister Anthony Marie, R.N.

Situated in a poorer quarter of New York towards the southern tip of Manhattan this hospital which is administered and to some extent staffed by an American Religious Order, the Sisters of Charity, was mainly of interest for its school of nursing which is held in the very highest regard.

Corridor walls are covered with linoleum with beading at high dado height. The paediatric unit has a classroom and playroom attached to it. The domestic workers use mobile trolleys to contain their polish, brooms and mops and usually have mobile wet mopping and squeezing buckets on casters. Staff location as in many other hospitals is by a number of low volume loud speakers.

The bedcovers are in a contemporary pattern and the beds are adjustable in height by a patient controlled electric motor.

A portable television was available for use of the wards, and telephones were also able to be plugged in near the beds. As in most American public buildings, the public ashtrays consist of a container with sand in it in which cigarette butts can be extinguished. The ward kitchens have a dishwashing machine and electric toastmakers are provided also tray trolleys with sufficient width between the shelves to be able to take the made up trays.

Above the surgeons basin was a plastic medicated soap dispenser operated pneumatically by a foot pedal at the end of a flexible plastic tube.

The so-called Womens' Auxilliary of the hospital which is the equivalent of the League of Friends, provides not only a trolley shop service, and a gift shop service but also a patients' library, a coffee shop, a scheme for taking photographs of newly born babies, interpreters, and the conducting of official visitors around the hospital.

In the operating theatre suite there is a recovery room with an anaesthetist on duty on a rota basis full time. Patients are cared for here in special trolleys. These are adjustable in height and can be put into various positions for drainage etc. One of the theatres was equipped for closed circuit television with a monitor viewer in a room alongside the theatre so that the technician operating the television camera remotely could see his results.

The Central Supply Room included a syringe cleaning and sterilizing department. The C.S.S.D. produces ready prepared packs for different procedures as well as different articles individually packed.

There are 30 people working in the C.S.S.D. and of these 24 are nurses.

The C.S.S.D. had an ultra-sonic washing machine with a tank measuring approximately 18 inches by 12 inches. It took about

5 to 10 minutes to wash syringes or instruments. One thing to note in the installation of ultra-sonic washers is to keep them in a separate room because of the high frequency noise they make.

On each floor, there is access to a soiled linen and a rubbish chute. At the foot of the rubbish chute in an adjoining room are two incinerators which can be fed at floor level.

In the laundry, wet work is carried from the washing machine to the hydro-extractors by means of overhead electrically operated mono-rail conveyors.

Princeton Hospital, 253, Witherspoon Street, Princeton, New Jersey.

Administrator - Mr. John W. Kauffman.

In the Nurses Home, they have nurses rooms largely with fitted furniture including dressing table tops. Pairs of rooms shared a bathroom and shower between the two.

The hospital had recently started a job evaluation system of wage-fixing based on the education, experience, initiative, responsibility and creative ability required for particular tasks. They have done this to meet criticisms by the labour movement of hospital scales of pay.

The scrub room and the operating theatre have nail brush dispensers of the type which can be taken away and autoclaved as required. The sterile materials needed in the operating theatres including instruments are sterilised in the C.S.S.D.

The ward or floor has 30 beds in single or four bedded wards. The pantry is used only for beverages and providing ice. Doors from the ward pantry or kitchen to the ward corridor are double swinging and this was said to be a great advantage. In the ward flower room was a stainless steel sink unit with a draining board and a metal cupboard above for the storage of vases. There was also space for a large plastic rubbish bin.

The bedside lockers were finished on the top and the sides in a formica-plastic finish and inside the doors were special fitments to take toilet rolls.

Facing each bed in the single rooms was a wall suspended television set.

Lankenau Hospital, Lancaster and City Line Avenues, Philadelphia 31, Pennsylvania.

Director - Mr. R.F. Horford.

This was the old German Hospital which has been recently re-built outside Philadelphia in the middle of what was a golf course and where there is plenty of parking space.

This is the only general hospital in the country with a Health Museum. The Museum is just inside the entrance and is an exhibition designed to prevent ill-health by giving information to the public. Many of the exhibits are electrically operated and have pre-recorded commentaries.

The hospital has an auditorium with stepped seats which is also used as a lecture theatre.

The Catering Department of the Hospital issues a booklet called "These Are Our Best Recipes from the Lankenau Family". This is advertised and sold for 2 dollars.

The ambulant patients take an automatic lift to the top floor, where they eat in the dining room or take their food on the cafeteria principle.

In the Maternity Wing in the Formula Room or Milk Kitchen, the air was sterilised (or so-called sterilised) by ultra-violet radiators.

A Spectrometer was used for counting the results of radio active iodine in thyroid examinations.

In the Pharmacy drugs were stored in Schwartz filing cabinets made by the Schwartz Sectional System of Indianapolis. This consists of vertical boxes which can be pulled out on runners and which then have in their sides a number of sectional wooden shelves.

This hospital's hot food is served from the Main Kitchen to the wards, on individual plates which are kept not in the type of container with a heated pellet but in a vacuum sealed container similar to a small flat dressings sterilising drum. It takes about one hour on this system to serve 100 patients.

The Sewing Room next to the laundry had an electrically operated heat sealing machine for repairing fabrics.

Like many other American public buildings, the hospital was provided with free standing electrically operated refrigerated cold water drinking fountains.

The medical staff undertake their consultations in suites of consulting rooms in a separate arts building, and the doctors hire these suites of rooms and also employ their own secretaries and nurses.

Sinai Hospital of Baltimore, Inc., Baltimore 15, Maryland.

Executive Director - Mr. Harvey H. Weiss.

This is another hospital which has been re-built in the outskirts of a city in order to have adequate car-parking for patients, staff and visitors. It had many of the worthwhile features seen at other American hospitals, including an auditorium with a built-in public address system, a central supply room dealing with both sterile and ordinary items of medical and surgical equipment and a kitchen with the centralized assembly of trays.

One of the most interesting and novel features was the institution a 'floor-manager's system for the nurse units; which is referred to in the section of this report on "Some General Trends".

The medical staff car-parking area, closer to the hospital than other parks was protected by spring loaded spikes protruding from the ground. These were automatically depressed on insertion of a special key into a bollard at the car park entrance.

U.S. Naval Hospital, Rockville Pike, Bethesda 14, Maryland.

Commanding Officer - Rear Admiral F.P. Kreuz M.C.

The site for this hospital was selected and a general outline of its planning prepared by President Franklin Roosevelt, who was of course an ex-Secretary of the Navy. In his day we were told the U.S. Naval Hospital enjoyed the sort of international fame which the Walter Reed Military Hospital has acquired under President Eisenhower.

A great deal of the nursing care was given by Naval Medical Corpsmen, the equivalent of our sick berth attendants, all of whom had received some training in both nursing and laboratory work. The hospital although impressive from the outside, had little of interest to those planning hospitals now, and Mr. Bardgett took the opportunity of visiting the U.S. Naval School of Hospital Administration which is housed nearby and which trains officers or enlisted men with an average of 15 years service to be able to administer hospitals or hospital ships of all sizes and types.

Ochsner Foundation Hospital, 1516, Jefferson Highway, New Orleans, 21. Louisiana.

Acting Director - Mr. Clifford C. Losberg, Jn.

This hospital was built in 1954 but its most recent extensions (the addition of two new floors vertically) have just been completed and were about to be brought into use at the time of the visit. The hospital is part of the Alton Ochsner Medical Foundation, a non-profit organization founded in 1944 to further education, research and charity.

The hospital, which has 380 beds, is unusual in that like American shopping centres it has been established completely outside a city on a main highway where plenty of car-parking space is available. The hospital has its own 82 bedded motel, Brent House, adjoining it and here patients may stay as a stage in their recovery, whilst the motel is also much used by patients relatives. The hospital's reputation is such that it draws on a very large area in the United States and over 10% of its patients come from the Central and Southern Americas, three full time interpreters having to be employed.

In the wards are some suites of rooms consisting of a single ward for the patient and an adjoining twin-bedded hotel type room for his relatives. The 'hotel' beds have wall-fitted backrests which enable the beds to be used as settees during the day. Amongst the new items of furniture with which the extensions were being equipped were bedside lockers with side-less drawers so that the patients could see the contents from a prone position, and with removable tray-bottoms to the drawers for easy cleaning, plasticized fabric mattresses which need no mattress covers or mackintoshes and examination couches with two-way drawers beneath and paper roll disposable couch covers. The low level night lights were automatically switched off to save electricity, when the normal lighting was switched on. A transparent fronted mail-chute was used to send requisitions from the wards in the tall block to the Central Supply Room below. Food trays were assembled on an assembly belt but delivered to the floors by 3 high speed dumb waiters rather than by the trayveyor system. The dietary department using diet aides was responsible for actually serving the trays to the patients one floor at a time. Bedside locker door hinges could be unclipped and the doors hung from the opposite side of the locker if the locker

had to be positioned on the other side of the bed. The remaining patients room furniture was of metal and there were holes in the bottom corners of all drawers to facilitate cleaning.

Small lens peep holes enabled single rooms to be observed by the nursing staff without patients being disturbed. Each ward was provided with a small cubicle and a telephone for the medical staff to dictate notes or letters. Facing the patients bed in the single rooms were wall shelves to take vases of flowers so freeing the tops of lockers and bed tables.

An unusual feature pioneered at the Ochsner Foundation Hospital was the Family Lounge for the relatives of patients undergoing surgery and this example has now been followed at the Henry Ford Hospital in Detroit. A considerable proportion of relatives in the U.S.A. and especially from certain 'ethnic groups' expect to come to the hospital when a patient is undergoing operation. There has therefore been very great appreciation of the establishment of the Family Lounge where a receptionist is responsible for obtaining and giving to the relatives information about the patients condition every 20 minutes during surgery. Light refreshments and a chapel are provided and at the end of each operation the surgeon comes to the Family Lounge from the nearby theatres to give an immediate account of the operation. This procedure is a rule of the hospital which is strictly applied.

This hospital too had an auditorium with cinema type seating on a banked floor and capable of accommodating 250 people. It was equipped with cinema projection equipment, motorised curtains and built-in public address equipment.

The hospital had been designed so that the Central Sterile Supply Room, the Pharmacy and the Blood Bank fed into a Central Distribution Area from which dumb waiters fed to the ward floors.

In the theatre suites the recovery room, divided by a half wall and curtain between the sexes, was sometimes used as an intensive care unit in which patients were kept for as long as 2 weeks. A large area had been set aside for the storage of anaesthetic equipment which included cathode ray tube cardiographic monitors. Also included in the operating theatre suite was a subsidiary laboratory for undertaking work in the theatre on frozen sections.

In the boiler house the recent installation of closed circuit television had enabled the engineer to view the boiler instruments remotely and to dispense with 4 boiler house attendants, but the initial re-positioning of the instrument panels could probably have achieved this anyway.

On each patients meal tray the hospital issued an hermetically sealed small tin foil capsule containing a soapless waterless towelette. These paper towelettes saturated in an antiseptic and a volatile alcohol base were said to save a great deal of nurses time in washing patients or assisting them to wash after meals.

Jewish Hospital of Saint Louis, 216, South Kingshighway, Saint Louis, 10, Missouri.

Executive Director, Dr. David Littauer.

This hospital of 500 beds plus 57 basinettes is regarded as one of the most progressive in the country. It has a Home Care Programme using an average of 50 beds extra-murally. All the major specialties are covered in the hospital including Psychiatry. A group therapy unit has been established for discharged patients and its sessions are held in the evening when patients can most easily and confidentially attend. There is a rehabilitation division at the hospital affiliated with an Old Folks' Home. Educational activities at the hospital include association with the Washington University Medical School in St. Louis, and it has a school of nursing, as well as in-training for laboratory technicians, radiographers, and students in Hospital Administration. This hospital is very research-minded, and there is a separate Jewish Hospital of St. Louis Research Institute, which publishes an annual report of progress made. This research is mainly undertaken in the laboratories, but also by members of the administrative staff into medical care provision in the area served by the hospital.

The main difficulty of the hospital is the restricted parking space on its present site. Dr. Littauer, the Executive Director is watching with interest the developments of the Lankenau Hospital in Philadelphia, and the Ochsner Hospital in New Orleans, these hospitals having been established or rebuilt completely outside the towns to gain sufficent parking space.

Some of the medical staff are general practitioners, but most of them are hospitals specialists certified by the various speciality boards to undertake hospital work. Medical administration is undertaken by full-time chiefs of service in medicine, surgery, rehabilitation and chronic diseases. This system which was claimed to definitely improve standards of hospital care consists of one of the consultants in a particular speciality bearing the responsibility and authority in administrative matters for that speciality.

The nurses stations on the ward units had a doctor's and a nurse's charting section. As in other American Hospitals, the nurses tend to spend what to British eyes seems an inordinately large amount of time at the nurses station, and they rely very largely on the two-way loud speaking nurse call system for communication with and supervision of their patients.

A Medicart type of specially built medicine trolley with individual containers on tiered sections was in use and a plastic tally rack containing medicine cards assisted the nurses in seeing which patients required medicaments at particular times.

In the Daily Living Section of the Occupational Therapy Department, apart from the kitchen and bathroom for practice by handicapped patients there had been included a mock telephone exchange and a typewriter.

In the Hydro-therapy Department, a rectangular stainless steel Ille tank had been used, and this was much preferred to the Hubbard or key-hole shaped Hydro-therapy tank. For lowering handicapped patients into the Hydro-therapy pool, a mono-rail had been fitted to the ceiling, and patients slings were raised and lowered by means of an industrial type of electric motorised hoist slung from the mono-rail.

A system of micro-filming was in use for out of date patients records, and these contained a number of micro-filmed case notes on one 5x3 section of film which could be easily filed in drawers instead of on spools. This was said to be much more acceptable to the medical staff.

The Central Supply Room distributed not merely sterile supplies but also the medical and surgical equipment of the hospital.

It had been found by experience that insufficient space had been provided in the hospital for lifts, telephone services, administrative offices, and storage.

In this hospital too we saw electrically operated high-low beds, photo-electric cells for operating and opening theatre doors, a large recovery room in the operating theatre suite having approximately twice as many beds as there were theatres, and an isolation cubicle off the recovery room for any patients with an infectious disease, or for patients who were dying after operation and were being visited by members of their families.

Dr. Littauer, who had entered the Hospital Administration through the Army Medical Service, had a refreshingly original approach to Hospital Administration, and believed in dividing his assistants between Staff Officers and Line Officers. Much of the research into the medical care was regarded as a staff operation, and the Hospital employed a part-time sociologist, who not only assisted with this research, but undertook research into staff relationships and other problems of human relations in the hospital. This administration was the only one in which we met the American equivalent of Works Study which was termed Management Engineering.

Particular interest was shown in what was termed Automated Nursing - an attempt to reduce the tasks of the nurse by mechanisation and the re-allocation of duties. It had been found in studies that 30% of a nurse's time was spent either on communications or on the routine taking and recording of temperatures, pulses, or respirations. Investigations were being made into the use of thermo-couple thermometers, which would take skin temperatures in 10 seconds.

<u>The A.S. Aloe Co., Hospital Equipment Suppliers, St. Louis.</u>

Dr. Littauer of the Jewish Hospital arranged for us to meet the President and the Vice-President in Charge of Developments of this company, and we were provided with a great deal of literature on their products, although most of these are not obtainable in Europe. Items of interest included a personal one-use plasticised paper water carafe contained in a wire frame with a handle for each patient, a disposable Thermo-cup which could contain hot drinks and yet was insulated by being made of whipped plastic, a disposable pre-formed filter type surgeons mask made in a plastic weave with a metal former to fit the nose, a pre-packaged and sterilised transparent plastic catheter made of variable shaped plastic, bin-liners in disposable plastic, a substance called Valcro which might well become as universally used as the Zip fastener as a means of closing garments. It works in the same way as burrs adhere to clothing. One part of the fastening consists of a number of small plastic hooks and the other part of a felt-like fabric. This type of closing is used not only on hospital garments but on sphygmomanometer cuffs, and for fastening theatre boots. There were also operating theatre boots with conductive soles but made of washable fabric and with a conductive band leading from the sole

to go inside the ordinary shoe, comfort kits of personal toilet articles in a plastic bag issued to patients on admission partly because paying patients valued and approved of this and partly because this reduced an obvious possible source of cross infection.

Henry Ford Hospital, Detroit, Michigan.

Director - Dr. Robin C. Buerki.

On our visit to this hospital we met a number of other visitors from England, Mr. McKeown, the Secretary of University College Hospital, Mr. MacMahon, the Deputy Secretary of the Westminster Hospital, and Mr. Ridgway, the Superintendent Engineer of the Westminster.

Although the Henry Ford Hospital which was founded in 1915, at first enjoyed substantial help from the Ford Motor Co., it has been independent since 1930, and not subsidised or endowed since then.

A very great deal of authority has been placed in the hands of the Executive Director, Dr. Robin C. Buerki. The Board of Directors meet only twice a year, and receive a report from Dr. Buerki, who otherwise exercises authority on their behalf. Medical Administration is carried out by the Chiefs of Staffs system for the various specialties. The hospital is unusual in the United States in having a full-time medical staff, and consequently having a large number of out-patients consultations reaching 2,500 out-patients a day. The hospital has 1050 beds.

Here too, parking was one of the problems of a hospital built within a city, and the hospital has recently completed the erection of a parking garage capable of taking 850 cars on nine levels on ramps leading to these staggered levels.

Before visiting the hospital, we had heard how in the entrance hall, a fitted carpet had been laid. This had been found to pay for itself by reducing the amount of dirt brought into the hospital, and the consequent amount of cleaning required in the corridors and circulation areas. The carpet is cleaned once a day by vacuum cleaners and shampooed twice a year. An additional carpet is placed over it near the doorway in times when there is dirt, snow and slush outside. Apart from reducing the amount of cleaning, the noise level and the work condition for the reception and admission clerks in the reception hall have been considerably improved.

The linen distribution system consists of allocating to each ward floor, a linen cart which is in fact a mobile set of shelves. Each floor has two of these carts, one is kept in the ward linen room which has no shelves and the other one is in the laundry. They are exchanged each day, the quantities being made up to a predetermined standard which may be different for each ward, but which is printed on a plate at the end of each trolley. All counting of linen has been discontinued, except for inventory taking.

In the operating theatre, an interesting feature was a sterilizable operating light handle, which enabled the surgeon during the operation to adjust the angle of the operating light himself to his particular needs. A new handle was sterilised and fitted to the light before each operation.

In the Medical Library, adjustable metal racking had been used for book cases, and adjustable desk fitments for the various study positions. In the Ophthalmic Clinics, a Zeiss slitlamp,

perimeter, inspection lamps and other instruments had been embodied in one console unit made especially for the hospital by the Robins Co., of Detroit. Instead of using optical reading test cards these were projected by a slide projector from a position adjoining the patient and the ophthalmologist.

The terminal digit system of filing medical records was in use, and it was claimed that this reduced the chance of misfiling 100 times. This system also spreads out the actual filing work over the various racks in use, and different filing clerks can be made responsible for the different sections which they begin to know intimately. Coloured bands on the records indicated visually whenever a case was misfiled. Those working in this filing room wore a light-weight telephone head set on the end of a long length of cord.

University of Chicago Clinics, The Billings Hospital.

Administrator - Ray E. Brown.

Unlike most hospitals in the United States, but like the Henry Ford Hospital at Detroit, this hospital too has a full-time medical staff, and is the only teaching hospital in the United States of this kind. The hospital has 720 beds.

Like most of the buildings in the University of Chicago, the outside architecture is in mock Gothic style, and the whole university campus is reminiscent of English college buildings, although it is situated in the middle of the extensive poverty stricken and delapidated area of Chicago's South Side. Inside the outer shell of the building, the whole hospital is gradually being reconstructed. Much has already been done.

All out-patient attendances have a mass miniature x-ray, routine blood tests and a urine analysis. This is a preventive health measure, and the tests may be unrelated to the reason of the attendance at the out-patient department, but they are based on the theory that such preventive health tests find a much larger incidence of morbidity amongst hospital out-patients than amongst the general public.

An interesting device for assisting with the giving of appointments was a bank of coloured coded slots with sufficient blank cards in each slot for the available appointments for new patients. A card was removed each time an additional appointment was made, and the details written on it. Because the laboratories were at some little distance from the out-patient department, laboratory request cards were large and red in colour, and members of the hospital staff were given instructions to give guidance to patients carrying these cards.

A special room had been provided for the scanning necessary in radio isotope investigations.

In the dining rooms, folding pliable plastic partitions were hung from the ceilings, so that the rooms could be sub-divided for particular grades of staff or for special functions. In the pharmacy, capsules were counted and bottles filled by an electronic counting and filling machine made by C.E. King & Sons Ltd., of Staines, Middlesex, the counting being undertaken by an electronic eye. There was also an electric printing and labelling machine for bottles of capsules.

Hospital for Sick Children, Toronto.

Assistant Administrator - Mr. Law.

This hospital was visited especially to see the Central Sterile Supply Department which is regarded as one of the best in Canada. A copy of a plan of the Department was obtained for reference. The main feature of the Central Sterile Supply Department is that it has been planned to enable a flow of production of the various articles through the Department without any crossing of these flow lines. Other interesting features included the way in which Central Supply Department Linen had been dyed a distinctive colour, in this case yellow, so that it would not be retained or diverted into ward or operating theatre stocks. Paper packs of sterilised gloves were stored in old disused office-type filing cabinets.

Toronto General Hospital. Medical Director - Dr. J.E. Sharp.

Assistant Medical Director - Dr. Farmer.

This hospital has in total 1400 beds, and we concentrated our visit on a new wing of 483 beds opened in January 1949. This wing contains obstetric and gynaecological floors and floors for neurology and neuro-surgery for operating theatres, x-ray department, the central supply room, and the dietary or main kitchen. A typical new ward unit is of the double corridor type, with patients rooms on the outside, and with the various utility rooms in the central core, all these being air-conditioned and having no natural ventilation. There are between 45 to 50 beds each in similar rooms with their own WC's. Vertical Tray-veyors are used to take made-up trays to the floors, and food is served from the main kitchen into the staff cafeterias through heated pass-through ovens or through pass-through refrigerators. In the cafeteria self-service area, there are separate counters for desserts, meats and vegetables, salads, sandwiches, and beverages. An instantaneous coffee maker was in use. Central dishwashing has been established, and there are conveyor belts for dirty crockery and cutlery from the cafeterias and from the Trayveyor bringing the trays back from the wards. Some of these conveyor belts are in enclosed ducts, travelling at high level across the kitchen. They bring all the dirty crockery to a Hobart Flight Crockery Washing Machine. Some little difficulty has been experienced with this machine, in removing dried egg and cereal because of the lapse of time before the dishes are washed centrally. In general, however, they are satisfied with the system.

In the cafeteria, individual trays and crockery are placed by the members of the staff themselves on a conveyor belt, inset in an alcove, then racked in the kitchen before being passed to the dishwasher. This it is felt, reduced the noise in the dining room, when compared with a system of racking the crockery in the dining room itself. A specially made automatic pot-washer with rotary arms using steam and hot water without a detergent has been installed, and this has screens and a grease trap beneath. All refrigerator rooms have doors at floor level enabling trolleys to be wheeled into them.

There are two assembly conveyor belts for patients food trays for 800 beds. The trays pass into one of two trayveyors, so that if one trayveyor breaks down the other one can be used. 400 of these trays can be delivered along the conveyor belt and into the trayveyor system in one hour and ten minutes.

The patients and the ward sisters are able to select what food a patient shall have by ringing a required item on pre-printed menu forms. A set of these forms for the following three meals is sent down for each patient from the ward to the main kitchen at 10.30 a.m. each day. There is a six week menu cycle subject to seasonal variations.

In the operating theatre are foot operated pedals for the nurse call system enabling nurses or medical staff who are scrubbed up to summon assistance. In the Cystoscopy theatre a permanently fitted installation for providing sterile water from a storage tank in the theatre has been installed. WC pans have been fitted to the wall to enable easy cleaning of the pan beneath. Linen is controlled by two laundry cupboards, only one being unlocked at a time, and the other being under the control of the linen supervisor until it is made up and re-opened in place of the one in use.

Montreal General Hospital, Cedar Avenue, Montreal.

Executive Director - A.H. Westbury.

This hospital was originally founded in 1821 on Dorchester Street in the centre of the city. The building began in 1950, and in 1955 the new hospital of 720 beds was completed on a site on the lower slopes of Mount Royal. The new building of 21 floors dominates the city of Montreal and because it is built on steeply sloping ground from the first to the eighth floors are all at ground level in different parts of the building. The ward floors are of 70 beds each and divided into two sections with one head nurse or floor supervisor in charge of each floor. Although the new building was completed only five years ago, a number of extensions and alterations have already become necessary. In particular, there is a demand for an intensive care unit, and this has been planned adjoining the recovery room in the operating theatre suite. Originally only four lifts were calculated as being necessary for the hospital, but the Executive Director from practical experience rather than from calculation suggested that six would be necessary. Five were in fact installed as a compromise and a sixth shaft left vacant. In fact it was found that this sixth lift needed to be installed within a month of the building being opened. Patients are cared for in single rooms, double rooms or four bedded wards only.

The ward patient's clothes lockers have a snap-lock valuable drawer in their base.

Central vacuum cleaning was installed in the new building, but it was found to be unsatisfactory. It is hardly used at all. This is because it was extremely noisy until the nozzle of the vacuum was inserted into the corridor connections and because the vacuum cleaner tube attachments tend to obstruct corridor traffic.

Linen chutes are used on all the ward floors. These are said to work extremely well. The chute tubes had to be replaced with ones of thicker gauge metal as many of the original chute tubes collapsed because of the vacuum created by dropping laundry bags the full 21 storeys.

Meal distribution has been retained on the decentralised system familiar in England, bulk food being conveyed from the main kitchen to the large ward kitchens in electrically heated food trolleys. Once the food arrives in the ward kitchen it is plated and placed on trays which are then delivered to the patient in a

second heated trolley with tray shelves. Food distribution is under the dietary or catering staff including its distribution on the wards. A two-way loud speaker telephone has been provided between the ward kitchens and the main kitchens.

Garbage disposal is mainly undertaken by two large top loading incinerators in a garbage room within the hospital building and having access under cover. Rubbish bins have polyethylene bin liners, and in the garbage room there is a special machine over which rubbish bins may be inverted and cleaned by means of pedal operated hot water sprays. There is a refrigerator near by for the storage of swill and a space for the storage of cans and other indestructible items until they may be collected by the city's refuse disposal collectors.

Royal Victoria Hospital, Montreal.

Executive Director - Dr. Turner.

This hospital of 1017 beds also on the lower slopes of Mount Royal was built in 1894 as a replica of part of the Edinburgh Royal Infirmary.

Its oldest parts employ Nightingale Wards with sanitary annexes in small "pigs ears" which form spired and rounded turrets on the corners of the ward buildings, and have obvious Scottish architectural origins. Like Montreal General Hospital, the Royal Victoria is associated with the University Medical School. It is claimed that the concept of the Day hospital was established here and Day hospital care is undertaken for mental patients and more recently for patients with metabolic disorders such as certain diabetic patients.

In 1955 a new surgical block was built. Because of the restrictions of space imposed on the new wards in this block, they were planned on the twin corridor system in use at the new block of the Toronto General Hospital. It has been found that the staff are most enthusiastic about this system in which the patients are cared for in the wards on the periphery of the building which is divided by two corridors, having all the ancillary rooms in an air conditioned or mechanically ventilated section between the corridors and in the centre of the block.

The centralised system of food distribution is in use, using the Dry Heat System of preheated pellets in tureen containers. The food is then distributed in unheated trolleys which contain the made up trays, the trolleys having circular flanges on the top to take soup and beverage cans. It is only the soup and beverages which need to be dispensed when the trolley reaches the ward. One of the advantages of using unheated trolleys with the pellet system in this way, is that the trolleys can be easily taken along the ward without having to be plugged into an electricity supply to keep the food hot.

St. Justine Hospital for Sick Children - Cote St. Catherine Road, Montreal.

President, Madame Beaubien - Administrator, Sister Neomi de Montfort.

This large 860 bedded childrens hospital built on the northern slopes of Mount Royal in the form of a double Y, with a flat block behind it, is noted for its high standards of fitments and equipment.

The hospital possesses a pneumatic tube dispatch system, an automatic vertical pannierconveyor for medicines and light stores,

linen chutes, garbage and dust disposal chutes, and other features not previously seen on our visit. In this hospital too it has been necessary to purchase additional land for extra car parking space.

Now that the hospital has been in use for some time, two sources of noise have shown themselves. The first comes from the air-conditioning plant on the top floor which is immediately above the nurses residence. As the lift mechanisms have become worn, a second source of noise is in the lift shafts. It is suggested that these should have been soundproofed when built.

The Casualty Dept. has a separate Police Room enabling Police Officers to interview relatives without being overheard by other members of the public.

In one of the wards a High Humidity Room has been provided. One feature worthy of emulation was the inclusion of a uniform exchange in the building, for the exchange of uniforms and white coats.

The nursing staff have a swimming pool and a gymnasium in the nurses home building.

In the maternity wards, they have included a demonstration kitchen, for teaching mothers about baby's diets and the preparation of milk feeds.

A day Hospital section was in use for children with cerebral palsy.

The hospital which had many entrances, had an interesting security system, with light indicators at a central security control panel, remotely operated door locks, together with light indicators showing the progress of watchmen around different parts of the building.

Interesting architectural features designed to reduce maintenance costs, include the use of stainless steel for counters and shelving, the use of aluminium for window frames which does not need painting, the covering of corridor walls with a resin impregnated fibre glass blanket which also does not need painting and is extremely resistant to shock and abrasion.

<u>The Cabrini Hospital, Montreal.</u>

<u>President, Mother Valentino.</u>

This hospital in the Montreal suburbs, has recently been built for an Italian Sisterhood who own,administer, and staff the hospital. It is interesting because it is one of the few hospitals with completely circular wards. The Hospital was opened at the beginning of October 1960, and had been open only two weeks when visited.

At present it has only 150 beds, but is capable of being expanded to 300 beds. The wards are in a circular block above one another and the adjoining rectangular block provides other service departments. The whole hospital is air-conditioned being the first fully air-conditioned hospital in Canada. The use of air-conditioning permits the siting not only of the ancillary rooms but of some patients' accommodation, including an intensive care unit on each floor inside the building away from the natural light and ventilation. This shape of ward unit has the patients rooms mainly on the perimeter of the building with all ancillary rooms

hoists and service lifts together with the patients intensive care section and nurses station in a central circular core. These ward floors house 50 beds split into 2 supervisory sections with two nurses stations in daytime, but combined under one station and supervision at night. The system has the advantage of reducing nurses' walking distances very considerably, although on a first visit the circular corridor is somewhat confusing.

The laboratory equipment included an Elliott Tissue Processor made by Elliotts Ltd., Buckland St., Liverpool, 17, which undertakes mechanically, the various stages of tissue processing. An interesting and easily copied architectural feature was the staggering of a number of adjoining lift shafts to form a zig-zag pattern of lift entrances.

Niagara Falls Hospital, Niagara Falls, Ontario.

This hospital was visited when some of the staff of the University of Toronto's Course in Hospital Administration took us to Niagara Falls one Saturday.

The hospital is a 200 bedded community general hospital built on two storeys and with a number of attractive architectural features. Professor Agnew and his hospital consultancy associates had been advisers of the planning.

The entrance hall was spacious and contained a quiet room which was in effect a non-denominational chapel. This had continuously curving walls and was hour-glass shaped. Its effect was to provide changing vistas which gave the entrance hall an enhanced sense of space.

Interviewing alcoves for patients for admission and a gift shop had been recessed into the wall of the entrance hall.

The heated pellet system of distributing food was in use, although the trays once assembled in the kitchen were distributed on trolleys. Patients in the wards assured us that the food was hot when it reached them. It seems possible however, that the heated pellet system may be more suitable for hospitals up to say 300 beds, because of the time involved in distribution to the various wards in turn.

Kitchen staff wore an open weave surgeons type cap as an hygienic measure.

The hospital was equipped with very spacious stores which are often inadequately provided for in hospital planning. The stores were divided by heavy gauge netting partitions and included adequate space for the storage of replacement furniture and bulky medical equipment. Adjoining them was a refrigerated swill room.

Latter-Day Saints Hospital, Salt Lake City, Utah

500 beds. Built 1905 - 1956-7.

Large new hospital, overlooking a lovely city. Administrative suite consists of open offices, and secretary's office leads direct into Board Room, with small kitchen leading off it. Very effective walnut wood panelling of walls with lattice filigree type relief overlying glass or plastic.

The Supplies Department is responsible for 1,000,000 dollars volume of purchases each year.

900 dollars necessary to furnish one private hospital room.

1,850 dollars necessary for equipping a four-bed ward.

They wash a total of 4,000 dishes, trays and utensils each hour.

21,592 admissions a year - as many as 105 a day.

Very pleasant atmosphere throughout the Hospital, and Mr. Winnacott stressed the need for adequate lift service of the right type and provided a copy of an article on lifts written by himself.

Shuffle-board pattern painted on floor of corridors in Psychiatric Ward.

Trayveyor - takes 35 minutes to unload dirty dishes on each ward floor. 30 feet of tray line. Occasionally breaks down. Liquids should be covered. Draught in shafts causes food to cool. If it stops tray has to wait and it cools.

Five changes of programme on Pillowtone - changed by pulling a cord.

Electric-eye doors in maternity (i.e. pressure mat door).

Animal rooms next to Bacteriology Laboratories - negative pressure in animal rooms.

<u>The New Memorial Hospital of Long Beach, California.</u>

This is a 400-bed hospital, opened in June 1960 at a cost of 10,900,000 dollars.

The administrator is Donald C. Carner, modest and unassuming but charming and very efficient and original in his ideas.

Patients' meals are delivered to the floors in electrically-heated and/or refrigerated carts, on split trays designed by the Hospital's personnel.

Pneumatic Tube System - very effective.

Each floor of 100 beds under specially trained floor manager.

20-bed intensive medical therapy unit for critical medical patients.

Bedside control panel permits finger-tip control of radio. T.V. remote control of volume, brightness and programme. Nurse intercom, and a direct private telephone. Night light. Also an electric appliance outlet for shaving and an electric clock. (A photograph of this was obtained).

T.V. units are modern, thin, wall-mounted, operated by the patients control panel.

Mixed sexes within a wing.

Provision has been made for an electronic memory machine which gives the doctor his messages which have come in to the Hospital in his absence on a special code signal cue when he enters the Hospital and reports to him again when he leaves.

A special intricate time-saving electronic telephone system, which has only been used previously in the Waldorf-Astoria in New York, permits the patient to dial direct; designed so that charges are made only when a call is placed automatically.

Closed-circuit television will electronically guard the entrances and exits against pilfering.

X-ray films processed in six minutes by fully automatic electronically controlled equipment.

Director - Frame to carry all bedside instructions relating to each patient. (A sample of this device was obtained).

This hospital of 400 beds took two years to plan, two years to build - five years from first contemplation.

Music - record-playing machine for 28 hours continuously. Resets after 28 hours.

APPENDIX "A"

PEOPLE MET DURING VISIT.

Massachusetts General Hospital, Boston, Massachusetts.

General Director: Dr. Dean A. Clark.

Rhode Island Hospital, Providence, Rhode Island.

Executive Director: Mr. Oliver G. Pratt.
Assistant Director: John W. Norton.
Assistant Director: Herluf V. Olsen, Jnr.

Grace New Haven Community Hospital, New Haven, Connecticut.

Director: Dr. Albert W. Snoke.

Society of the New York Hospital, New York.

Director: Dr. Henry N. Pratt.

St. Vincent's Hospital of the City of New York, New York.

Administrator: Sister Anthony Marie.
Assistant Administrator: Sister Loretto Bernard.

Princeton Hospital, Princeton, New Jersey.

Administrator: Mr. John W. Kauffman.

Lankenau Hospital, Philadelphia, Pennsylvania.

Director: Mr. R.F. Hosford.

Sinai Hospital of Baltimore, Baltimore, Maryland.

President: Mr. Joseph Shesbow.
Executive Director: Mr. Harvey H. Weiss.
Associate Director: Mr. Morris N. Throne.

U.S. Naval Hospital, Bethesda, Maryland.

Commanding Officer: Rear Admiral F.P. Kreuz.

U.S. Naval School of Hospital Administration, Bethesda, Maryland.

Commanding Officer: Commander Calvin F. Johnson.
Executive Officer: Lieutenant Commander Daryle A. Wade.
Training Officer: Lieutenant Commander Harold J. Civiello.

Ochsner Foundation Hospital, New Orleans, Louisiana.

Assistant Director Controller: Mr. Clifford C. Losberg.
Purchasing Agent: Mr. Donald Ensininger.

Jewish Hospital of St. Louis, St. Louis, Missouri.

Executive Director: Dr. David Littauer.
Assistant Director: Mr. David A. Gee.

A.S. Aloe Company, St. Louis, Missouri.

President: Mr. Howard F. Baer.

Henry Ford Hospital, Detroit, Michigan.

Executive Director: Dr. Robin C. Buerki.
Assistant Director: Mr. David Everhart.
Assistant Director: Dr. Howells.

University of Chicago Clinics, Chicago, Illinois.

Administrator and Professor of Hospital Administration:
Mr. Ray E. Brown.
Assistant Administrator: Mr. David M. Hatfield.

Toronto General Hospital, Toronto, Ontario.

Director: Dr. Sharpe.
Assistant Director: Dr. Doyle.

Montreal General Hospital, Montreal, Quebec.

Executive Director: Mr. A.H. Westbury.
Medical Director: Dr. Storrar.

Royal Victoria Hospital, Montreal, Quebec.

Executive Director: Dr. J. Gilbert Turner.

St. Justine Hospital for Children, Montreal, Quebec.

Administrator: Sister Neomi de Montfort.

Cabrini Hospital, Montreal, Quebec.

President: Mother Valentino.

University of Toronto Course in Hospital Administration.

Professor of Hospital Administration: Dr. G. Harvey Agnew.

(Other members of the teaching staff are listed in separate report prepared by Mr. Bardgett on this course in Toronto)

Instituit Superieur D'Administration Hospitaliere.

University of Montreal.

Director: Dr. Gerald LaSalle.

Latter Day Saints Hospital, Salt Lake City, Utah.

Administrator: Mr. Clarence E. Wonnacott.

Memorial Hospital of Long Beach, California.

Administrator: Mr. Donald C. Carner.

APPENDIX "B"

LIST OF HOSPITAL PHOTOGRAPHS TAKEN.

Massachusetts General Hospital, Boston, Massachusetts.

1. Vending machines bay in O.P.D.
2. Electric card elevator file in Medical Records Dept.
3. Etherdome (where ether was first administered as an anaesthetic)

Rhode Island Hospital, Providence, Rhode Island.

4. Exterior.
5. Gift shop in entrance hall.
6. Bed, locker, and bed table.
7. Automatic pannierelevators.
8. Nurses station.
9. Coving to prevent corridor damage.
10. Pannierdelivery on automatic conveyor.
11. Sterile lotion bottles in C.S.S.D.
12. Central Sterile Supply Department.
13. Food tray assembly belt.
14. Trayveyor food tray vertical elevators.
15. Food assembly belt sequence 1.
16. " " " " 2.
17. " " " " 3.
18. " " " " 4.
19. " " " " 5.
20. " " " " 6.

Princeton Hospital, Princeton, New Jersey.

21. Auto-analyser in laboratory.
22. Bacteriology laboratory.
23. Pharmacy with pneumatic tube despatch.
24. Pharmacy showing Schwartz Storage Cabinets.

Lankenau Hospital, Philadelphia, Pennsylvania.

25. Admitting and payment assessing cubicles.

26. Re-deployable table units in school unit.

27. Outpatient Department.

28. Outpatient Department.

29. Central Supply Storage.

30. Examination couch with paper roller cover and drawers.

31. Bed, bedside lamp and bed head light.

32. Chesterfield in patients single room.

33. Automatic dispenser for barium swallows.

34. X-Omat automatic X-Ray processor.

35. X-Omat automatic X-Ray processor.

36. Central dishwashing installation.

37. Medical library.

U.S. Naval School of Hospital Administration.

38. Exterior.

Ochsner Foundation Hospital, New Orleans, Louisiana.

39. Medicart medicine trolley.

40. Hubbard hydro-therapy tank with aerator.

41. Nurses station with chart slots.

42. Special trolleys in recovery room.

43. C.S.S.D.

44. Sterile lotion bottles.

45. Bedside locker showing interior fittings.

Sinai Hospital of Baltimore, Baltimore, Maryland.

46. Meal pack heated tureen dispenser.

47. Outpatient waiting with television.

48. Snack bar off entrance hall.

49. Gift shop.

50. Central dishwashing.

51. Food tray assembly.

52. Food tray assembly.

Sinai Hospital (continued)

53. Car park with key operated raised spike entrance.

54. Exterior.

St. Justine Childrens Hospital, Montreal.

55. Special sink units in nurseries.

56. Corridor between wards for removal of dirty linen & for viewing.

57. Nurses station - communications console.

58. Nurses station - chart racks.

59. High humidity room.

60. X-Omat automatic X-Ray processor.

61. Ward sink fitment.

62. Hydro-therapy pool.

63. Hubbard tanks.

The following colour transparencies of exteriors of hospitals were also obtained:-

Massachusetts General Hospital

Rhode Island Hospital

The New York Hospital

Lankenau Hospital, Philadelphia.

Ochsner Foundation Hospital, New Orleans

Jewish Hospital of St. Louis.

Toronto General Hospital

Montreal General Hospital

Royal Victoria Hospital, Montreal

St. Justine Childrens Hospital, Montreal.

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UXBRIDGE GROUP H.M.C. SEPT/OCT.1960. (Dr. W.A.Steel,Medical Director)
(Mr.W.E.Bardgett.Group Secretary.)

Montreal.	THE CABRINI HOSPITAL.	150,beds.
	General Hospital,Information.	
Ontario. Niagara Falls.	NIAGARA FALLS HOSPITAL.	200, beds.
	General Information.	
Utah. Salt Lake City.	LATTER DAY SAINTS HOSPITAL.	500, beds.
	General Information.	
California.	THE NEW MEMORIAL HOSPITAL OF LONG BEACH.	400,beds.
	General Information.	
