of Medical Schools to point out what in fact the Army can offer to the qualified medical man. It must be brought to his notice that the Corps provides openings in all branches of Medicine and revealed to him as a career which is a suitable alternative to civil practice, instead of a necessary stage through which he must pass.

It is appreciated that all this is in the nature of a long-term policy, but the main point I would make in conclusion is that recruiting for Regular officers of our Corps must start with the medical student and not the qualified man, and our efforts should be directed to him with as little delay as possible.

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REQUIREMENTS OF A MILITARY HOSPITAL

BY

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[Continued from page 119, February issue]

PART III—OUT-PATIENTS DEPARTMENTS

GENERAL

The requirement for the out-patients department is that it should have separate entrance and exit, and also have good access to the diagnostic and therapeutic departments, which of course also serve the wards. The entrance has been dealt with above in Part I.

One important object of having a separate department for out-patients is to segregate them from the in-patients and to avoid the necessity for them to have to enter and wander about inside the hospital, and especially the wards, more than is absolutely essential.

It is essential therefore that the out-patients department is adjacent to the X-ray department and to the physiotherapy and pathological departments, and to the dispensary, and has ready access to them. It must have an adequate waiting hall and cafeteria and some means of general supervision. Toilets should be provided, for some patients may have long periods to wait.

CONSULTING SUITES

(a) Consulting rooms, dressing cubicles and examination rooms are best designed as self-contained suites. They may have to be provided for the following specialists:

| General medical. | General surgical. |
| Skin. | E.N.T. |
| V.D. | Eye. |
| Psychiatric. | Orthopaedic. |
| Dental. | Obstetric and gynaecological. |
There is no reason why one or two suites per division should not suffice for all the specialists in that division provided the consulting hours and days are properly organized and provided that the consulting rooms are equipped with the necessary apparatus and fittings to suit all the likely users in that division. The only specialists who need special accommodation peculiar to their art are the obstetric and gynaecological, V.D., dental, E.N.T. and ophthalmic specialists.

A common treatment room, somewhat like a unit medical centre, for outpatients coming up for treatment of minor conditions, inoculations, medical inspections, etc., meets the requirements for such cases. A second one exclusively for skin cases may be necessary in some stations.

The detailed accommodation to be provided on this basis is therefore:

(a) Out-patients’ supervisor’s office.
(b) Waiting hall with small rooms off, for waiting officers and women patients, a cafeteria and toilet facilities.
(c) ‘Surgical’ suite.
(d) ‘Medical’ suite.
(e) Treatment room(s).
(f) Obstetric and gynaecological suite.
(g) E.N.T. suite.
(h) Eye suite.
(i) V.D. suite.
(j) Dental suite.

Fig. 12
General Circulation of the Out-Patients Department.
Note the close linking to the X-Ray, Dispensary, Physiotherapy and Pathological Departments of the main Hospital Building.

A minor operating theatre and plaster room should be provided in addition
if the general theatres suite is not readily accessible. It avoids out-patients being brought right into the hospital. It should be close to the surgical consulting suite and should comprise:

(a) Operating room.
(b) Sterilization sluice and wash-up annexes.
(c) Plaster room.
(d) Anaesthetic room.
(e) Recovery room.

In a small hospital it may well be sufficient to provide only a combined operating and plaster room plus a sterilizing and sluice room.

A circulation diagram is at Fig. 12.

GENERAL MEDICAL OR SURGICAL SUITE

It will be seen from studying the foregoing paragraphs that the requirement here is for two or more suites each comprising a consulting room, examination room and dressing cubicles. These can conveniently be grouped round the treatment room and minor operating suite.

E.N.T. SUITE

Special requirements here are to meet the special investigations that have to be carried out by the otologist. It is essential to have a room for the accommodation of patients awaiting treatment or consultation who have been anaesthetized and where patients can also wait while recovering from minor procedures—e.g., antrostomy, cauterizing, etc. A dark room is useful but not as strictly essential as an audiometry room. The dark room can be combined with the audiometry room provided it is properly constructed of light-proof and sound-proof material. It is essential that the consulting rooms can be darkened at will if a dark room is not provided. Shading by venetian blinds is a convenient method of achieving this. It is also essential that an office be provided for the special records of the department and for the use of the specialist for his office work, which is quite considerable.

A circulation diagram is at Fig. 13 (a).

OPHTHALMIC SUITE

Here it is essential to provide a dark room and there is also a requirement within the suite for at least one of the rooms to have a length of not less than 21 ft.—22 ft. for refraction cases. This length can be achieved by the use of two rooms intercommunicating, as a compromise, if it is inconvenient or impossible to provide an examination room with a length of more than 22 ft., but it is essential that this intercommunication be in one straight line. This provision of the eye-test type interval of 6 metres can sometimes be met in temperate climates by placing a mirror 10 ft. from the patient and suspending the object to be used
over the patient's head, but is not recommended in tropical climates, where mirrors quickly become unserviceable; it is essential that the mirror remains perfectly reliable.

A circulation diagram is at Fig. 13 (b).

V.D. Suite

V.D. out-patients are most conveniently seen in the department which is to comprise also V.D. in-patients wards. This has therefore already been dealt with under the V.D. in-patients department (q.v.).

Obstetric and Gynaecological Suite

This should be provided with a separate entrance or with the waiting room right by the out-patients' entrance. It is convenient for it to be adjacent to the reception arrangements for the families and female service wards. Requirement is for:

(a) Waiting room. (b) Consulting room. (c) Examination room. (d) Treatment room.

(e) Record office. (f) Changing cubicles. (g) Toilet facilities for staff and patients.

The examination room should have available space which can be screened off by curtaining, as required, for a lithotomy chair for the examination of patients and for minor procedures to be carried out. There should also be provided a recovery bay to the treatment room. Storage accommodation for the department is essential.

A circulation diagram is at Fig. 13 (c).
DENTAL OPERATING SUITE

The accommodation needed is operating and laboratory accommodation for the specialist dental surgeon, comprising:

(a) Surgery.
(b) Mechanics' laboratory.
(c) Offices and store.
(d) Waiting room(s).

It is essential that the surgery and the laboratory face north or east. A suitable point must be installed in the surgery for plugging in a portable dental X-ray apparatus. No balcony or veranda must obstruct the windows.

OTHERS

No special accommodation is required for consultation purposes by the orthopaedic surgeon provided the surgical suite is close to the plaster room. The skin specialist and the psychiatrist need no more than is provided for the medical specialist and can use the same suite.

PART IV—PATIENTS' DEVOTIONAL, FEEDING, RECREATIONAL AND EDUCATIONAL ACCOMMODATION

A military hospital differs from a civil hospital in that a much higher proportion of its patients are up and about and suffering from relatively trivial complaints. It is essential, therefore, to provide adequate centralized feeding, devotional and recreational accommodation. Provision has to be made also for diversional handicrafts, and there is a requirement under existing Army policy to provide facilities for education.

SCALING

In a 500-bed hospital only a maximum of about 300 beds are ever likely to be filled by the class of patient using these facilities (that is to say, officers, female patients, isolation and T.B. patients will normally not be included). Of these 300 probably not more than about 50 per cent. will be up-patients and therefore 150 is a reasonable maximum of likely users of "public rooms." This basis can be used as a means of scaling the requirements of accommodation for education, recreation, diversional handicrafts, etc.

FEEDING

(a) The up-patients' dining hall, served by the hospital kitchen, should be capable of accommodating up-patients to a figure of about 30 per cent. of the number of equipped beds of the whole hospital (for 500 beds, approx. 150).
(b) The ancillaries to the hospital up-patients' dining room are:

(i) Hospital kitchen.
(ii) Serving space.
(iii) Trolley bay.
(iv) Wash-up.
(v) Sink area.
(c) The kitchen details are not entirely a matter for the medical services and the details of design should always be referred to the A.C.C., and any recommendations made jointly with them.

(d) The steward's accommodation is dealt with under the quartermaster's department (q.v.).

Devotional

It is considered essential that a small chapel be provided, available to all denominations, for private devotion. A large chapel is not considered essential since the dining room or one of the recreation rooms can be converted for this purpose as and when required. Church rooms for religious instruction are authorized in the Barrack Synopsis, Part I, at 250 square feet (f.s.) for a strength of troops from 500 to 1,000, and this size should be adequate for the type of chapel envisaged here. There is also a necessity for an office and vestry for the chaplain.

Recreational

A games room of about 600 f.s. and a separate room for reading, writing letters, looking at newspapers, etc., is an essential provision. Another sitting room, with wireless loud-speaker or television, etc., is an extra refinement.

Diversional Handicrafts

This department is normally supervised by the Welfare Officers of the Services Hospital Welfare Department of the Order of St. John and British Red Cross Society, and their requirement for this is one therapy room to cover all crafts other than carpentry. Carpentry is better provided for by the education section, where synopsis scales permit the provision of a crafts and hobbies room; any diversional therapy involving carpentry is best undertaken in that department. The Welfare Officer supervises the patients' library and reading room and this should, therefore, be adjacent to the therapy room. She will also require an office and a store.

N.A.A.F.I. Accommodation

The N.A.A.F.I. accommodation provided for a military hospital should consist of:

(a) N.A.A.F.I. canteen.
(b) Accommodation for the kitchen and staff.
(c) Games room, where not provided as part of the recreation accommodation.

Patients' Education

One or two classrooms, according to size of the hospital, and a library and information room, plus hobbies room (if required), should meet all the needs of this department. An office and store must be provided for the education staff. The unnecessary duplication of educational accommodation for patients and staff should be avoided wherever possible, and a system of staggering the use of one set of accommodation should be developed in a small hospital.
PART V—HOSPITAL ADMINISTRATIVE DEPARTMENTS

OFFICES

(a) The scale of offices set out below is that suitable for a 500-bed hospital:

- C.O.
- Administrative Officer.
- Chief Clerk.
- Hospital Clerks.
- Chief Wardmaster.
- Company Officer.
- Company Sergeant-Major.
- Medical Officers’ Library.

- Pay.
- Spare office and records store.
- Matron.
- Deputy Matron.
- Surgical and Medical Division Offices.
- Medical Board Room.

These rooms are all essential on the existing organization of military hospitals of that size, but the number and nature required for smaller ones would naturally be less.

(b) The requirement for Divisional Offices will only arise in the larger hospitals and should comprise an office-consulting room for Officer i/c Division, and a room for the divisional wardmaster and clerks; a waiting lobby outside is essential.

(c) The board room will be used by the Command Standing Medical Board as well as by the Hospital Boards which are required to be assembled from time to time on in-patients, and it is usually a very busy place when in the principal hospital in a Command.

(d) A Medical Officer’s library is essential since it not only accommodates the hospital medical reference library, but provides a place where orders, A.C.Is., etc., are laid out for M.Os. to see. It is also the room for clinical meetings and discussions and for teaching purposes, and doctors’ common room. The principal hospital in a Command is the centre of all clinical and professional teaching for the medical Officers in the Command, and this room is to be regarded as essential.

STAFF TRAINING FACILITIES

A hospital acting as the Command training centre for nursing orderly training requires accommodation to be planned for the sister tutor. This has to satisfy the standards of the General Nursing Council, and the minimum acceptable accommodation is for a lecture room, a model ward, sister tutor’s office, store room and a private study room. The best location for this accommodation is in the men’s lines, but should these be too far distant, any quiet area in the hospital itself will suffice.

QUARTERMASTER’S DEPARTMENT

There is a requirement for the following (which are dealt with in detail below):

- Quartermaster’s office.
- Q.M.S. office.
- Quartermaster’s clerk’s office.
- Steward’s store.
- Steward’s office.
- Dispensary, pharmacy and medical store.
IS. Mackenzie

Hospital pack store, including officer patients' kit store.
Hospital barrack equipment store.
Sanitation store.
Oil store.
Disinfector and incinerator.

Fire station.
Power station and generators.
Garage.
Workshops for electrician, plumber, carpenter.

Steward's Store and Office

This should be regarded as the dry goods store for the hospital, making issues to the kitchen and to the wards. It is also the transit and accounting centre for the perishable food, for whose receipt, issue and accounting the steward is responsible. It should, therefore, be arranged that the steward has his accommodation placed in such a position that he can readily supervise his own store and its issues to wards and kitchen, but also the delivery of food by contractors to the cold stores and perishable food stores, which may, for convenience, themselves be located in or adjacent to the kitchen. Cold stores, to synopsis scales, should be provided.

Dispensary, Pharmacy and Medical Stores

(a) The dispensing unit, from which issues of drugs, dressings and equipment are made to in-patients departments, to out-patients and to medical officers and M.I. Rooms of outside units, is a very busy department and adequate space for the dispensers to work in is essential. It should be very readily accessible to the out-patients department, if not actually adjacent to it. An issue and waiting room of about 250 f.s. is required, and leading off from it a dispensing workroom with the preparations, drugs, etc., in day-to-day use; about 250 f.s. is the minimum acceptable. It is often convenient for the waiting room to be divided by a partition into out-patient and in-patient sections.

(b) In support of this dispensing unit there requires to be a pharmacists' store for the three main groups of medical equipment, viz.:

Drugs and chemicals,
Bandages, dressings, wool, etc.,
Instruments and appliances,

with special provision in hot climates for proper storage of rubber and other goods which are highly perishable in tropical and humid conditions. There is also a requirement for 3–5 cu. ft. cold storage for sera and vaccines, penicillin preparations, etc. For all these purposes a total area of 500 f.s. is not too large.

(c) In addition there will be a requirement for a bulk medical store for baled equipment and storage of cylinders and also for a small store for inflammable liquids (ether, alcohol, etc.) and gases outside the building. The main hospital in a Command abroad almost invariably has to carry out some of the functions of a sub-depot of medical stores unless a sub-depot is provided separately. Unless such stores are properly planned and given adequate accommodation from the beginning, endless trouble is caused when they come to be taken into use. 1,000 f.s. is the minimum acceptable for a hospital of 500 beds.
Requirements of a Military Hospital

Pack, Linen and Barrack Equipment Stores

It is most important that all these stores be provided with adequate shelving. The linen store should have good access to the outside loading bay as well as to the inside lobby of the stores department, and space within the store should be provided for segregating and sorting dirty linen prior to its dispatch to the laundry. This can conveniently be done by the provision of suitable bays and bins for the different types of linen to be handled. The pack store should include a separate locked compartment for officers’ kit, and the main store itself should have a hatch or doorway at which other-rank patients draw their own kit prior to discharge.

Sanitation Store, Oil Store, Disinfector and Incinerator

These need not be located within the hospital building itself, and in fact are better outside. If the incinerator is provided too far from the hospital, the staff are sometimes too lazy to take refuse there. If it is located too close its smoke and smell may become a nuisance. The oil store, if located outside the hospital, may require a small issue section in the barrack equipment store for the daily issues for wards and departments of paraffin, etc., for primus stoves or other uses.

Fire Station, Power Station, Generators and Garage

The location of these depends on the access to the site from the main road serving the area and is a matter for the Engineers. The garage should comprise lock-up accommodation for the hospital’s own transport and shelter for the private cars of the hospital staff, in addition to ambulance shelters. The size of
the power station and boiler-house will depend upon the type of heating to be provided. Generators are provided to maintain a stand-by source of power and light for the operating theatres and the X-ray department in the event of failure in the main electric supply.

**Artisans' Workshops**

Although electricians, plumbers, carpenters, etc., are not included in the staff of a hospital, a considerable amount of daily maintenance work by such artisans is always taking place, and it is essential for suitable workshops and small stores to be provided for them. Whole-time or semi-whole-time tradesmen or civilians are usually provided by the local C.R.E. in his own interests for the purpose of maintenance at the hospital. Suitable accommodation should be designed for them from the beginning.

A circulation diagram of the Q.M. department is given at Fig. 14.

**SUMMARY**

The requirements are stated that have to be met in planning a military hospital or any part of it. These requirements are set out, department by department, in the form of an aide-mémoire. With the exception of certain fundamental points, therefore, no discussion has been developed of the reasons for coming to any conclusions regarding the actual requirements stated.

Attention is also drawn to factors to be borne in mind when considering the relative merits of "horizontal" versus "vertical" construction and when considering the three basic ward types. Apart from one or two references to the need for air conditioning in certain departments, no attempt has been made to meet special climatic factors, and the requirements are those for the normal military hospital in a temperate or sub-tropical climate.

Consideration is not given to such matters as lighting, heating, ventilation, siting, communications or other such problems, which are to be the subject of a separate paper. Neither has any mention been made of the special factors affecting design of military as opposed to civil hospitals.

**CONCLUSION**

The suggestions made in this paper are the outcome of the study of others' opinions and experience and are by no means due to original thought on the part of the writer. They are an expression, or collation, of the opinions of numerous Army Consultants and Advisers, and of the reports of various committees and experts on the many aspects of the subject. The writer has had the opportunity, in the course of his routine work, of obtaining all these views and opinions and, where necessary, helping to resolve conflicting ones. The notes have been useful to him in interpreting to the administrative medical officers and to the
architects, engineers and finance experts, who have actually been engaged in the
design of projected new military hospitals or alterations to existing ones, the
current trend of policy so far as the Army Medical Services are concerned.

He hopes that they may be useful to others also as an aide-mémoire for those
who are interested in the subject and for those whose task it may suddenly be to
have to take an active part in such planning. No such collation exists at present
and there is no easy-reference manual on the subject. That is the writer's sole
excuse in publishing these notes.

The writer is indebted to so many members of the Army Medical Services,
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