Local & Munl. (1898) Department.

MISCELLANEOUS.

G.O., No. 1833 M.

DATED 27-10-98

INDEXED. DESPATCHED

[Despatch Abstract.]

Hospitals for the treatment of infectious diseases in Madras.

Appointing a committee to consider the lines on which — should be started and worked and the accommodation which should be provided in them and to furnish plans and estimates and stating that the Committee may employ a clerk and the expenditure on this account and for contingencies will be met from the Municipal funds.

ACK PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

FURTHER PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.
Exco	1181	8/99					

5

Exco

Papers to be read in Proceedings. 98.

Again G.O., No. dated 189 ,

Again G.O., No. dated 189 ,

Current No. 2877M of 1898, dated 7th Sptr. 1898, from the President, Wh. Comm^r, Ma

" " " 189 , "

" " " 189 , "

Misc ORDER. No 1833 Revs 8

27-10-98

His Excellency the Governor in Council resolves to appoint a Committee consisting of—

President

The President of the Madras Municipality

Members.

The Senior Medical Officer of the General Hospital

The Sanitary Commissioner

The Consulting Architect.

Secretary

The Health Officer of the Madras Municipality

to consider the lines on which pitals for the treatment of infecti diseases in Madras should be e ed and worked and the accommoda which should be provided in them to furnish plans and estimates

ACK PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

y the President, and the expendi-
ure on this account and for contin-
encies will be met from this Muni-
pal funds.

(From Orders)

V.R
6/10/98

V.1.
7.10.98.

Vote

For a precedent please see fo. 146214 P
1-10-90

22/9/18

To
The Public Department
" Public Works Departt. } for Counter-action

ASH
25.10.98

To
The President, Mun. Commrs, Madras
" Sanitary Commissioner
" Surgeon General
" Marine Department
" Public Works Departt
" Public Department.

5

Local & Munl. (1898) Department.

CURRENT No. 2877 Mo

From

THE PRESIDENT,
Municipal Commission,
Madras.

For Orders

G. No. 280

The formation of a Committee suggested by the Surgeon-General seems desirable. The question of providing funds will have to be considered only after the initial outlay to be incurred on the Construction of a hospital or hospitals, and the annual cost of maintenance are determined upon.

Dated 7th September 1898
Received 8 SEP 1898
Registered
Enclosures one
Spare copies

SUBJECT.

Forwarding letter from the Surgeon-General with the Government of Madras suggesting the formation of a Committee for the purpose of drawing up a Scheme re Contagious Hospital for Madras —

V.R
5/10/98

Please see also A1
Pres. 25 Nov.
V.1.
8.10.98

I think we may have the Comm. - There's no harm in having a proper scheme drawn up, even though it may not be possible to find the money just for some time to come

11/10/98

Rept 15/10/98

4

BACK PAPERS

G.O.	No.	Department	Date.
Cur	2819	/98	
Po	1576	Mk	7-9-98
Po	1393	Mk	8-8-98
Pro.	of the Sanitary Board	No 834/S	19-11-97

FURTHER PAPERS.

G.O.	No.	Department.	Date.

Through the President, Municipal Commission, Madras.

5

No. 3443

OFFICE OF SURGEON-GENERAL
WITH THE GOVERNMENT OF MADRAS,
Madras, 30th August 1898.

From

SURGEON-MAJOR-GENERAL C. SIBTHORPE, C.B., F.R.C.P.I.,
SURGEON-GENERAL WITH THE
GOVERNMENT OF MADRAS,

To

THE HON'BLE THE CHIEF SECRETARY TO GOVERNMENT,
Local and Municipal DEPARTMENT.

SIR,

With reference to G.O. No. 1593 M.Mis., dated 8th August 1898, I have the honor to suggest that Government will be pleased to appoint a Committee for the purpose of drawing up a scheme dealing with the classes, castes and sexes to be accommodated in the isolation hospitals, of which there should at least be two i.e., one in the North and the other in the South of Madras. The Committee should be composed of the President of the Madras Municipality as President, the Senior Medical Officer of the General Hospital, the Sanitary Commissioner and the Consulting Architect as members, with the Health Officer of the Madras Municipality as Secretary and a special clerk. It should be directed to discuss the questions of the different diseases to be provided for, the sites, the administrative buildings required, the general administration of the hospital, establishment required, including Medical subordinates, nurses, menial servants, sanitation, disinfection and ambulance. The Committee should take the rules published by the Sanitary Board with its proceedings No. 834/S dated 19th November 1897 regarding construction and arrangement of buildings as its guide. The carrying out of this proposal, I consider,, would be conducive to a speedy and satisfactory settlement of the scheme.

2. I have not proposed myself in the Committee

since

since, as adviser to Government, I have to report on the scheme, but I would be most happy at any time to meet the Committee and give them any advice that may be required.

3. I submit this through the President of the Municipal Commission in order that he may submit any suggestions he thinks fit for on the subject.

I have the honor to be,

Sir,

Your most obedient servant,

C. Sibthorpe

Surgeon-Major-General,

Surgeon-General with the Government

of Madras.

2877/M/98

Genl. Dept. 13.

G. No. 280.

MUNICIPALITY OF MADRAS,

General Department.

Madras, 7 September 1898.

From

R. E. Ellis, Esq, M. Inst. C. E.

~~Brgt. Gen.~~ SIR GEORGE MOORE ~~KT, C.I.E.~~,

Acting President, Municipal Commission.

LOCAL & MUNICIPAL DEPT.
CURRENT No. 2877 /98

To

The Secretary to Government,

Local and Municipal Department

Sir, Fort St. George.

Enclosure. 1

In forwarding the enclosed letter from the Surgeon-General, No. 343, dated 30" August 1898, I have the honor to submit that I fail to see what benefit will be derived by the formation of a Committee. We all know that it is most desirable that there should be a Hospital for the accommodation of contagious diseases. We all know that the Municipality has no funds. The question is who is to provide the Hospital. If the Committee can settle that point, by all means let it be assembled.

I have the honor to be,

Sir,

Your most obedient servant

R. E. Ellis

Ag: President, M. M. C.

8

Government {1897} of Madras.

SANITARY BOARD OFFICE.

Recd.	1897.	*Enclosures*
Regd.		*Spare copies*

Procs. of the Sanitary Board, No. 834/S., 19th Nov. 1897.

NOVEMBER.

Hospital Buildings

Issuing type-plans for — with rules for construction.

GOVERNMENT OF MADRAS.

SANITARY BOARD OFFICE.

Proceedings of the Sanitary Board, No. 834/S., dated 19th November 1897.

Read—the following papers :—

From the Surgeon-General with the Government of Madras, No. 781, dated 18th February 1897.
From the Consulting Architect to the Government of Madras, No. 5288, dated 2nd March 1897.
Proceedings of the Sanitary Board, No. 455/S., dated 9th June 1897.
From the Surgeon-General with the Government of Madras, No. 3143, dated 24th June 1897.
Proceedings of the Sanitary Board, No. 524/S., dated 17th July 1897.
Letter from the Sanitary Board, No. 525/S., dated 17th July 1897.
From the Consulting Architect to the Government of Madras, No. 2051, dated 1st November 1897.

Resolution—

With his letter No. 2051, dated 1st November 1897, the Consulting Architect resubmits the type plans for hospital buildings revised in accordance with the remarks contained in Proceedings of the Sanitary Board, No. 524/S., dated 17th July 1897, and the rules forwarded with letter No. 525/S., dated 17th July 1897.

2. The following is a complete list of plans of these buildings with the serial numbers assigned to them :—

No. of type Designs.	*Description.*
26.	Dispensary for women and children with apothecary's quarters.
32.	Cholera hospital.
41.	Hospital ward for 12 beds (semi-permanent).
42.	Civil dispensary (semi-permanent).
47.	Site-plan of hospital with 52 beds.
48.	Administrative block.
49.	Administrative block for a hospital.
50.	Store block for a hospital.
51.	Hospital kitchen.
52.	Ward for fourteen beds.
53.	Ward for eight beds.
54.	Ward for four beds.
55.	Lying-in ward or isolation ward for sceptic cases, &c.
56.	Hospital laundry.
57.	Mortuary and *post-mortem* room for hospitals below 20 beds.
58.	Do. do. of 20 beds and above.
59.	Matrons' quarters.
60.	Hospital assistants' quarters.
61.	Out-houses for matrons and hospital assistants' quarters.
62.	Compounders, hospital servants and midwives' quarters, also caste wards for both males and females.
63.	Dispensary.
64.	Do. (sections).
65.	Ambulance shed for wheeled ambulances.
66.	Ambulance shed for doolies or dandies.

Of the above plans, Nos. 26, 32, 41 and 42 have already been issued by the Sanitary Board; but they will now be bound up and redistributed with the other hospital plans, and the whole issued as a portfolio.

3. The rules for the preparation of plans for hospital buildings are also issued for information and guidance. They will form an accompaniment to the portfolio.

4. Only a limited number of portfolios can be issued. They will be distributed as shown below:—

The Secretary to Government, Local and Municipal Department	1
„ Surgeon-General with the Government of Madras	1
„ Sanitary Engineer	1
„ Sanitary Commissioner	1
Presidents, District Boards	21
Chairmen, Municipal Councils	58
District Medical and Sanitary officers	21
The Civil Surgeon, Ootacamund	1
Sanitary Board	5
Total	110

(True Extract.)

(Signed) R. PARSONS,
Secretary, Sanitary Board.

To the Sanitary Engineer,
„ the Sanitary Commissioner,
„ the Secretary to the Surgeon-General with the Government of Madras,
„ Presidents of District Boards,
„ „ of Taluk Boards,
„ Chairmen of Municipal Councils,
„ all Collectors of Districts,
„ all District Medical and Sanitary Officers,
„ the Civil Sugeon, Ootacamund,
} with plans and rules.

Exd. Shaik Karim.

ANNEXURE.

Suggestions and rules regarding the preparation and submission of plans and estimates for hospitals and dispensaries under rule 7 published in G.O., No. 1698 L., dated 18th September 1896.

Buildings and works.—All works connected with hospitals and dispensaries costing over Rs. 200 (not including the cost of sites) undertaken by any Local Board or Municipal Council must receive the approval of the Sanitary Board.

2. **Report.*—Such proposals should be submitted to the Sanitary Board through the Sanitary Commissioner and Sanitary Engineer with a report in the following form:—

(1) Reasons for the proposals.

(2) Buildings proposed, and for hospitals the number and class of beds for native men and women separately for cases of--

(*a*) General diseases.

(*b*) Isolation—

(1) Cholera.
(2) Small-pox.
(3) Venereal (female).
(4) Sceptic cases.
(5) Dirty cases.

(*c*) Lying-in cases and delivery ward.

(*d*) Caste patients.

(*e*) Lunatics.

If any accommodation for Europeans or Eurasians is to be provided, it should be shown separately.

(3) An estimate of the population of which the sick are expected to be treated.

(4) An approximate statement of the area which the population inhabits around the proposed hospital or dispensary.

(5) If an hospital or dispensary has existed before, the following statement should be completed for the previous five years:—

Years.	Total treated.		Average daily sick.		Maximum number of in-patients treated on any one day.	Remarks.
	In-patients.	Out-patients.	In-patients.	Out-patients.		

(6) Site—

(*a*) the aspect and conformation of ground as regards elevation, access of sunlight, exposure to prevailing winds unhealthy or otherwise;

(*b*) the nature of soil as regards power of retaining heat, level of ground water, necessity for and possibility of drainage;

(*c*) the area in relation to proposed number of beds and attendants, amount of free open space in proportion to height of buildings, amount of space for gardens;

(*d*) the convenience of access for patients and the medical staff.

* When it is proposed to erect a hospital (above 50 beds), this report should be submitted before any plans or estimates are made out and the suggestions of the Sanitary Board obtained.

NOTE.—Where additions are proposed to an existing institution, no report is required on question 6.

(7) the proposed system of collection and ultimate disposal of sullage water, of night-soil and of rubbish;

(8) The proposed system of water-supply.

(9) A site plan should be attached showing the immediate surroundings of the institution and the proposed arrangement of buildings. In cases where funds are not available for erecting all the buildings, sites should be selected for them and entered on the plan.

3. *Classification of medical institutions.*—In G.O., No. 106 L., dated 16th January 1889, the following definitions were adopted:—

Dispensary.—An institution in which only out-patients are treated.

Hospital.—An institution for the accommodation and treatment of in-patients, or both in and out patients.

In G.O., No. 1014, Public, of the 19th May 1883, the following classification for statistical purposes was adopted under the orders of the Government of India.

Class I—State hospitals and dispensaries including all institutions maintained by Provincial funds and under Government management. (The fact that an institution is possessed of endowments or receives contributions from Local funds or private subscriptions does not remove it from this category so long as Provincial funds are practically responsible for all the charges connected with it.)

Class II—Local Fund Institutions including all institutions which are vested in local boards or guaranteed or maintained by Local or Municipal funds. (The fact that such an institution is aided by private subscriptions or receiving assistance from Government in the shape of part of the salary of the Medical officer, grants of medicine, or otherwise, does not remove it from this category as long as its existence is practically dependent upon local funds.)

Class III—Private Institutions—Of two descriptions—(*a*) purely private; (*b*) private aided—.

(*a*) those entirely maintained at the cost of private individuals or associations (the fact that Government supplies superior inspection, or registers, does not remove an institution from this category).

(*b*) institutions supported by private subscriptions or guarantee, but receiving aid from Government or Local or Municipal funds.

4. *Proportion of hospital beds to population.*—The minimum proportion should be taken as one bed per 1,000 for general diseases and surgical cases. Isolation hospitals for cases of cholera and cases provided under paragraph 25 of G.O., No. 1536 M., dated 9th September 1896, should be constructed for at least four males and four females and should be so adapted that they are capable of ready extension.

5. *Site.*—This should be selected by the Civil authorities in consultation with the District Medical and Sanitary officer and the responsible Engineer officer. It must be accessible for the class of patients who will be treated, it should be as near to the main lines of communication as possible, the space should be ample for proposed requirements and for possible extensions especially in large towns; the area between buildings should be at least double the height of the building.

In all cases as large a space should be provided as can be got and should never be less than twenty beds per acre.

Isolation hospitals for cholera, small-pox or bubonic plague should be removed from the centre of population as far as convenient; they should be provided with as ample an area as possible, in no case less than forty beds to the acre. No ward for the treatment of patients should be nearer the boundary than forty feet.

6. *Arrangement of Buildings in Hospitals for General, Medical and Surgical cases.*—The ward unit being the most important of the hospital buildings, the grouping of all others must be subordinated to it. The best general arrangement is for the ward pavilions to be arranged *en echelon* in order to secure the freest perflation of air. The type drawings of standard plans show the class of buildings and a suggested arrangement. No ward pavilion of one story should contain more than 32 beds; when there are two stories (which are not recommended) there should not be more than 64 patients under one roof. The following general rules should be observed in aggregating the buildings:—

(1) That there is free circulation of air around and between each ward pavilion.

(2) That the spaces between each are well exposed to sunshine.

(3) That the distance between each is twice the height of the pavilion reckoned from the floors of the ground floor ward to the eaves, if a very sloping roof, or to half the height of the roof if a steep roof.

(4) The administrative block, kitchen and store buildings should be placed as centrally as possible. The ward pavilions for general diseases, medical and surgical for each sex being on either side. These buildings should be all joined together by covered passages open at the sides, especially in wet climates.

(5) The special wards should be sited to the rear of these.

(6) The servant's quarters should be still further back, the laundry at one corner to the rear and the mortuary and *post-mortem* room with a separate exit from the enclosure at the other corner.

(7) The out-patient department should be as near the entrance to the hospital enclosure as possible and have a separate entrance of its own and should be isolated from the general enclosure. The ambulance shed should be either in it or close to it. The type plan of ambulance shed should be adopted for hospitals where wheeled ambulances with bullocks or ponies are supplied. Where only doolies or dandies are supplied a shed with roof and walls of corrugated iron should be erected.

(8) The enclosure should be protected by either a dwarf-pierced wall or by railings with only three gates—one for the hospital, one for the out-patient department and the exit from the mortuary.

7. *Construction.*—The following information as to the cost per bed for hospitals erected in this Presidency may be used as enabling the approximate estimates of any proposed hospital for a fixed number of beds to be calculated:—

	Cost per bed. RS.	A.	P.
Government Maternity Hospital, Madras	2,277	13	4
Do. Ophthalmic do.	1,872	0	2
Caste and Gosha Hospital, Madras	1,562	5	6
Hut ward in Government General Hospital, Madras, semi-permanent	300	0	0
Isolation wards, Government General Hospital, Madras ...	463	3	8
Bellary Police Hospital	495	8	9
Do. Lying-in Hospital	968	12	0
Nellore Jubilee Lying-in Hospital	994	8	4
Tanjore Rajah Mirasidar's Hospital	567	14	5

8. *Buildings.*—(1) *Basements.*—The basements should, if possible, be arched or otherwise raised so as to secure an air space, in damp climates never less than three feet high. In very malarious climates it is better to have the ward floors at least ten feet from the ground. In semi-permanent buildings the permanent basement should not be less than one foot high in dry and warm climates. It should be filled in with clean gravel and covered with not less than six inches of concrete throughout.

(2) *Walls in permanent buildings.*—A damp proof course should be laid in all permanent walls.

(3) *In semi-permanent buildings.*—In very warm climates in the Madras Presidency walls are scarcely required in wards; tatty bamboo mats in wooden frames do excellently well and they may be painted; a good plan is to have them hung on wire frames instead of wood. The verandahs should be broad enough to protect the mat walls from the sun or beating rain.

(4) *Roofs*—should be of a pattern not offering surfaces for the lodgment of dust. In some cases a good Mangalore-tiled roof with a ventilated wooden ceiling is the best. In temporary buildings a mat ceiling in wooden frames is useful in very hot climates.

(5) *Tables and shelves.*—All tables and shelves in the wards, kitchens, store buildings, operation rooms and mortuary should be of polished slabs like those from Cuddapah mounted on iron legs or brackets, but the operating table for hospitals of over twenty beds should be of glass, and of glass or teak for those below that number.

(6) *Sinks*—should be of glazed stoneware to be obtained in Bombay or elsewhere.

(7) *Verandahs.*—Good single verandahs are necessary in all pavilion wards and for all permanent buildings which are inhabited. All these verandahs should be arranged so that the warmed air would have an exit.

(8) *Drainage.*—Arrangements should be made to carry off all storm water at once from around the wards and inhabited buildings. For six or eight feet around each ward pavilion the ground should be paved or at least made as impervious to water as possible.

(9) *Floor in permanent Buildings.*—The floors of the wards, operating room, *post-mortem* room, kitchen, dispensary and out-patient department should be as smooth and as impervious as possible and should be laid with neatly cut smooth Cuddapah slabs or other stone carefully pointed with portland cement to the full depth of the slab over concrete. They might be made of cubes of marble or granite laid in portland cement well polished. In the hills, floors should be of good well-seasoned teak in *parquet* carefully laid on a surface of cement covering, such floors should be well polished at regular intervals.

(10) *Ward pavilion.*—This should, as a rule, be one storied and not contain more than thirty-two beds in two rows with no beds in the corners and each bed at least twelve inches from the wall.

(11) *Dimensions and floor surface in permanent wards for general cases.*—The ward should not be less than 22 feet wide, not less than 12 feet high to ceiling and only 12 feet to be counted as available air space. There should be not less than 9 feet of wall space to each bed. The available wall space should be reckoned from the centre of one bed to the centre of that adjacent to it including windows. This would give a superficial area of not less than 99 feet in the ward and a cubic space of 1,188 cubic feet to each patient without counting the verandahs. Floor space in wards of a *semi-permanent or temporary* character might be reduced to breadth of ward 20 feet and wall space 7 feet per bed.

(12) *Windows.*—The end corners of wards should be ventilated by windows placed opposite each other between the last bed and the wall parallel to the bed. There should be one window or door between each bed. Windows in permanent wards should be constructed so as to extend from two feet six inches of the floor to two feet of the eaves and should present a square surface of not less than one to every forty feet of floor surface. The design of windows suggested by the Indian Barrack Commission should be adopted in all permanent wards, windows should be placed directly opposite each other.

(13) *Doors.*—Those of wards, examination rooms, operating rooms and out-patient rooms should not be less than four feet six inches wide. There should be one at each end, and one at least at each side of all large wards.

(14) *Walls.*—Those of permanent buildings should be made as smooth and as impervious as possible. Their junction with the floors and at the eaves should be slightly curved with a radius of not less than two inches, the concavity being towards the interior. No cornices or raised work of any character should be allowed. The walls up to five feet six inches high might be of white glazed bricks or covered with portland cement painted and varnished, or glazed tiles with a suitable border. The upper portion of the walls, the roofs and the ceiling might be coloured in *light tints* of silicated paint, colour-washed or even white-washed according to funds at disposal.

(15) *Ventilation.*—In cold or damp climates where the windows and doors must be shut by day or night, the ventilation must be independent of them. In all wards it is advisable to have ridge and eave ventilation and in dry warm climates it is not at all necessary to carry the walls up more than eight feet.

(16) *Latrines.*—The ward latrine should be separated from the ward building, it should be on the same level and connected by a covered passage with open sides not less than six feet in length. There should be one seat for each five patients, they should be separated by partitions in latrines for males. They should be as well ventilated and lighted as possible allowing for their necessary privacy; the roofs may be of corrugated iron on iron posts.

The basement and floor must be so arranged that there will be no chance of urine or sullage water soaking into them or of running over the adjacent ground. There should be a room for the sweeper, a place for an iron-filth receptacle (when the water system is not in use) and a small room to keep bed-pans or excreta which has to

be inspected. In this room also there should be a tub in which soiled clothing could be steeped in disinfectants. In latrines for natives there should be the usual arrangements for ablution.

(17) *Baths.*—There should be a bath and ablution room in one corner of the ward verandah which should be supplied with a bath on wheels. There should be a small stone for heating water or a hot water apparatus as used in Military hospitals.

(18) *Ward administration rooms.*—In another corner of the ward verandah there should be a store room for food with wire zinc cupboards outside a window and protected from the sun. There should be a small kerosine-oil cooking stove for preparing extras. In another corner there should be a small room for the nurses with almirahs for medicines and surgical apparatus and another for bedding and clothing.

(19) *Ward furniture*—should be as simple and as strong as possible; there should be no cupboards or closed boxes of any kind in the ward; all furniture should be made so that it can be easily cleaned and that dirt will not adhere or lodge. There should be as little furniture in the wards as compatible with the comfort of the patients and attendants.

(20) *Special wards in hospitals for the treatment of General, Medical and Surgical cases.*—In every hospital the following special wards should, if possible, be provided:—

Separate for each sex—Number of beds to be calculated according to requirements of Hospital.—For small-pox and cholera only a few beds should be provided, as in case of epidemics it is most undesirable to segregate a number of such cases in a hospital in which general diseases or injuries are treated.

- Isolation ward for cholera.
- Do. for small-pox.
- Do. for septic diseases.
- Do. for dirty cases.
- Caste wards.
- Wards for lunatics.

Separate female venereal ward lying-in and delivery wards if there is no separate hospital for this purpose.

(21) *Isolation Hospitals and Wards.*—The wall space in such wards should not be less than 12 feet. The superficial area should be not less than 144 feet and the cubic space less than 2,000 feet per bed in permanent buildings. As a rule semi-permanent or even temporary buildings are more suitable for such cases, and in them the wall space may be 9 feet, the superficial area 100 feet and the cubic space 1,800 feet per bed.

In large towns there should be a separate hospital. Such an hospital should be provided with permanent administrative and subsidiary buildings and temporary huts for the sick with an observation hut for each sex and each disease. There should only be sufficient beds for cholera cases to deal with the class of patients who have no habitation of their own or where the private accommodation is quite inadequate. In isolation hospitals there must be a separate subordinate medical staff and the necessary establishment for the care of the patients. In each isolation hospital the greatest precautions against infection should be carried out—

(*a*) Regarding visitors to patients.
(*b*) Do. the hospital staff.
(*c*) Do. patients and hospital clothing.
(*d*) Do. destruction of refuse and disposal of excreta which should be disinfected at once and then burnt.
(*e*) Regarding patients' letters leaving the hospital.

(22) *Lying-in Hospital.*—It is desirable to have this quite separate and with a separate establishment from the ordinary hospital. It must be sited near the centre of the population which will use it. There should never be more than four beds in a ward which means eight patients including the infants; the floor and air space should be calculated as for an isolation hospital. There should not be more than eight beds in one ward unit consisting of not more than two wards; the beds should never be placed in the corners of wards. The principles of construction should be the same as those laid down under paragraph 9—Buildings. There should be two separate delivery wards for each ward unit—one to be under cleaning and one in use; there

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Note.—As a rule cholera cases will require to be treated in their own houses, but separate arrangement should be made for housing the unaffected inhabitants of infected houses.

should be a bath-room or scullery to each with plenty of water and means for disinfecting soiled clothing; there should be a separate compartment for cleaning bed-pans; the floor space in these delivery wards should not be less than 200 square feet and the floors should be on the same level as those of the wards; they should be joined by an open covered passage to the lying-in wards. It is a good plan to have a by-ward in connection with the delivery ward for the temporary care of specially-exhausted cases. In the lying-in wards the scullery and latrine should be under a separate roof and joined by a covered open passage, the bath-room may be in the corner of the verandah and should be supplied with a bath on wheels; the attendant's room and the store-room may be in the verandah corners.

No regular dispensing room is necessary if this hospital is near the ordinary hospital; if not, a small one is required. When it is situated far from the ordinary hospital, a separate room for the office of the Medical officer is required; in such an—institution there should also be a waiting room for patients and a well lit examination room. Isolation huts for sceptic disease are very necessary. If possible, one unit should always be kept empty in order that they may all be periodically aired. There should be a low truck on wheels with India rubber tyres for the movements of patients from the delivery ward.

(23) *Convalescents.*—There should be good gardens around the buildings with seats under trees or sheds for them to spend the day in.

(24) *Administration Block.*—This accommodation should be as limited as possible, it should consist of—

(1) Medical officer's office with a retiring room and a consulting room.
(2) Hospital office, record and committee room.
(3) Dispensing room for medicines.
(4) Drugs, splint and apparatus store-room.
(5) Admission room for casualties and in-patients with a bath-room.
(6) Waiting room for friends of patients.
(7) Operation room separated from the block by a well ventilated passage.

The Medical officer's office, the hospital office and the drug and apparatus store-room should all be well supplied with shelves. There should be a separate small almirah or lock up for poisons in both the store and dispensing rooms. The two offices, the dispensing and the waiting rooms, should have plenty of light in them. If desirable, the two offices and drug store-room may be on an upper story. In the dispensing room and in the bath-room of the admission room there should be a plentiful supply of water laid on. In the dispensing room there should be a glazed stoneware sink.

In hospitals over twenty beds the operation room should never be less than 24' × 18'. The floors and walls should be of as smooth and impervious materials as possible (see notes on wards and construction). All shelves should be of polished Cuddapah slabs. The almirah for instruments should have plate glass shelves. Plenty of water should be laid on and there should be a glazed stoneware sink. The light should be without glare, but ample from the roof and sides with a large window to the north. There should be a good artificial light for night use. There should be a separate small room by the side of the entrance for administrating anæsthetics.

(25) *Subsidiary Buildings.*—These consist of—

(1) General store building.
(2) Kitchen.
(3) Laundry.
(4) Nurses' quarters.
(5) Hospital assistants' quarters.
(6) Compounders' quarters.
(7) Hospital servants' quarters.
(8) Firwood and straw room.
(9) General latrines for both sexes.
(10) Mortuary and *post-mortem* room.
(11) Out-patient department.

The General Store Building—should consist of—

(1) a small office with plenty of shelves.
(2) a general store-room with shelves.
(3) a store-room for patients' property and clothing after disinfection.
(4) a linen store-room well supplied with open racks and shelves; it should be of good size and well lighted with the verandah in front arranged as a delivery room and place for repairing, bedding and clothing.
(5) a lamp room.

(26) *Kitchen.*—This should be central and joined to the general covered passages leading to the general wards. There should be a receiving and weighing room supplied with open wire zinc larders in one or two of the windows well shaded from the sun in which meat and other food could be temporarily stored. There should be a scullery and washing up room well supplied with water and a glazed stoneware sink. The sullage water should either be received in a tank to be cleaned out daily or should at once be conveyed in open saucer-shaped cement laid drains to the neighbouring ground and utilized for irrigation, care being taken that the ground never becomes at all saturated. The cooking room should be well lit, supplied with tables and shelves of polished Cuddapah stones and the walls and floors should be finished as was suggested for the wards. The chimney should be constructed so as to avoid any smoke in this room. There should be a well tarred iron receptacle for rubbish which should be cleaned out daily.

(27) *Laundry.*—This should be adapted to native methods of washing and as open as possible with tanks for soaking soiled clothes in and sloping slabs or stones for washing them on. The boilers and fire places should be of the same materials and pattern as the dhobies of the place use. There should be an open corrugated iron or other shed for drying in during heavy rain and where ironing may be carried on. There should be two small rooms with doors—one for temporarily storing soiled clothes, the other for clean clothes. These may be of corrugated iron. In connection with this laundry there should be another room for disinfecting clothing and a separate tank for soaking and washing it in.

(28) *Nurses' quarters.*—Where there are nurses, separate good quarters should be erected for them as near their work as possible.

(29) *Medical Subordinates' quarters.*—It is most desirable that the Hospital Assistant should have his quarters close to his work, so that he can be called at any time.

(30) *Hospital Attendants and Servants' quarters.*—It is most desirable that the quarters of the compounders, ward attendants, ward sweepers (toties), male and female, should all be close to the hospital, and in the case of a large hospital, the steward or purveyor should also be provided with quarters in or near the enclosure.

(31) *Store-room for firewood and straw.*—There should be two small corrugated iron rooms under the same roof—one for firewood and the other for straw—for which no type plans are needed.

(32) *General latrine.*—There should be a general latrine on the principle of the Horbury pattern for both males and females, allowing one seat to ten persons of each sex living in the hospital including patients and attendants. In siting them attention should be paid to the prevailing winds and they should be kept well to the leeward of the wards and not nearer than forty yards from them. Any one of the Sanitary Board's approved type plans might be used.

(33) *Mortuary and* post-mortem *room.*—It should have a small room for corpses with raised platforms and wooden covers to keep off rats. There should be a fair-sized well lighted *post-mortem* room with water laid on and a glazed earthenware sink and a good table of polished Cuddapah stone. The walls and floors should be like those of the wards. There should be an enclosed space for necessary ceremonies in all large hospitals. If possible it should be arranged that the removal of the dead should be unseen from the wards. The mortuaries for hospitals of a semi-permanent nature should consist of one room ten feet square and well lit, with a portland cement floor raised on a one foot basement. It should be supplied with a stone table or a wooden one covered with zinc, its roof should be made to project so as to form a verandah all round.

(34) *The out-patient Department* should be separated from the general enclosure and should have a separate entrance and exit from the hospital one. It should be thoroughly well ventilated and there should be plenty of light everywhere. There should be separate waiting rooms or verandahs for each sex, separate dressing rooms and separate windows for medicines. There should be a consulting room with a small examination and operation room for each medical man prescribing. There should be a well fitted dispensing room. The walls of floors should be the same as those of the wards.

9. *Disposal of filth and refuse.*—The disposal of sewage and sullage water must vary with the means at command. If the town possesses a pipe sewerage system, the plans for connection with this should be specially approved by the Sanitary Board. If not, one of the various methods suitable for single establishments should be employed. If the expense of conveying by pipes combined night soil and sullage water to suitable land for disposal by irrigation be prohibitive, urine and latrine washings should be received and fœcal matter be collected in the latrines separately; the former in trapped and ventilated cess-pools and the latter in well-tarred iron receptacles. The sullage water should be removed from the premises in cylindrical iron tank carts, and the night-soil in suitable covered iron conservancy carts. The sullage water and night-soil thus collected should be disposed of in accordance with the system in vogue in the town; but where possible in the case of large hospitals the sewage should undergo precipitation and be disposed of by filtration through under-drained land or special sewage filters. The sludge and the fœcal matter should be burnt in a special form of cinerator, such as the field silchar, and the ashes be used as manure in the garden, &c.

10. *Water-supply* should be ample in quantity and as pure as possible. If from wells, they must be well protected with good parapet walls and provided with covers, pumps, closed cisterns with a tap and an encircling platform provided with a drain to carry drippings and washings to a distant point. When there is no public water-supply, the addition of a tower to the administrative blocks served by a force pump would facilitate the distribution of water under pressure which should certainly be arranged for at every part where water is required, such as the kitchen, latrines, operating room, bath-rooms, dispensing room, *post-mortem* room, laundry, out-patients' department, &c. In general hospitals, arrangements should be made for a fire engine and fire hoses. Some fire buckets should be hung up in each building and kept full of water. In semi-permanent buildings there should be a water tank or two with two or three fire buckets kept full of water for each building; the tanks might be connected with the well pump.

C. SIBTHORPE, C.B., Surgn.-Major-Genl.,
Surgeon-General with the Government of Madras.

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