KING EDWARD'S HOSPITAL FUND FOR LONDON

DIVISION OF HOSPITAL FACILITIES

REPORT ON A VISIT TO SWEDEN AND DENMARK
(M.C. Hardie; March, 1963).

SWEDEN

Sweden has a population of about 7,000,000 in an area of 173,000 square miles - in other words, about one-sixth of the population of England in an area three times as great. There are about 45,000 hospital beds in some 150 hospitals (other than mental) and the great majority of these hospitals are controlled by the County Councils and County Boroughs.

The chief purpose of my visit to Stockholm was to study the functions of the Swedish Central Board of Hospital Planning (Centrala Sjukvardsberedningen, C.S.B.) and the Purchasing Centre of the Swedish County Councils (Landstingens Inkopscentral, L.I.C.), and also to see some of the more recently built hospitals in the country. A list of the places visited and people seen is given in Appendix A.

THE CENTRAL BOARD OF HOSPITAL PLANNING (C.S.B.)

The C.S.B. is a Government Department of the Royal Board of Health, which is responsible to the Minister of the Interior for the organisation of the country's health services. The C.S.B. has three main sections:

(a) Planning.	7 staff)	
		) plus 10 secretarial staff:
(b) Organisation (O & M). . . .	6 staff)	
		) total 30 staff.
(c) Equipment	7 staff)	

The planning section is required by law to approve the plans for new hospital buildings, even though the State has no direct financial responsibility for them. However, this control does not appear to be very rigid, and the relationship between the C.S.B. and the County Councils and Boroughs seems to be friendly and co-operative. There seems to be no desire to standardise hospital buildings, and the planning section of the C.S.B. evidently considers itself to be primarily an information and advisory service. It gathers in ideas and information from the different parts of Sweden, and from abroad, and makes all this available to those directly concerned with hospital planning, either in the form of advice given to individual hospital architects and planning teams during the preparation and implementation of a project, or in the form of booklets about special departments (e.g. physiotherapy department; operating theatres; mortuary). These booklets are intended for general guidance only, and hospital authorities are under no obligation to adopt any particular plan. Virtually all hospital work is carried out by private architects and the C.S.B. is evidently anxious to give almost complete freedom of design to individual architects.

The organisation section is concerned with general problems of O & M and work study in the hospital service. This section does not undertake many specific studies of the special problems at individual hospitals, but is concerned rather with the collection of information about good hospital practice, and the encouragement of such practice in all hospitals. It does this partly by offering a general advisory service, especially in the planning stages of new hospitals, and partly by the publication of booklets about certain aspects of hospital work (e.g. cleaning in hospitals) and by the preparation of memoranda on various subjects of topical interest (rather similar to the Division's stencilled memoranda).

The equipment section is primarily concerned with the preparation of standard specifications for a very wide range of hospital equipment. It

has so far issued standards for several hundred items, including bedsteads, lockers, hardware, cutlery, forms, textiles, uniforms, etc. The procedure involved in the preparation of these standards is rather similar to that used by the British Standards Institution: committees representing users and manufacturers meet to discuss requirements and the draft standards are circulated widely for comment and revision. The final published standards seem to come nearer to being practical specifications than many of our own British Standards - partly no doubt due to the smaller number of people involved. Hospital authorities are not obliged to buy equipment conforming to C.S.B. standards, but most of them do, because the standards are evidently of such good quality.

In general, the C.S.B. obviously appears to do a very useful job and to be held in high regard by the hospital authorities. With a total staff of only 30, the C.S.B. forms a working team of reasonable size, rather like that of The Hospital Centre, and its relationship with the hospital authorities is close and cordial - all the more so, perhaps, because the hospitals are under no more obligation to follow the advice of the C.S.B. than are British hospitals that of the King's Fund. In Sweden, of course, there are far fewer hospital authorities than in England and the lines of communication are correspondingly simpler. There is little of the atmosphere of "we" and "they" between the hospital and the centre, and in this respect Sweden is perhaps more comparable to Scotland and Northern Ireland than to England. There are in Sweden no independent charitable foundations comparable to the King's Fund or the Nuffield Foundation, and it was to me encouraging to see how in many ways the objectives and methods of the C.S.B. corresponded to those of the Fund. Though the C.S.B. is financed by the Swedish Government, it is not considered to be a Government agency. It has a large measure of independence; its officers are given a pretty free hand to organise their work in their own way; its aim is to give an independent and impartial service of advice and information to hospitals; the hospitals themselves are under no obligation to use the services of the C.S.B. or to accept their advice if they do so. The fact that the Swedish Government have deliberately established and encouraged a quasi-independent organisation such as the C.S.B. seems to me to emphasize how valuable a role The Hospital Centre and the King's Fund can play in the health services of this country.

THE PURCHASING CENTRE OF THE SWEDISH COUNTY COUNCILS (L.I.C.)

About two-thirds of Sweden's hospital beds are at present controlled by the State or by the large cities such as Gothenburg and Stockholm. The remaining one-third are controlled by some 25 County Councils. It is now proposed that the mental hospitals should be transferred to the County Councils, so that the proportion of hospitals controlled by the latter will rise to over half.

Taken individually, the County Councils are not of sufficient size to gain the favourable prices resulting from bulk purchasing. A move towards joint purchasing was first made in the 1930's, and in 1946 the present Purchasing Centre (L.I.C.) was established as a private company whose shareholders are the County Councils and whose aim is to promote the commercial interests of the member councils. Its activities include purchasing for schools and other county council organisations, but the great bulk of its work is concerned with hospital supplies. The staff of the L.I.C. totals about 350, which includes workers in the L.I.C. associate companies manufacturing artificial limbs, food trolleys and dressings. An outline of the organisation is shown in the attached Appendix B. The L.I.C. works closely with the C.S.B. and the chairman of both organisations is in fact the same man.

The turnover of L.I.C. is about £6 million per year, of which about 80% consists of contracts placed by L.I.C. with Swedish manufacturers for the delivery of goods direct to the hospitals and the remainder of goods (many imported) purchased direct by L.I.C. and distributed through the L.I.C. to the hospitals. The L.I.C. also undertakes to prepare complete schedules of equipment for new hospital buildings and to arrange for its purchase and delivery in bulk to suit the hospital's convenience.

In many ways the work of the L.I.C. resembles that of the purchasing department of the London County Council or one of the other major local authorities in this country. It is significant, however, that the Swedish hospitals are not obliged to purchase through the L.I.C. if they think they can get better service elsewhere. In practice, however, most of the county council hospitals make extensive use of the services of L.I.C., and so do many of the major hospitals not controlled by the county councils.

The L.I.C. employs four architects and a number of other specialists who help in the design of equipment and the preparation of specifications, many of which are based on C.S.B. standards. It is again significant, I think, that the L.I.C. does itself specify so many of its requirements to the manufacturers in detail, instead of choosing between the numerous alternatives that the manufacturers themselves care to offer, as is so often the case in England. Specification and standardisation do not necessarily lead to drab uniformity, as was quite evident from the most attractive L.I.C. equipment in both the hospitals visited. The fact that hospitals do not have to buy L.I.C. equipment if they do not like it must, of course, help to ensure that the L.I.C. design and purchasing staff are kept up to the mark; the fact that so many hospitals do like it and buy it seems to indicate that specification and standardisation could perhaps be more readily applied and accepted in England.

L.I.C. EXHIBITION

In the headquarters of the L.I.C. on the outskirts of Stockholm there is a permanent exhibition of L.I.C. equipment, which is changed from time to time as new items are introduced. The exhibition covers 2,000 - 3,000 square feet and is well set out: it includes furniture, textiles, medical and surgical equipment, laboratory ware, crockery, cutlery, bedsteads, lockers and most other items used in hospitals. The exhibition is open to anyone concerned with hospital affairs and is evidently used quite extensively by hospital authorities when making decisions about their equipment requirements. The Hospital Centre could clearly offer a similar service in London.

BEDSTEADS

Compared with England, there are a far smaller variety of bedsteads in use in Sweden. This is, of course, partly due to the much smaller number of hospitals and bedstead manufacturers in Sweden, but it is also partly due to the widespread acceptance of a C.S.B. standard (C.S.B. - 351 of 1955) for general hospital use. There are, of course, variations to this standard, but a high proportion of hospitals accept it.

It is interesting to note that the standard bedstead is not adjustable in height. The Swedes evidently like their bedsteads to stand firmly on four stub feet in normal use, but to be fully mobile when required. The result is the short-wheel-base bed whose four wheels can be raised from the ground by a simple crank-action leaving the bed resting on its stub feet. This design precludes the use of an adjustable-height variation, but this is evidently not considered to be a major drawback.

The bedsteads are normally of stainless steel tubular frame construction, with panelled wood or plastic head and foot boards; mattress frame with head section adjustable as a backrest; steel slats instead of mesh springs. The general appearance is attractive, and they appear easy to operate and maintain.

LOCKERS

There is also a standard for lockers, which is quite widely used. Distinctive features about the standard lockers seemed to me to be the use of wood as the basic material for construction; the widespread use of plastic surfaces, inside and out; reversibility of drawers and fittings, so that the locker can be used either on the right or left of the bed; incorporation of a fold-down cantilever overbed-table extension that is adjustable in height. Inside the lockers all the corners were right-angled and not very easy to clean. The general effect was pleasing, but not particularly revolutionary.

EQUIPMENT GENERALLY

As one has come to expect of Sweden, the design of furniture and equipment was of a high standard everywhere. Wood of many different types was used for different kinds of hospital and domestic furniture and its design and construction was invariably of simple and attractive appearance. Stainless steel is very extensively used for hardware, cutlery and ward utensils, and, again, the standard of design was simple and attractive. Plastics are not yet used to such an extent as in this country, but are beginning to be more widely used. There did not seem to me to be very much that was outstandingly advanced in the way of equipment, but the general standard of design seemed to me to be higher than in this country.

VISITS TO NACKA AND DANDERYD HOSPITALS

1. NACKA HOSPITAL

On Monday afternoon, 18.3.63, I visited Nacka Hospital with Mr. H. Tengrud, of the Central Board of Hospital Planning, and we were shown round by Mrs. Lofstrom, wife of the architect of the hospital.

The hospital is designed to serve a population of about 75,000 people in the Nacka - Varmodo area, which is in the south-eastern suburbs of Stockholm. Some 345 beds have been in use since November 1962 in the new hospital, and ultimately there will be 465 beds, providing for medical, surgical, obstetric and gynaecological patients (total 269 beds) and for psychiatric (40 beds) and chronic patients (156 beds).

The design of the hospital is basically of the matchbox-on-the-muffin type, with the principal diagnostic, treatment and service departments on the ground floor and all the wards in a block of eight floors. The following are some of the principal points noted:-

(a) Ward design

There are two ward units, each of 26 - 29 beds, on each floor, and the two units share a ward kitchen, dining-room, day-room, smoking-room and staff room. The beds are in single rooms, 2-bed rooms or 4-bed rooms - the proportion of each generally being about 20%, 30% and 50% respectively. From conversations at the hospital and C.S.B., I gather that the 2-bed rooms are falling out of favour in Sweden and that in future the proportions may be of the order of 30% in single rooms and 70% in 4-bed or 6-bed rooms. 4-bed rooms seem to be preferred, and anything over 6 beds is not generally liked.

The wards are designed with the bed-rooms along one side and the service rooms along the other. The 4-bed rooms have toilet and bedpan washing facilities provided as an integral part of each 4-bed unit and built-in clothes lockers (in addition to individual bedside lockers) for hanging personal clothing. There is no observation panel in the door, so that the 4-bed rooms form very quiet and private units. The same applies to the single and 2-bed rooms. There is a two-way patient/nurse call system which is said to work very effectively.

The windows have wooden frames and are triple glazed and there is a forced ventilation system, but not complete air conditioning. The doors are wide and are all covered with linoleum. The flooring in the wards is of linoleum: it is normally washed once a week and is cleaned daily by means of a central piped vacuum plant. In the sluice-rooms and elsewhere PVC is used.

Soiled linen is despatched from the wards down a linen chute in canvas bags. Other waste material goes down a separate chute in paper bags, except for kitchen waste, which goes down a garbage-grinder built in to the sink. There is a dishwashing machine on each ward. It is evident that much thought has been given to the problems of cleaning and disposal.

(b) Catering

The most unusual feature of the hospital is the catering system. The main kitchen is in a separate building connected to the hospital by a 50-yard tunnel. All cooked food is put into plastic bags, each containing portions for five people, which are then vacuum-sealed, heated up to a temperature a few degrees below boiling, then cooled for one hour on a moving belt passing through a special chamber. Once processed in this way, the food can be left for up to three weeks, and made ready for eating when required simply by immersing the plastic bags in hot water in the wards for a few minutes before opening and serving. The system was evidently first developed for the benefit of the miners in the northern part of Sweden, for whom it was previously very difficult to provide hot cooked meals with any regularity.

It is claimed that, with this system, the work in the kitchen can be organised more efficiently and evenly without having to prepare large numbers of meals for the customary meal-times. At present with this system some 3,500 meals are prepared each day by a total of 13 staff, and service is provided not only for Nacka Hospital but also for another hospital as well. I had some of this food for my lunch and found it perfectly palatable. The staff at Nacka Hospital estimate that food costs with this system are half what they would be by more conventional systems, but the C.S.B. staff are as yet rather doubtful whether such savings are likely.

(c) Flooring and floor maintenance

Linoleum, unsealed, is used extensively in the wards, and PVC in the sluices, out-patient department and other areas. The main entrance has an attractive dark grey stone floor which is far less noisy than one would expect, partly no doubt due to the extensive use of acoustic or wooden strips for the ceilings. With regard to the latter, it was surprising to be told that the wood used was imported from South America because it was cheaper than Swedish home-grown timber.

Basic floor-maintenance consisted of daily vacuum cleaning through the central system, and washing once a week. Though the floors were generally very clean, I did not get the impression that the hospital staff or the C.S.B. had studied the problems of floor maintenance as thoroughly as has been done in the Fund's investigations at Ashford and elsewhere.

(d) Bed exchange centre

A bed exchange centre was situated in the ground floor of the hospital. On the discharge of every patient, the linen is sent to the laundry and the bed, mattress and pillows are sent to the bed exchange centre. The bedstead is washed down and the mattress and pillows are vacuum-cleaned on a special machine and then autoclaved. After this process, the bedstead passes through flexible plastic doors to the 'clean' side of the centre where it is fitted with clean mattress and pillows. The complete bed is then ready for despatch to the admission centre.

(e) C.S.S.D.

There is a compact C.S.S.D. on the ground floor which serves all hospital departments, including the theatres, which are in fact adjacent to the C.S.S.D.

(f) Disposable goods

As in this country, increasing use is being made of disposables of all sorts but no detailed costing has yet been carried out.

(g) Medical records

All patients' records are numbered according to their date of birth. The number of the day of the month is the key figure, rather like the

terminal digit system, and the six-figure number given to each patient (e.g. 010203 being the number for somebody born on 1st February, 1903) appears on all his or her records. Despite the difficulties that may arise over twins, the system appears to work quite well, and the ladies do not appear to object to having their ages publicly displayed in this way.

2. DANDERYD HOSPITAL

I visited Danderyd Hospital on the morning of Tuesday, 19th March, with Mr. Tengrud, and we were shown round by Dr. Lundgren, who has recently retired from hospital practice as a radiologist, and who was involved in the planning of the hospital.

The hospital serves a population of well over 100,000 people in the northern suburbs of Stockholm and it is, like Nacka Hospital, controlled by the Stockholm County Council. There are already in existence, and still in use, some old hospital buildings there, but these are now completely overshadowed, and will ultimately be replaced, by the very large new hospital which is being built on the same site, and which will eventually provide about 1,300 beds covering almost every specialty, including psychiatry for adults and children. About 300 beds have been in use for three months so far.

The same architect, Mr. Lofstrom, was responsible for this hospital and Nacka, and its design is in many ways similar to that of Nacka Hospital, but on a larger scale. The 'matchbox' consists of 14 floors commanding magnificent views over the local countryside (including one of the royal residences about a mile away) and the 'muffin' is built on two floors, with one block rather higher. The following are some of the points noted:-

(a) Ward design

The ward design is basically very similar to that of Nacka Hospital, with single, 2-bed and 4-bed rooms in about the same proportions, and with a similar patient/nurse call system.

(b) Catering

There is a very fine self-service staff restaurant, using the food cooked and sealed in plastic bags at Nacka Hospital. The same system is used for feeding the patients. The delivery of this packaged food is made about once a week.

(c) Flooring and floor maintenance, bed exchange centre, C.S.S.D., disposable goods and medical records all follow basically the same pattern as at Nacka Hospital, though there is no central piped vacuum for wards at Danderyd (largely, I think, because the building is so much higher).

(d) Pneumatic tube system

A pneumatic tube system of German make has been installed, but it has not yet been brought into use.

(e) Physiotherapy and rehabilitation

There is a magnificent physiotherapy and rehabilitation department, complete with the most up-to-date equipment, including hydrotherapy pool, Hubbard tank, and collapsible PVC baths. The latter are in use at Nacka and Danderyd, and are used not only for hydrotherapy, but also for bathing elderly or disabled patients.

For rehabilitation, there is a specially adapted kitchen, similar in many ways to those in many hospitals in England, but one noticeable feature was a complete kitchen sink and cupboard unit that could be raised and lowered by an electrically operated hydraulic system, so that the staff can calculate exactly what working height is required for any individual patient and have

the kitchen at home adapted accordingly. The unit also had some very neat revolving corner cupboards with one quadrant forming a conventional-looking right-angle corner, which could be pushed round to reveal shelf-space on the other three quadrants.

(f) Stores

The central stores department is very well planned and spacious and covers an extensive area in the basement of the hospital. The storage and distribution procedures seem quite conventional, but the well-planned accommodation must make the whole system much more efficient and easy to operate.

VISITS TO MANUFACTURERS

Brief visits were paid to the showrooms of two manufacturing companies.

(a) Ab Sangfabrieken. This is one of the principal bedstead manufacturers in Sweden, and the company also makes other equipment (e.g. bedside lockers) for hospitals and a wide range of furniture suitable for nursing homes and domestic use. The standard of design and construction is good, and the company is clearly held in high regard by the Central Board of Hospital Planning.

(b) Kifa. This company specialises in operating theatre tables and other technical equipment. It is closely associated with a leading X-ray equipment company, Elema-Schonander. The chief purpose of my visit was to see a new electrically-operated oil-hydraulic operating-table pedestal that this company has developed for use with a specially designed trolley-mounted table-top that can be wheeled over the pedestal and tilted to virtaully any angle. This was an impressive piece of equipment and it is available in England through Sierex Limited.

DENMARK

Denmark has a population of about 4,500,000 in an area of 16,600 Square miles - in other words, about one-tenth of the population of England in an area one-third as great. There are about 26,000 hospital beds (other than psychiatric) in 144 hospitals, and these are nearly all owned and managed by the local authorities.

The chief purpose of my visit to Copenhagen was to study the functions of the Danish Hospital Association and to visit the County Hospital at Glostrup, a western suburb of Copenhagen.

GLOSTRUP HOSPITAL

I visited Glostrup Hospital on 20th March and was shown round by Mr. E. Winters, Superintendent of the hospital.

The hospital is intended to provide services for the Copenhagen County Council, whose administrative area covers a population of about 450,000 people. An old hospital (built about 1924) of 1,200 beds at Gentofte serves part of this area, and Glostrup Hospital has since 1960 provided 782 beds.

The design of the hospital is the result of an inter-Scandinavian architectural competition, for which 45 entries were submitted in 1951. The winners were a team of Finnish architects, Ypya and Malmio. Excavation work started in March, 1953, and the first beds were opened in September, 1958. It is a fine looking hospital and consists basically of one main building comprising four 10-storey ward wings and two 4-storey treatment wings, grouped about two traffic centres connected by a 5-storey connecting wing, which includes doctor's offices and some special treatment services. The following are some of the points noted.

(a) Entrance Hall

The main entrance to the hospital is very spacious and includes shops for flowers, papers, tobacco and confectionery; a hairdressers; bank; telephone kiosks and a small restaurant leased to a commercial caterer and intended for use by visitors. This hall is also used as a gathering-place where ambulant patients can meet their friends and relatives.

(b) Ward design

There are at present in use four main ward wings, containing 34 ward units of 23 beds each. The beds are divided up into four single rooms, two 2-bed rooms, three 3-bed rooms and one 6-bed room. Separate provision is made for toilet and washing facilities, day-room, smoking room, and treatment and service rooms. The bed-rooms are along one side of the unit and the services along the other. All the bed-rooms are fitted with a two-way patient/nurse call system, and none of the doors has observation panels in them. I gather that neither patients nor staff are worried about this comparative lack of direct observation and supervision. The ceilings throughout are fitted with acoustic tiles, and the ward as a whole seems very peaceful andquiet.

(c) Bed exchange centre

A bed exchange centre has been improvised in the basement of the hospital for the cleaning of every bed after the patient's discharge. The area used for this purpose was not originally designed as such a centre, but it is evidently considered to be an important service and some 80 - 90 beds are processed in this way each day.

(d) Design of beds

The bedsteads throughout the hospital are of a standard design, rather similar to that seen in Sweden (CSB - 351), with a short wheel-base and

four stub-feet which can be lifted off the ground by a single foot-pedal action. I was told that there was only one non-standard bed in use in the whole hospital. The beds are not adjustable in height, but this does not seem to worry anybody. They are used extensively as trolleys for transporting patients all over the hospital - to theatre, X-ray, etc. - and I did not see any other type of patient's trolley in use anywhere in the hospital.

(e) Doors

Many doors are of glass in aluminium frames, and in several parts of the hospital electrically-operated doors were in use, operated by a pull-cord or switch, and in a number of cases a pair of double doors was operated in this way. Though somewhat expensive to install, such doors do seem to save much time and trouble - and damage.

(f) Operating theatres

There are four operating theatres, built to the design of the American architect Paul Nelson as egg-shaped rooms with 71 built-in spotlights that can be focussed on the field of operation - I gather that 5 or 6 of the lights are generally used at any one time. The floors of the theatres are of black conductive vinyl tiles. Pneumatic tubes have been installed between the theatres and laboratories for dealing with specimens.

I was surprised to find that I was able to have access to the theatre suite so easily without having to put on overshoes, gown, etc. The whole suite gave the impression of being a hive of activity with people wandering in and out all the time. I gathered that the incidence of infection was nevertheless very low.

(g) Medical records

The numbering system is the same as in Sweden - by date of birth. During his or her stay in hospital, each patient's case notes are kept in a transparent plastic folder. After discharge, they are removed from the folder and stored in manila folders on suspended racks. A centralised dictating system is in use (Rex Recorder) and this is manned for 24 hours a day.

(h) Stores

There is magnificent stores accommodation in the basement: very clean, well-ventilated and spacious. The storekeeping system follows a conventional pattern.

(i) Flooring and floor maintenance

Linoleum is used extensively in the wards and PVC elsewhere. There has been shrinkage of the PVC in some areas, though it is understood that the more recent types of PVC do not suffer from this defect.

Floor maintenance consists primarily of occasional washing and mopping. The problems of maintenance do not seem to have been studied so closely as in this country, and Mr. Winters was interested to hear of the Fund's activities in this field.

General Comments

When asked what alterations he would suggest if the hospital were being designed afresh, Mr. Winters said that in general he thought that it was working well, but that he would have preferred the diagnostic and service departments to be on one or two floors at ground level, instead of in the 4-storey blocks as at present. The only other important point he made was that there should be a separate ward for the admission of emergencies and other patients at night.

DANISH HOSPITAL ASSOCIATION

On Thursday, 21st March, 1963, I visited the offices of the Danish Hospital Association at Gentofte Hospital in the northern suburbs of Copenhagen, where I spent several hours with Mr. V. Gredsted, Chief Engineer of the Rationalization Department of the Danish Hospital Association (D.H.A.).

The D.H.A. is an association of hospital owners and has some 150 members representing general and other hospitals (except mental) outside the city of Copenhagen. It has a staff of about 40 divided up into four main sections:

(a) Salaries and wages

(b) Medical research

(c) Cross infection

(d) Rationalization.

The salaries and wages department deals with the negotiations on pay and conditions of service for all grades of hospital staff. The medical research department deals with the co-ordination of clinical research activities in the various hospitals. The cross-infection department, which includes four part-time bacteriologists and some nurses on its staff, deals with various aspects of cross-infection from medical and nursing procedures to cleaning and waste disposal.

The rationalization department is in essence an O & M and work study organisation with a wide interest in hospital planning and equipment as well as in detailed studies at individual hospitals. It conducts investigations at the request of the hospitals concerned, and offers advice (which does not have to be taken) on problems involved with the planning and equipping of new hospitals. My discussion with Mr. Gredsted proved most interesting and helpful and gave me a very useful insight into the general trend of thought in Danish hospitals. The following are some of the topics discussed.

(a) Hospital design

As in England there is a tendency to favour the concentration of hospital services in a small number of large hospitals, rather than in a large number of small hospitals, and the 'matchbox-on-the muffin' type of hospital plan seems to be generally accepted for these larger community or district general hospitals.

Virtually all hospitals are designed by private architects, who can and do seek the advice of the Rationalization Department whenever they wish. Mr. Gredsted said that Danish architects had a liking for very tall buildings, whether for offices or hospitals; he personally did not favour hospital blocks higher than 11 - 12 storeys, but showed me plans of a new hospital for Herlev where the main ward block is to be 22 storeys high.

(b) Ward design

At present, patients are treated in wards of 23-25 beds, but the tendency appears to be towards much larger units of 50-60 beds under the overall supervision of one senior sister, with a sub-division into two 25-30 bed units sharing communal kitchen, storage and other services. The beds themselves are placed in single, 2-bed, 3-bed, 4-bed or 6-bed rooms, with a majority perhaps in 2-bed or 4-bed rooms. It is becoming standard practice for each room to have built in its own toilet and washing facilities with independent artificial ventilation, and storage space for patients' clothing, bed linen, etc.

Intensive care units for post-operative patients, and for acute cardiac and similar patients, are considered most desirable, but there is no apparent

intention to introduce accommodation specifically designed for the full application of the 5-stage progressive patient care system in use at some American hospitals.

Though artificial ventilation is widely used, there is no evidence of any pronounced trend towards race-track wards.

(c) Catering

Great interest is being shown in the Dri-heat Ganymede system of food service, and this is likely to be installed in the 22-storey ward block of the new Herlev hospital, with the kitchens at the top of the block.

Interest is also being shown in the pre-cooking, cooling and re-heating of meals. It is realised that such systems offer great possibilities for the more even distribution of the work-load and staffing arrangements over a 5-day working week, but it is felt that much more experimental work needs to be done (as at Nacka) before any final decisions can be made.

(d) Bed exchange centres

The incorporation of bed exchange centres in new hospitals seems to be accepted as a matter of course. It is intended that the centres should include hot-air rooms where mattresses and pillows would be subjected to dry heat (up to 85°C) for several hours, with autoclaving being restricted only to bedding known to be infected. The bedsteads would be washed manually, and in this connection it was interesting to learn that this factor is now being taken seriously into account in the design of new beds - to the extent that nylon ball-bearings should be used and other movable parts made so that they should not be harmed by water.

It is realised that for very large hospitals some 90 - 100 beds may have to be processed in this way, which will raise considerable problems of storage, particularly over the week-end, but it is felt that the necessary storage accommodation should be provided - a figure of over 5,000 square feet was mentioned.

(e) Operating theatres

Egg shell-shaped theatres, with built-in multiple lights, seem to be in favour.

(f) Finishes and fittings

(i) Windows: double-glazed aluminium is considered most suitable.

(ii) Doors: timber usually preferred - the architects like the doors to be left with a natural oiled finish; the hospital staff prefer easy-to-clean finishes of plastic, linoleum or paint. Electrically operated self-opening doors are liked, but considered too expensive for widespread use.

(iii) Floors: almost equally divided between linoleum or PVC.

(iv) Ceilings: acoustic tiles are widely used in patient-areas and are evidently considered satisfactory bacteriologically.

(v) Walls: oil paint is still generally preferred, but in areas of very heavy traffic, plastic to dado height is advocated.

(g) C.S.S.D.

The establishment of C.S.S.D. is considered necessary and desirable and it is hoped that eventually - but perhaps not quite yet - operating theatres may be served by C.S.S.D. as well as other hospital departments.

(h) Supplies

In the new hospitals being planned and built, increasing attention is being paid to the importance of providing adequate stores accommodation and efficient distribution procedures. Mr. Gredsted is familiar with topping-up and trolley replacement systems (he has also visited the U.S.A. and discussed these matters with Gordon Friesen), but little has actually been done along these lines yet in Scandinavian hospitals.

(i) Standardisation

It is recognised that there is need for greater standardisation in hospital equipment, but not very much progress has yet been made. Most hospital authorities take an independent line and as yet appear to show little enthusiasm for joint specification or purchasing. However, the D.H.A. is moving cautiously towards a measure of variety reduction, and a start has been made on the standardisation of medicine cupboards.

(j) Bedsteads

As in Sweden, the short-wheel-base bed with four stub feet that can be raised by a single pedal action is popular in Denmark. There are evidently quite a number of variations of this type of bedstead and some reduction in variety is considered desirable. There has as yet been no great demand for adjustable height bedsteads, but work is in progress on the design of a prototype adjustable height bedstead incorporating short wheel base and stub feet. A fibre glass bedstead has been produced (in Sweden) for domestic use and the possibilities of this material for hospital use have not been overlooked.

(k) Lockers

The same pattern of locker is popular in Denmark and in Sweden, with the adjustable-height overbed flap and plastic surfaces.

(l) Disposables

Disposables are being increasingly widely used, as in England. The feeling about them is much the same, too - that no money is saved but that a better service is provided for the patients and the risk of cross-infection reduced. In addition tothe items already familiar to us in England, I was interested to hear of very light aluminium foil being used for wrapping of soiled instruments for despatch to the C.S.S.D. and of disposable paper curtaining for use in wards: this is supplied in wide rolls which are put into roller-blind-type fixtures fitted vertically to the wall, the paper curtaining is then pulled out when required and attached to a vertical pole fitted into a floor-socket about 7' from the wall between the beds. This is in use at Randers Hospital.

(m) Patient/Nurse call system

The two-way speech system is being fitted in most new hospitals and is quite well liked. It is known to have limitations, however - very ill patients are seldom able to use it, and the less ill patients seldom need to make use of it. A work study at Glostrup Hospital comparing wards that used the system and those that did not evidently demonstrated that the staff on the ward with the system saved themselves a total of about 10 minutes a day compared with the staff on the ward that did not.

(n) Staff location system

The bleep-bleep personal call system is favoured and is now in use in over 20 Danish hospitals.

CONCLUSION

In the short space of 2 - 3 days one can obviously gain only the most fleeting general impression of any country's hospital system, but the visit was nevertheless very much worth-while. It was extremely interesting to see such good examples of modern hospital design and equipment, and it was no less interesting and valuable to meet representatives from some of the central hospital authorities in each country and to discuss with them many of the problems that are common to their hospitals and ours. In passing, reference should be made to the very high standard of English spoken by nearly everybody with whom I came into contact during the visit. I felt ashamed to admit that the only Scandinavian word I knew was 'Skol', but the ease with which Swedes and Danes alike appeared able to converse in English made the visit all the more valuable for me. It was reassuring, too, to find in my hotel bedroom a 'Fire' notice with the dignified admonition "Signify your presence to the Fire Brigade through the window in a composed manner."

On the planning and design of new hospitals, it seemed to me that the system whereby local county councils or boroughs are responsible for capital development meant that in fact proportionately more money is made available for new hospital buildings than is the case in this country. I gathered that local politicians feel themselves personally under considerable pressure to make sure that their local hospitals are of a really high standard, and this in turn stimulates them to raise as much money as they possibly can for their new hospitals. The consequence, both in Swedenand Denmark, is that the hospital architects are not restricted to precise centrally-determined cost limits, as is the case in England, and that the local authorities can manage to raise enough money to provide hospital buildings that compare very favourably with the best in this country.

The impressions that stand out in my mind from the three hospitals visited include the acceptance of the 'matchbox-on-the-muffin' principle; the general air of spaciousness; the grouping of patients in small self-contained rooms; the high standard of interior design and decoration; the clean lines of the furniture and equipment; the generous provision of space for storage accommodation and bed exchange centres; the emphasis on rehabilitation services; the concentration on the development of new catering methods, and the installation of labour-saving devices and easy-to-maintain equipment and finishes to save on running costs. The combination of local pride in providing fine new hospitals and of the realisation that increased initial capital expenditure may be more than offset by later savings on maintenance has resulted in some outstanding examples of hospital architecture that we shall find it hard to match in this country.

On the general organisation and management of hospitals, it seemed to me that we are in some ways more advanced in this country. Training in hospital administration is better organised here and O and M and work study techniques have been more widely developed and applied in our hospitals. The grouping of our hospital services and their overall central organisation provides a more even distribution of resources and perhaps a speedier means of interchanging information and ideas. There is an awareness in Sweden and Denmark of the need for a greater measure of standardisation or variety reduction in hospital equipment, and steps are being taken to achieve this by the preparation of specifications for an increasing range of items: this is a trend which could well be given greater encouragement in this country.

On the problem of collection and dissemination of information and ideas, it was very interesting to see how in many ways the work of the Central Board of Hospital Planning in Stockholm (C.S.B.), and of the Danish Hospital Association in Copenhagen (D.H.A.), resembles that of The Hospital Centre. In both countries the control of hospitals is largely decentralized, but the need is recognised for some organisation to collect and disseminate information on an independent and impartial basis without any suggestion of government direction or interference.

The staff of both the C.S.B. and D.H.A. were at pains to emphasise that no hospital authority was obliged to accept their advice and that such success as they did achieve was largely dependent upon the co-operation they received from the hospitals in their work. The C.S.B. and D.H.A. were both very interested in the work of the King's Fund and The Hospital Centre and were indeed envious of our independent resources and of our special relationship with the hospital authorities in this country. It was encouraging to me to find that they immediately appreciated the potential value of an organisation such as The Hospital Centre and wished that they could develop similar institutions in their own countries independent of direct financial support from government or local authorities. For the future, one of the most valuable results of the visit has been the establishment of very friendly contacts with people who should be able to keep us very well informed about future developments and trends in both countries.

Lastly, I would like to express my gratitude to the Fund for making it possible for me to go on this visit, and to my hosts in Sweden and Denmark who made all the arrangements for my visit with such kindness and efficiency.

Appendix A.

Summary of places visited.

Sweden

(a) Central Board of Hospital Planning. 18.3.63.

Mr. T. Lindh, Head of Planning Section.
Mr. S. Troedsson, Head of Organization Section.
Mr. H. Tengrud, Engineer, Organization Section.

(b) AB Sangfabrieken. 18.3.63.

Bedstead and hospital equipment manufacturers.

(c) Nacka Hospital. 18.3.63.

Mrs. F. Lofstrom, Wife of Architect of the hospital.

(d) Danderyd Hospital. 19.3.63.

Dr. Lundgren, Chief Radiologist (retired).

(e) Kifa-Elema-Schonander. 19.3.63.

X-ray and operating theatre equipment manufacturers.

(f) Purchasing Centre of the Swedish County Hospitals. 19.3.63.

Mr. Torsander, Organisation Manager.

Denmark

(a) Glostrup County Hospital. 20.3.63.

Mr. E. Winters, Superintendent.

(b) Danish Hospital Association. 21.3.63.

Mr. W. Gredsen, Chief Engineer, Rationalization Department.

Financial Manager
Equipping and

Subsidiary comma
AB Lande
AB Ortop
AB Rana

Appendix ...

Sweden

(a) Central Board of Hospital Planning [illegible] 10.5.71

Mr. T. Linth, Head of Planning Section

Dr. S. Trendsson, Head of Organization

Mr. M. Tornund, Engineer, [illegible]

(b) AB Sängfabriken [illegible] 18.5.71

Bedstead and hospital equipment [illegible]

(c) Macka Hospital [illegible]

Mrs. [illegible] Loftus [illegible] hospital

(d) Danderyd Hospital [illegible]

Dr. Lundgren, [illegible] logist (retired)

(e) Hilfa-Elema-Schonander [illegible]

X-ray and operating theatre equipment manufacturer

(f) Purchasing Centre of the Swedish County Hospitals [illegible]

Mr. Torsander, Organisation Manager.

Denmark

(a) Glostrup County Hospital

Mr. [illegible] rs, Superintendent

(b) Danish [illegible] Association

[illegible] adsen, Chief

Central Board of Hospital Planning in Stockholm [illegible] Danish Hospital Association in Copenhagen (D.H.A.), [illegible] that [illegible] the Hospital Centre. In both countries the control of Hospitals is largely decentralized, but the need is recognized for some organisation to collect and disseminate information on an independent and impartial basis without any suggestion of government direction or interference.

Appendix B.

LANDSTINGENS INKÖPSCENTRAL
(The Purchasing Centre of the Swedish County Councils LIC)

Members, representing County Councils

Annual General Meeting

Board

General Manager

Assistant General Manager

Financial Manager | Sales Manager | Organisation Manager | Purchasing Manager | Personnel Manager

Equipping and Furnishing Division | Trade Division | Warehouses

1. Beds, transport equipment etc.
2. Electric equipment
3. Textiles and ready-made clothing
4. Forms, office equipment, sanitary paper goods
5. Dental equipment and articles
6. Washing-material, fuel
7. Food (all kinds except fresh food)
8. Furniture
9. Hearing aids and audiometers
10. Laboratory equipment, some kinds of medical articles, especially disposable
11. Stainless steel goods, glass goods, plastics, china, kitchen apparatuses
12. Medical and surgical instruments, sterilizers etc.
13. Bandages
14. X-ray materials

Subsidiary companies:

AB Landex - selling organisation
AB Ortoproban - artificial limbs
AB Rana - bandages

Branch offices:

Gothenburg
Umea
Lund