

PROCEEDINGS OF THE PLAGUE COMMISSIONER.

(1898)

PRINTED.

No. 220-A

DATED 18-10-98

Despatched 5-11-98

*Indexed
5/11/98*

[Despatch Abstract.]

Private Plague Hospitals

*Hints as regards the provision
of private plague hospital accommodation*

BACK PAPERS.

No.	Date.	No.	Date.
Pro. 89	2-10-98		

FURTHER PAPERS.

No.	Date.	No.	Date.
Cm. 668	9/8		
Pro. 225A	12-10-98		
466	25-10-98		
570	4-11-98		
531	5-11-98		

Proceedings of the Plague Commissioner, MADRAS — 1898.

Recd.	} 1898.	Enclosures
Regd.		Spare copies

Proceedings, No. 220 A, 18th October 1898.

OCTOBER.

Private Plague Hospitals.

Hints as regards the provision of private plague hospital accommodation.

PROCEEDINGS OF THE PLAGUE COMMISSIONER.

READ—the following paper:—

Hints as regards the Provision of Private Plague Hospital Accommodation.

1. Three means of providing private plague hospital accommodation exist—
 - (a) Temporary sheds can be erected to suit the purpose on ground sites to be approved of by the Sanitary Commissioner.
 - (b) Houses may be taken up, such houses having been approved of for the purpose by the Sanitary Commissioner.
 - (c) A site can be selected and materials for hospital sheds collected ready for use at a moment's notice.
2. To save initial expense and at the same time to provide suitable accommodation, the Plague Commissioner would suggest that, wherever possible, arrangements may be made by a sub-committee to select suitable houses, either unoccupied, or houses which can be vacated for occupation in a few hours. The Plague Commissioner should be furnished with the addresses of such houses. He will then arrange to have them examined and reported upon by the Sanitary Commissioner. It is, however, pointed out that buildings will almost always require some alteration to fit them as hospitals. It would probably save much expense and much reduplication of staff if committees would unite to form one large private committee elected by divisional committees and containing one member from each such committee might be formed to carry out two large central caste hospitals. Afterwards, if the plague attacked divisions one after another in force, separate divisional hospitals would no doubt be necessary.
3. The chief points about such houses are these—
 - (a) The house should have a compound. This need not be large, but it should be sufficient to prevent any chance of contact with the neighbouring houses. As a *minimum* standard, no buildings included in the hospital premises should be nearer neighbouring dwellings than 40 feet. In judging of the required size of a compound, it should be remembered that if suitable permanent buildings be not available, space must be at disposal for temporary buildings so as to bring up the total accommodation to the standard shown in the accompanying plans.
 - (b) There should be a supply of Red Hills pipe water either laid on at the house or within 50 yards of it.
 - (c) The room in the house should be well ventilated and of considerable height.
 - (d) If possible, there should either be godowns in the compound or room available for the erection of sheds in the compound for families and attendants of patients.
 - (e) Each patient should be allowed 144 square feet and 2,000 cubic feet. If ventilation is not suitable, structural alterations will be required to secure it.
4. If, instead of obtaining the use of houses, which, in most cases, will probably be very difficult, temporary shed hospitals are preferred, arrangements should be

made, as soon as possible, to fix the sites of such hospitals and to report on the matter to the Plague Commissioner, who will obtain the Sanitary Commissioner's opinion on the sites.

5. In choosing a site, the following points should be noticed:—

- (a) The site should be as near as possible to the locality inhabited by the people for whom it is intended.
- (b) The site should, if possible, be on gravelly dry soil and as free from vegetation as possible.
- (c) The site should be close to a supply of Red Hills water.

6. In order to avoid expense, it is suggested that materials to make the hospital (which should now be built, if possible, on the lines of the plan* annexed to these notes) should be collected at once and held ready-stored near the approved sites of the proposed hospitals ready for immediate use when necessary.

7. The Plague Commissioner understands that, if possible, the Municipal Commission would be willing to erect hospitals when asked to do so on the approved sites, the money being advanced to it by the committees appointed for the purpose. This, no doubt, would meet a great difficulty.

8. The Plague Commissioner, on behalf of Government, will be ready to advance half the cost of any *bond fide* plague hospital erected with his sanction on an approved site; also he will advance half the cost of such structural alterations as are referred to in paragraph 3 (c).

9. In private hospitals, as long as the arrangements are supervised by and approved of by the Sanitary Commissioner, the patients may be treated in any way their relations or caste people desire. The use of English medicines will not be required, nor need certificated medical officers be employed. All that is necessary is that the building and site should be approved by the Sanitary Commissioner and that due arrangements are made and approved of by the medical officers on plague duty in the city, under which all risk of infection to neighbouring houses and people is prevented.

10. Free access by relations and friends of patients to the patients in all hospitals will be permitted, provided that arrangements can be made to segregate such people in the compound of the hospital so as to prevent any chance of their carrying infection elsewhere.

11. Arrangements should be made as soon as possible to secure that the services of hospital assistants, hakims or native medical officers and lady attendants may be available for private hospitals when required.

12. The sooner arrangements are made and reported upon to the Health Officer, Madras Municipality, or the Plague Commissioner the better.

13. In case committees desire to use European medicines in their hospitals, a list is appended showing the medicines considered necessary by the Sanitary Commissioner. The list contains all the equipments really necessary for a hospital of five beds.

14. In case of deaths in hospitals, every possible concession will be made to the relations of the deceased as regards arrangements for burial. It is earnestly hoped that every possible publicity will be given to these rules and that every possible opportunity will be taken to prevent the spread of foolish and false reports regarding the action of the authorities on plague matters.

15. The office of the Plague Commissioner is in the Secretariat buildings in the Fort, and he will be always glad to see any one wanting information on matters connected with plague and to give every assistance within his power to those who desire to use private efforts in dealing with plague cases.

16. The *earliest possible* information should be given of the occurrence of any case of plague. It is *at the beginning* of an epidemic that our best chance lies, and it is for the public to assist the authorities in the early report of first cases and in carrying out of the approved efficient measures *at the beginning*.

* Not reprinted, being same as that circulated with G.O., No. 256 P., dated 23rd March 1898.

APPENDIX.

LIST A.

OUTFIT FOR A FIVE-BED CASTE HOSPITAL.*

The following is a moderate equipment for a hospital for five patients. It will be of use to persons wishing to establish private caste or other plague hospitals:—

Disinfectants.		Appliances—cont.	
Perchloride of mercury ..	lb. 1	Flannel ..	yd. 1
Phenyle ..	.. 5	Carbolic soap ..	.. 1
Potassium permanganate ..	.. 1	Lint ..	.. 1
Acid, hydrochloric (commercial) ..	.. 2	Cotton wool ..	.. 1
Equipment.		Drugs.	
Cots with tape ..	no. 7	Linseed ..	.. 1
Mattresses (to be filled with straw) ..	.. 7	Tow ..	.. 1
Date mats ..	.. 7	Spirit lamp ..	.. 5
"Burmese spoons" (for water) ..	.. 15	Test tubes ..	.. 3
Cumblers ..	.. 6	Nitric acid ..	.. 1
Carpets ..	.. 8	Drainage tube ..	.. 2
Pillow cases ..	.. 8	Scales and weights, with spare set of	oz. 1
Wire teapots for bedside ..	.. 8	grain weights ..	grs. 1
Slippers for ward coolies ..	.. 6	Dispensing bottles ..	set 1
Copper dekshas for boiling clothing ..	.. 2	Corks ..	.. 10
Copper dekshas, small, for cooking food ..	.. 1	Draught glasses ..	doz. 2
Cocoanut spoons (small) ..	.. 6	One-ounce and one-minim glass ..	no. 6
Block tin cooking pots ..	.. 2	Slab ..	.. 1
Iron enamel saucepans (2-pints and 1-pint) ..	.. 2	Spatula ..	.. 1
Zinc buckets ..	.. 2	Roll of sticking plaster ..	.. 1
Firewood axe ..	.. 2	Large mixture bottles ..	.. 1
Kitchen knife ..	.. 1	Clinical thermometers ..	.. 3
Iron kettle ..	.. 1	Drugs.	
Hanging lamps ..	.. 1	Acid, boric ..	oz. 4
Hurricane lanterns ..	.. 1	Acid, carbolic ..	.. 8
Portable tables ..	.. 2	Acid, nitric hydrochlor. dil. ..	.. 1
Portable chairs ..	.. 3	Ammonia bromide ..	oz. 2
Time-piece ..	.. 2	Ammonia carbonas ..	.. 2
Folding screen ..	.. 2	Ammonia chloride ..	.. 1
Bed-head ticket-frames ..	.. 1	Bismuth subnitras ..	.. 2
Temperature charts ..	.. 1	Caffeine citras ..	.. 1
Zinc dressing trays ..	.. 4	Camphor liniment ..	.. 1
Large jars (old arrack) for disinfectants ..	.. 1	Ether pur. ..	.. 1
Hand-basins for disinfectants ..	.. 2	Extractum belladonna ..	.. 1
Washstand with basin, complete ..	.. 2	Ext. Ergot. liquid ..	.. 1
Lotion bowls ..	.. 1	Glycerine ..	.. 1
Earthen chippas ..	.. 2	Gum acacia ..	.. 1
Drinking-water chatties ..	doz. 2	Hydrargyri perchloridum ..	.. 2
Bed pans ..	no. 6	Hydrargyri subchloridum ..	.. 1
Ice box ..	.. 1	Iodoform ..	.. 1
Pewter or enamel urinals ..	.. 4	Liniment terebinthina ..	.. 1
Appliances.		Liq. ammonie acetatis ..	.. 1
Small pocket dressing case ..	no. 1	Liq. hydrargyri perchloride ..	.. 1
Gum elastic catheters (male) ..	.. 2	Liq. strychnia ..	.. 1
Hypodermic syringes ..	.. 1	Lysol ..	.. 1
Enema syringe ..	.. 1	Magnesia sulphatis ..	.. 1
Two-ounce syringe ..	.. 1	Ol. menth. pip. ..	.. 1
Ice bags ..	.. 1	Ol. ricini ..	.. 1
Waterproof sheets ..	.. 1	Opium ..	oz. 1
Pestle and mortar ..	.. 1	Phenacetin ..	.. 1
Glass rod ..	.. 1	Pil. col. co. ..	.. 1
Bandage cloth ..	.. 1	Pil. rhea co. ..	.. 1
	yds. 2	Pot. iodid. ..	.. 1

* In making Estimate for Lists A and B, the standards laid down for Bombay Plague Hospitals have been largely adopted.

Drugs—cont.

Pulvis ipecac. ..	oz. 1
Pulv. ipecac. co. ..	.. 1
Pulv. jalap co. ..	.. 1
Quinine sulphatis ..	.. 1
Santonin ..	.. 1
Soda bicarbonas ..	.. 3
Spt. ætheris nitrosi ..	.. 8
Spt. ammonia aromati ..	.. 8
Spt. of wine, methylated ..	.. 4
Spt. vini rectificat. ..	.. 4
Tinct. assafœtid. ..	.. 2
Tinct. card. co. ..	.. 2
Tinct. digitalis ..	.. 1
Tinct. hamamelis ..	.. 1
Tinct. hyoscyami ..	.. 1
Tinct. nucis vom. ..	.. 2
Tinct. opii ..	.. 2
Vaseline ..	lb. 1

Stores.

Kerosine oil (125°) ..	tin 1
	(gallons 6)
Firewood ..	At discretion.
Charcoal ..	.. 1
Arrowroot ..	.. 1
Anglo-Swiss condensed milk (milkmaid brand) ..	.. 3
Sugar ..	.. 1
Whiskey ..	.. 1
Arrack ..	.. 2
Kitchen towels ..	.. 6

For Medical Subordinates.

Cots (bed and pillow) ..	no. 2
Washstand (complete with enamel basin, &c.) ..	.. 1
Towel rack ..	.. 1
Table ..	.. 1
Chair ..	.. 1

Dispensary Furniture.

Shelf for drugs and appliances ..	no. 1
Box with lock and key for poisons ..	.. 1
Dispensary table ..	.. 1
Writing table ..	.. 1
Chair ..	.. 1
Washstand (complete with enamel basin, &c.) ..	.. 1
Towel rack ..	.. 1
Towels ..	.. 3
Tin kettle ..	.. 1

Blank folio books.	Admission register.
	Case book.
	Stock book.
	Miscellaneous expenditure book.
	Return book.
Ink ..	On indent.
Pens ..	
Pins ..	
Stationery ..	

(2) The above estimate has been framed in response to a demand made by certain committees for information as to the various appliances and drugs that should be purchased and kept ready for a caste hospital, on the smallest feasible scale. It is not implied, therefore, that there are not drugs that might usefully be added to the above list; as soon as patients were received in the hospital, the medical officer* in charge would be entitled to make a further indent for medicines* that though useful are yet probably not so urgently required as those above enumerated. Such an indent might, however, reasonably be confined to the drugs and appliances, &c., stated in list B.

LIST B.

EQUIPMENT FOR A HOSPITAL NOT EXCEEDING TWENTY BEDS.

Furniture.		Furniture—cont.	
Wards—		Office—	
Tables ..	no. 2	Table ..	no. 1
Screens ..	.. 4	Chairs ..	.. 2
Chairs ..	.. 2		
Washstand table ..	.. 1	Cook-room—	
Cupboard ..	.. 1	Table, common ..	.. 1
Almirah ..	.. 1	Kettle ..	.. 1
Cots ..	.. 20	Cooking utensils ..	.. 6
Lanterns ..	.. 6	Cans for hot water, etc. ..	.. 4
Towels ..	.. 20	Spoon, large ..	.. 1
Plates ..	.. 20	Knife ..	.. 1
Spoons ..	.. 6	Plates, iron ..	.. 3
Falls ..	.. 2	Pail ..	.. 1
Spittoons, earthenware ..	.. 20		
Iron can for poultices ..	.. 1	Dispensary—	
Bowls, common ..	.. 20	Table ..	.. 1
Mats for cots ..	.. 20	Shelf ..	.. 1

* It is, of course, to be distinctly understood that these notes convey mere suggestions, and that, if the committees so elect, none but drugs commonly used by natives, hakims or vydians need be made ready. Similarly, the medical men employed need not be versed in European methods of treatment.

Furniture—cont.

Hospital Assistants' Quarters—			
Table	no.	1	
Chair	..	1	
Bedstead, cheap, cane	..	1	
Nurses' Quarters—			
Two Nurses—			
Table	..	2	
Chairs	..	2	
Arm chair	..	1	
Shelf	..	1	
Bedsteads, complete	..	2	
Commodore	..	2	
Chambers	..	2	
Washstand and crockery	sets	2	
Towel, horse	no.	2	

Crockery, etc., for Nurses.

Knives	no.	4
Forks	..	4
Spoons	..	2
Teaspoons	..	2
Cups and saucers	..	2
Plates, large	..	2
Plates, small	..	2
Tumblers	..	2
Teapot	..	1

Food.

Medical officers to arrange with contractor, 20th March 1897.

Clothing.

Pillow cases	no.	20
Towels	doz.	2
Dusters (dunghree)	..	2
Blankets	no.	40
Coats	..	30
Trowsers	..	30
Dhoties	..	50
Sheets	..	36
Saries	..	10
Slippers (for ward boys)	prs.	20
Socks	..	40
Linen caps	doz.	3
Table cloths for nurses	no.	3
Women's night dresses	doz.	1
Children's do.	..	1

Instruments.

Enema tubes	no.	2
Bottles, empty (6 oz.)	doz.	3
Corks of sizes	grs.	1
Glasses for serving medicines	no.	10
Feeding cups	..	10
Clinical thermometers	..	4
Bandages	doz.	1
Cotton wool	lb.	1
Syringe, large	no.	1
Syringe, small	..	1
Spatulas of sizes	..	2
Pestle and mortar	..	1
Slab, small	..	1
Spirit lamp	..	1
Scales with weights and measures	..	1

Waterproof sheets	..	1
Pestle and mortar	..	1
Glass rod	..	1
Bandage cloth	..	1
Measure glass (4 oz.)	no.	1
Measure glass (2 oz.)	..	1
Measure glass, minim	..	1
Scissors	pr.	1
Pill boxes of sizes	packs	2
Pots, decoction, tin	no.	2
Pots, infusion	..	1
Penal's camel hair	..	3

Instruments—cont.

Syringes, hypodermic	no.	1
Syringes, enema	..	2
Syringes, glass	..	2
Catheters, Nos. 6, 7, 8	..	3
Corkscrew	..	1
Ice bags	..	3
Lint	lb.	1
Cloth, sheeting	yds.	12
Bed pans	no.	3
Pocket case	..	1

Medicines.

Acid, boric	lb.	1
Acid, carbolic	..	3
Acid, galic	oz.	2
Acid, hydrocyanicum dil.	..	1
Acid, sulphuric	..	6
Ammonii bromid.	..	6
Ammonii carbonas	..	2
Aqua distillata	lb.	2
Argenti nitras	dr.	1
Acid, tartaric	oz.	8
Alumen	..	8
Ammonii chloride	lb.	1
Atropin. sulph.	dr.	1
Bismuthi subnitras	oz.	4
Borax	..	4
Caffein citratis	..	1
Camphora	..	2
Cocainæ hydrochloras	dr.	1
Chiretta	lb.	2
Chloroform	oz.	4
Collodion	..	2
Creosotum	..	1
Cupri sulph.	drs.	4
Diachylon plaster	yd.	1
Extractum belladonnæ	oz.	1
Extractum ergot. liqui.	..	2
Extractum gentian	..	1
Guiaool	..	1
Glycerine	lb.	1
Gum acaciæ pulv. opt.	..	1
Hydrargyri perchloridum	oz.	4
Hydrargyri subchloridum	..	1
Iodoform	..	2
Lint. camph. co.	lb.	1
Lint. iodi	oz.	4
Lint. saponis	lb.	1
Liq. ammon. acetatis	oz.	4
Liq. arsenicalis	..	4
Liq. epispasticus	..	1
Liq. morph. hydrochloris	..	1
Liq. plumbi sabacotuti	lb.	1
Liq. strychnine	oz.	2
Magnes. sulph.	lb.	4
Oleum anethi	oz.	1
Oleum menthæ piperitæ	..	1
Oleum cinnamon	..	2
Oleum ricini	..	5
Oleum terebinthinæ	lb.	1
Oleum arachis	..	6
Opium	drs.	4
Potass. citratis	oz.	2
Potass. iodidum	..	2
Pulvis ipecacuanhæ co.	..	1

magnesia sulphatis	..	1
Ol. menth. pip.	..	1
Ol. ricini	..	1

Pulvis jalapæ compo.	..	1
Phenacetin	..	1
Pil. hydrargyri	..	2
Potass. bicarbonas	..	8
Potass. chloras	..	8
Potass. nitras	..	4
Potass. permanganatis	..	8
Pul. cretæ aromaticæ opio	..	8
Quinii sulph.	..	6
Potass. bromidum	..	..

Medicines—cont.

Saccharum alb.	lb.	1
Santonium	..	1
Sodii bicarbonas	oz.	1
Sodii salicylas	..	3 (4)
Spiritus methylatum	..	4
Spiritus ætheris nitrosi	lb.	1
Spiritus ammon. aromat.	..	1
Spiritus rectificatus	..	2
Sulphur sublimati	..	1
Syrup chloral hydrate	oz.	8
Syrup tolu	..	8
Tincture aconiti	..	1
Tincture aurantii	drs.	2
Tincture cardamomi co.	oz.	2
Tincture cinchonæ	..	2

Medicines—cont.

Tincture digitalis	oz.	2
Tincture hamamelidis	..	2
Tincture hyoscyami	..	2
Tincture iodi	..	4
Tincture opii	..	4
Tincture scillæ	..	2
Tincture assafoetid.	..	2
Tincture belladonnæ	..	2
Tincture catechu	..	4
Unguentum hydrargyri	lb.	1
Unguentum simplex	..	1
Vaseline	..	1
Vin. ipecac.	..	1
Zinci oxidum	oz.	1
Zinci sulph.	..	2

STAFF.

(3) In the matter of expenditure on account of staff, it would not be found advantageous to open hospitals with so limited accommodation as five beds. The nursing attendance that must be rendered to patients in the grave condition usual in plague, is of a peculiarly harassing nature; therefore, unless circumstances such as the limited number of the caste, the nature of the site available, or the funds at disposal, forbid, it is advisable that accommodation for not less than ten beds in one locality be provided; because to secure effective nursing, and reasonable hours of rest, in practice, the staff for nursing five patients should be as complete as for nursing ten. However, following the principle of securing that which is essential before the appearance of plague, and trusting to expanding the scope subsequently, as has been suggested above in the case of supply of medicine, it may be held that the following staff should be kept in readiness for a hospital for five (say, three males and two females) and not exceeding ten patients:—

1 qualified nurse.
2 male ward attendants.
1 female ward attendant.
1 male toty.
1 female toty.
1 cook.

1 waterman.
1 dhoby.
1 hospital assistant.
Police guard to be estimated for
by the Police officer responsible
in each locality.

CONSTRUCTION OF CASTE HOSPITALS (TEMPORARY STRUCTURES).

(4) As a rule, it is advised that the unit for hospital construction and administration be a twenty-bed hospital. This is an arrangement found to have worked well in Bombay, where scales for staffs, equipment and drugs followed closely the lines advised in lists A and B. From information thus supplied, committees can readily frame estimates in relation to the number of beds for which they wish to make provision.

(5) Annexed is a site plan (Plan * No. I) showing the arrangement for a hospital of twenty beds—a "one-section hospital." Following this terminology, a ten-bed hospital would be a half-section hospital.

(6) Plan * No. I (a modification of that designed by Mr. James, C.E., of Bombay) is arranged with the object of economizing space as much as possible. When, however, more ground is at disposal, it would be advisable to allow considerably greater intervals between the buildings. It is not often in this Presidency that materials for temporary wards, 24 feet broad, can be obtained cheaply; hence, it would usually be found cheaper to make hospitals suitable for a single row of beds. Plan No. II shows the character of buildings suggested. The purpose of each structure is stated on the plan so as to prevent unnecessary description.

* Not reprinted, being same as that circulated with G.O., No. 256 P., dated 23rd March 1898.

MATERIALS.

(7) The sheds ordinary would be built of bamboos and bamboo matting, with paddy straw or cadjan leaves roofing. Beams or old iron rails may, under certain circumstances, offer advantages of economy and durability. Without going into details of structure of temporary buildings, which will be found fully entered into in the "Notes and Specification appended," the following general points are worthy of consideration:—

(a) Experience shows that well-built temporary sheds, with occasional repairs, will last seven or more years. Sheds hastily put up on the theory that any rough structure will suffice will, in the end, prove very expensive. Sheds with crooked and thin bamboos, with matting little thicker than brown paper, such as a contractor usually considers himself justified in giving for the money paid him, are a source of annoyance and discomfort to patients and medical staff alike, and of endless expense in effecting repairs. Committees are, therefore, strongly advised to use material that may reasonably be expected to protect patients from sun and rain, and will not stand in need of much repair for two years.

(b) All structures intended for dwellings should be provided with basements. Rammed gravel of 9 inches will suffice for the purpose; but, wherever funds are available, it will contribute much to the sanitary safety and comfort of staffs and patients if in the case of the wards the plinths be built with brick in mud—the interior filling being of gravel upon which concrete plastered with cement should be laid to form a flooring—*vide* sections in annexed plan No. II. If an impervious flooring be thus provided, it should have a gentle slope towards a shallow "saucer drain" made in the cement plaster, which would lead to a small impervious reservoir immediately outside the wall.

(c) Bathing platforms should be of brick or concrete cement-plastered, leading to cement-lined reservoirs. These spaces need not be elevated above the surface of the ground more than 3 or 4 inches, but should be provided with a slightly elevated border so as to prevent overflow on the surrounding surface. They should be screened in the interests of decency and should be apart for the respective sexes.

(d) Latrines should be provided with impervious receptacles. A very simple form of latrine is shown in plan No. III (Block No. 12). This represents a cement-plastered 9 inches ovoid drain, such as commonly used in Madras town leading to a cement-plastered reservoir. Immediately over the drain are placed tared earthen mullays, or specially-made iron receptacles, for receipt of faecal matter. These receptacles are placed at intervals of 2 feet 6 inches, and are separated by bamboo screens forming separate compartments. The latrine is used by squatting across the drain. The urine passes direct into the drain, and thus to the reservoir. The foot-path may be of tamped gravel, but preferably should be of concrete cement-plastered. It should not be more than 2 feet 6 inches in breadth, which, with the curb of the drain, will afford ample space for the passage of persons although sufficiently limited to prevent its illegitimate use. Latrines should have thatched coverings to prevent flooding during rain, but space should be provided between the screen-walls and the eaves to permit of the free entrance of light and air.

(e) A platform made in the manner laid down for bathing purposes should be provided for disinfection of clothing. Adjoining it should be ovens made with earthen chatties, such as used by dhobies. If funds be sufficient, it is better to provide copper cauldrons in lieu of the earthen chatties. As the copper can be sold on breaking up of the hospitals, very little loss need be incurred.

(f) Where the town water-supply is available, it should be brought within the hospital compound by pipes. These should be provided with taps. A cement-plastered platform with a drain leading to a suitable position should be formed round the taps. In positions where supply of water is intermittent, owing to deficient pressure, cube iron tanks, resting on trestles or masonry and provided

with self-closing taps, should be used, so as to store a supply. Where no town water-supply is available, rule 36, page 103, in the *brochure*, "Madras Plague Regulations and Rules" should be followed.

(g) A brick-in-mud incinerator, 3 feet 6 inches high, of 3 feet diameter at the base, and 2 feet 6 inches at the mouth, should be provided. The general design is that of the common country lime-kiln. In this all rags, sweepings, old bedding, &c., should be destroyed daily.

IN CONVERTED PERMANENT BUILDINGS.

(8) When permanent buildings are selected, care as to the following points is desirable, in addition to such matters as are applicable to temporary structures already described:—

Ventilation, preferably by perfilation by means of doors and windows, should be carefully provided wherever feasible. Similarly, the free admission of light should be systematically arranged for. As a minimum, the windows of the wards should measure one square foot for every 50 cubic feet. Rooms that do not permit of entrance of air and light direct from the outside should not be used for wards. If it can be so arranged, a window should be placed so as to separate each bed from its neighbour. In reckoning the cubic capacity of the rooms under paragraph 3 (e), no height above 13 feet should be regarded as contributing to the total available. Each ward should have stated at the doorway, on a painted board, the cubic capacity of the room, its superficial area, and the number of patients for whom it is intended, having regard to the standard laid down in paragraph 3 (e). Irregular brick tile floors, such as commonly found in dwellings, cannot be considered suitable for plague wards. These should be plastered with cement. It should be seen that a suitable exit for the washing of the floors is made, and that these are received in special impervious reservoirs for subsequent disposal. Walls out of repair should be put in order and rendered reasonably smooth, and be subsequently whitewashed. Every care should be taken to see that no dark corners or recesses exist in the house. All such places should be opened up, so as to admit light and air freely. Bath-rooms and kitchens in existing houses are generally defective in these respects, and should be freely opened up. It should not be hastily assumed that the existing bath-rooms or latrines will suffice; the condition of their floors (which should be cement-plastered) and the nature of the exit for water, and its ultimate disposal should be carefully ascertained in each case.

GENERAL ADMINISTRATION.

(9) Committees for caste hospitals will be primarily responsible, and will issue their own orders, for all matters connected with observances of caste, gosha, or race requirements, and for appointing persons responsible to them for the feeding, nursing and medical treatment of patients after such methods as they may approve. They are advised to make their arrangements conform with the wishes of the uneducated masses—not of the educated minority only. It is presumed that treatment by vydians and hakims will prove most popular, and should ordinarily be provided for. Where, in exceptional cases, European treatment is specially desired, no difficulty need be experienced in securing it by application to private practitioners. For instance, if it be felt that the majority of subscribers would prefer treatment by indigenous methods (rendering it unnecessary to store European medicines and appliances), it might be possible to secure that private practitioner practising European methods attend, and that a chemist supply medicines on contract rates; or, in the case of a patient well off, he might be allowed to select his own medical man practising European methods.

(10) The District Surgeon is responsible that the caste hospitals in his district are conducted with such care as to sanitary details as shall prevent the possibility of danger of spread from infected patients and material. Unless so required in writing by the committee responsible for the caste hospital concerned, he shall not interfere—unless with reference to sanitary precautions—in any matter concerning the medical treatment, food or attendance of the patient.

- ## GENERAL SANITARY PRECAUTIONS.

GENERAL.

The doors of the wards, hospital assistants' quarters, nurses' quarters and the mortuary will be $3' \times 6\frac{1}{2}'$. All other doors will be $3' \times 6'$.

6. *Roofing.*—The manner of trussing the various roofs is shown on the plan. But the contractor will be allowed to modify the arrangement with the consent of the supervising officer according to circumstances. The roofing will consist of single bamboo matting and over that paddy straw or hill grass supported by, and firmly secured to, bamboo rafters and reapers. In thatching the material employed should so overlap and be of a thickness that will render the roof watertight.

The roof shall have a slope of 2 to 1, or in other words, the rise of the roof shall be equal to half the span. The verandah roof shall have the same slope as the main roof.

7. *Wards.*—The wards are two in number—one for males and one for females. The male ward measures (available space) $120' \times 16'$, and the female ward $96' \times 16'$. They are intended to accommodate 10 and 8 patients, respectively, with a wall space of 12' and a superficial area of $12' \times 16' = 192$ square feet for each bed. The number of square feet allowed over the standard of 144 square feet laid down in paragraph 3 of hints is due to the necessity where a single row of beds is used to allow additional space for relatives and nursing staff, &c. The wards have a verandah 5' wide running all along on one side. The communication between the wards and the verandahs will be by as many doors, each $3' \times 6\frac{1}{2}'$, as there are beds in the ward. So as to secure the advantages of the protection afforded by the verandah, the beds of the patients should be placed on this side at a distance of 2' from the wall. On the opposite side of the ward, there will be two windows $3' \times 2'$, one on each side of the bed. There will thus be two windows between each two beds. The doors and windows are so arranged, because of the necessity that may arise for cutting off any bed or beds from the others. The arrangement of doors and windows shown will allow of this being done without interfering with ventilation or easy ingress and egress. The height of wards from the floor to the bressummer is 12'.

The wards will have a basement wall all round as described in paragraph 1 *supra*. The flooring will consist of concrete plastered over with Portland cement, or if economy is essential, the floor may be formed of gravel as described before. If a concrete floor is laid it should have a fall of 1 in 100 from the verandah side to the opposite to facilitate the cleansing of the floor. Each ward will have a detached latrine and bath-room as shown on plan, and there will be a common cook room, measuring $20' \times 8'$ for the patients.

8. *Hospital Assistant's Quarters.*—This will consist of the following:—

- (1) A drug-room $10' \times 12'$ with an adjoining verandah 5' wide.
- (2) A living-room $12' \times 12'$ with an adjoining verandah 5' wide and a bath-room $6' \times 6'$ attached to the rear side.
- (3) A detached cook-room.

The main block will have a basement wall as described before and a gravelled floor. The height of the rooms will be 12' from the floor to the bressummer. The bath and cook rooms will be as specified elsewhere.

9. *Nurses' Quarters.*—These will consist of two adjoining rooms, each $12' \times 12'$ and 12' high with a bath-room $6' \times 6'$ attached to each. The rooms will have a gravelled floor with a basement wall around; pertaining to these quarters there will be a common cook-room $12' \times 6'$.

10. *Quarters for Relatives of Patients.*—These will consist of two blocks, each containing six rooms $10' \times 10'$ and 11' high with a verandah 5' wide on one side. The floor will be of gravel made into a ramp 6" high without any basement wall. There will be a bath-room and latrine, one each for males and females, and a common cook-room for the use of all the inmates.

11. *Servants' Quarters and Sweepers' Quarters.*—These will consist of three blocks as shown on the plan. The blocks for servants and orderlies will have three rooms each $10' \times 10'$ and 8' high. The block for sweepers will contain four rooms each $10' \times 8'$ and 7' high. The floor will be of gravel made into a ramp 6" above

ground without any basement wall. A latrine will be provided as shown on plan for the use of these people.

12. *Mortuary.*—This will be in two compartments each $10' \times 10'$ and 10' high, one for male corpses and the other for female corpses. The building will have a basement wall with concrete floor plastered over with cement. The floor will have slope of 1 in 100 towards the side on which the cesspool is situated. Along the edge of the floor there will be a low wall 3" high and one brick thick. The walling will be of corrugated iron sheets to a height of about 2' from floor and above this the usual bamboo matting.

13. *The Disinfecting Platform.*—This will be an open platform (without any tatty walling or roof) $12' \times 10'$ with floor formed exactly the same as that for the mortuary.

14. *Cook-rooms.*—These will be of the dimensions given below:—

For patients	...	...	...	...	...	$20' \times 8'$ with ten fire places.
For relatives of patients	...	...	...	...	...	$15' \times 6'$ with seven fire places.
For Hospital Assistant	...	...	...	...	...	$10' \times 6'$ with two fire places.
For nurses	...	...	...	...	...	$12' \times 6'$ with three fire places.

All these rooms will be 8' high and have a plain gravelled floor without a basement wall. The fire places will be formed in the usual manner in this part of the country with earthenware *adduppos* bedded in clay and placed 2' from centre to centre. As a protection to the tatty walling from fire there will be a brick in clay wall 2' high between the fire place and the tatties as shown on the plan.

There will be a small sink in each of the cook-rooms connected with a cesspool outside. The sinks will be formed of 4" concrete with a curb wall $4\frac{1}{2}"$ wide and 3" high, the whole plastered over with cement.

15. *Bath-rooms.*—All bath-rooms, whether attached or detached from the main blocks, will be 6' square and 7' high from the floor to the bressummer. They will have a basement wall with concrete floor plastered over with Portland cement. Along the edge of the floor there will be a low wall 3" high and one brick thick. The floor will slope in the direction of the cesspool. The bath-rooms will have tatty walling.

16. *Latrines.*—The privy receptacles will consist of a 9" semi-oval channel formed of concrete *in situ* between two parallel masonry walls. The channel will be partitioned into spaces $2\frac{1}{2}'$ wide. In each space there will be placed a galvanized iron or stoneware pan across the channel with the edges of the pan resting on the walls of the channel. These pans will be shallower than the channel itself so as to allow a clear passage between the two. The walls of the channel will serve as foot rests. The solid excrement will be received in the pans and the urine will be discharged into the open channel. The channel shall have a fall in the direction of the cesspool of not less than $\frac{1}{4}"$ per every foot of its length. The building will have tatty walling and a roof as in other structures. The whole of the exposed masonry, including the channel, shall be plastered in cement as already specified.

17. *Cesspools.*—The cesspools shall measure $1\frac{1}{2}' \times 1\frac{1}{2}' \times 1\frac{1}{2}'$ inside. The floor shall be of 4" concrete, the walls of 9" thick brickwork and the whole of the interior and the top of the walls shall be plastered with cement.

Abstract of Detailed Estimate for the Construction of a Plague Hospital.

Quantity.	Description of work.	Rate.	Per	Amount.	Total.
BLOCK No. 1, MALE WARD FOR 10 BEDS.					
		RS.	A.	P.	
744 c.ft.	Earthwork				
1,170 "	Concrete in chunnam				
317 "	Brickwork in clay				
27.6 sqrs.	Plastering with cement, $\frac{1}{2}$ " thick				
1,743 r.ft.	Casuarina wood				
40 $\frac{1}{2}$ sqrs.	Thatched roofing with bamboo rafters and reepers and mats, &c., complete.				
30.32 "	Bamboo matting including bamboo runners and reepers, doors and windows.				
1 no.	Cesspool				
...	Contingencies				
	Total				
BLOCK No. 1-A, FEMALE WARD FOR 8 BEDS.					
600 c.ft.	Earthwork				
936 "	Concrete in chunnam				
263 "	Brick in clay				
22.26 sqrs.	Plastering with cement, $\frac{1}{2}$ " thick				
1,413 r.ft.	Casuarina wood				
32.34 sqrs.	Thatched roofing with bamboo rafters and reepers and mats, &c., complete.				
25.28 "	Bamboo matting with bamboo runners and reepers including doors and windows.				
1 no.	Cesspool				
...	Contingencies				
	Total				
BLOCK No. 2, HOSPITAL ASSISTANTS' QUARTERS.					
201 c.ft.	Earthwork				
138 "	Gravel filling				
9 "	Concrete in chunnam				
107 "	Brick in clay				
1.8 sqrs.	Plastering with cement, $\frac{1}{2}$ " thick				
545 r.ft.	Casuarina wood				
8.6 sqrs.	Thatched roofing with bamboo rafters and reepers and mats, &c., complete.				
10.89 "	Bamboo matting with bamboo runners and reepers including doors and windows.				
1 no.	Cesspool				
...	Contingencies				
	Total				
BLOCK No. 3, QUARTERS FOR NURSES.					
242 c.ft.	Earthwork				
14 "	Concrete in chunnam				
130 "	Gravel filling				
128 "	Brick in clay				
2.075 sqrs.	Plastering with cement, $\frac{1}{2}$ " thick				
442 r.ft.	Casuarina wood				
9 sqrs.	Thatched roofing with bamboo rafters and reepers and mats, &c., complete.				
12.60 sqrs.	Bamboo matting with bamboo runners and reepers including doors, &c.				
2 nos.	Cesspools				
...	Contingencies				
	Total				
	Carried over				

Abstract of Detailed Estimate for the Construction of a Plague Hospital—cont.

Quantity.	Description of work.	Rate.	Per	Amount.	Total.
BLOCK No. 4, QUARTERS FOR RELATIVES OF PATIENTS.					
		RS.	A.	P.	
	Brought forward				
938 c.ft.	Gravel filling				
1,279 r.ft.	Casuarina wood				
35 sqrs.	Thatched roofing with bamboo rafters and reepers and mats, &c., complete.				
35.6 "	Bamboo matting with bamboo runners and reepers including doors and windows.				
...	Contingencies				
	Total				
BLOCK No. 5, SERVANTS' QUARTERS.					
641 c.ft.	Gravel filling				
580 r.ft.	Casuarina wood				
12.4 sqrs.	Thatched roofing with bamboo rafters, reepers, mats, &c., complete.				
15.4 "	Bamboo matting with bamboo runners and reepers including doors and windows.				
...	Contingencies				
	Total				
BLOCK No. 6, SWEEPERS' SHED.					
344 c.ft.	Gravel filling				
327 r.ft.	Casuarina wood				
7 sqrs.	Thatched roofing with bamboo rafters, reepers, mats, &c., complete.				
8.28 "	Bamboo matting with bamboo runners and reepers inclusive of doors and windows.				
...	Contingencies				
	Total				
BLOCK No. 7, DISINFECTING PLATFORM.					
74 c.ft.	Earthwork				
37 "	Concrete in chunnam				
58 "	Brick in chunnam				
14 sqrs.	Plastering with cement, $\frac{1}{2}$ " thick				
...	Contingencies				
	Total				
BLOCK No. 8, MORTUARY.					
130 c.ft.	Earthwork				
52 "	Concrete in chunnam				
64 "	Brick in chunnam				
2 $\frac{1}{2}$ sqrs.	Plastering with cement, $\frac{1}{2}$ " thick				
224 r.ft.	Casuarina wood				
4 $\frac{1}{2}$ sqrs.	Thatched roofing with bamboo rafters, reepers, mats, &c., complete.				
2.5 cwt.	Walling with corrugated iron sheets				
5.35 sqrs.	Bamboo matting with bamboo runners and reepers including doors and windows.				
...	Contingencies				
	Total				
	Carried over				

Abstract of Detailed Estimate for the Construction of a Plague Hospital—cont.

Cont.

Quantity.	Description of work.	Rate.	Per	Amount.	Total.					
BLOCK No. 9, HOSPITAL COOK-ROOM 20' X 8'.										
		RS.	A.	P.	RS.	A.	P.	RS.	A.	P.
	Brought forward ...									
84 c.ft.	Brick work in clay									
26 "	Brick in chunam									
94 "	Earth filling									
36 sqrs.	Cement plastering, 1/2" thick									
252 r.ft.	Casuarina wood									
4 sqrs.	Thatched roofing with bamboo rafters, reepers and mats, &c., complete.									
371 "	Bamboo matting with bamboo runners and reepers inclusive of doors and windows.									
...	Contingencies									
	Total ...									
BLOCK No. 10, COOK-ROOM 10' X 8' FOR THE HOSPITAL ASSISTANTS.										
34 c.ft.	Earth filling									
44 "	Brick work in clay									
26 "	Brick in chunam									
36 sqrs.	Plastering with cement, 1/2" thick									
108 r.ft.	Casuarina wood									
165 sqrs.	Thatched roofing with bamboo rafters, reepers and mats, &c., complete.									
20 "	Bamboo matting with bamboo reepers inclusive of doors and windows.									
...	Contingencies									
	Total ...									
BLOCK No. 10-A, COOK-ROOM 12' X 6' FOR NURSES.										
41 c.ft.	Earth filling									
50 "	Brick work in clay									
26 "	Brick in chunam									
36 sqrs.	Plastering with cement, 1/2" thick									
112 r.ft.	Casuarina wood									
20 sqrs.	Thatched roofing with bamboo rafters, reepers and mats, &c., complete.									
216 "	Bamboo matting with bamboo reepers inclusive of doors and windows.									
...	Contingencies									
	Total ...									
BLOCK No. 10-B, COOK-ROOM 15' X 6' FOR RELATIVES OF PATIENTS.										
50 c.ft.	Earth filling									
60 "	Brick work in clay									
26 "	Brick in chunam									
36 sqrs.	Plastering with cement, 1/2" thick									
118 r.ft.	Casuarina wood									
24 sqrs.	Thatched roofing with bamboo rafters, reepers and mats, &c., complete.									
25 "	Bamboo matting with bamboo runners and reepers inclusive of doors and windows.									
...	Contingencies									
	Total ...									
	Carried over ...									

Abstract of Detailed Estimate for the Construction of a Plague Hospital—cont.

Quantity.	Description of work.	Rate.	Per.	Amount.	Total.
BLOCK No. 11, BATH-ROOM.					
		RS.	A.	P.	
	Brought forward ...				
20 c.ft.	Earthwork ...				
15 "	Concrete in chunam ...				
24 "	Brick in clay ...				
12 "	Brick in chunam ...				
81 sqrs.	Cement plastering, $\frac{1}{2}$ " thick ...				
95 r.ft.	Casuarina wood ...				
108 sqrs.	Thatched roofing with baboo rafters, reepers and mats, &c., complete.				
200 "	Bamboo matting with bamboo reepers inclusive of doors and windows.				
1 sq.ft.	Cuddapah slab stone ...				
...	Contingencies ...				
...	Add for 3 similar bath-rooms ...				
	Total ...				
BLOCK No. 12, LATRINE.					
42 c.ft.	Earthwork ...				
46 "	Brick in chunam ...				
48 "	Concrete in chunam ...				
123 sqrs.	Plastering with cement, $\frac{1}{2}$ " thick ...				
102 r.ft.	Casuarina wood ...				
165 sqrs.	Thatched roofing with bamboo rafters, reepers and mats, &c., complete.				
23 sqrs.	Bamboo matting with bamboo reepers inclusive of doors and windows.				
...	Contingencies ...				
4 nos.	Latrines as per above contingencies and supervision.				
	Total ...				

General Abstract Estimate for the Construction of a Plague Hospital.

Block Numbers.	Description of work.	Rate.			Per	Amount.			Total.
		RS.	A.	P.		RS.	A.	P.	
1	Male ward for 10 beds ...								
1-A	Female ward for 8 beds ...								
2	Hospital assistants' quarters ...								
3	Quarters for nurses ...								
4	Quarters for relatives of patients ...								
5	Servants' quarters ...								
6	Sweepers' shed ...								
7	Disinfecting platform ...								
8	Mortuary ...								
9	Hospital cook-room ...								
10	Cook-room for hospital assistant ...								
10-A	Cook-room for nurses ...								
10-B	Cook-room for relatives of patients ...								
11	Four bath-rooms ...								
12	Five latrines ...								
...	Contingencies and supervision ...								
	Total ...								

Detailed Estimate for the Construction of a Plague Hospital.

Detail of work.	Number.	Measurements in feet.			Area or contents.	Total quantity of each description of work.
		Length.	Breadth.	Depth.		
BLOCK No. 1, MALE WARD FOR 10 BEDS.						
EARTHWORK.						
Excavating for foundation walls all round ...	1	282	$\frac{3}{4}$	$\frac{1}{4}$	159	
Filling in basement	1	120	19 $\frac{1}{2}$	$\frac{1}{4}$	585	
Total, C. ft. ...						744.
CONCRETE IN CHUNAM.						
Flooring	1	120	19 $\frac{1}{2}$	$\frac{1}{4}$	1,170	C. ft. 1,170.
BRICK IN CLAY.						
Walls all round	1	282	$\frac{3}{4}$	1 $\frac{1}{2}$	317	C. ft. 317.
PLASTERING WITH CEMENT.						
Basement all round	1	285	...	$\frac{3}{4}$	214	
Top of floor	1	121 $\frac{1}{2}$	21	...	2,552	
Total, Sq. ft. ...					2,766	or Sqrs. 27.66.
CASUARINA WOOD.						
Posts in ward	2 X 16	144	...	...	472	
Do. in verandah	16	10 $\frac{1}{2}$	...	...	172	
Coupled trusses	16	46	...	...	736	
Bressummers	3	121	...	...	363	
Total, Rg. ft. ...					1,743	1,743.
THATCHED ROOFING WITH BAMBOO RAFTERS, REEPERS AND MATS, &C., COMPLETE.						
Ward in front	1	122	19	...	2,318	
Do. in rear		122	14	...	1,708	
Total roofing, Sq. ft. ...					4,026	or Sqrs. 40 $\frac{1}{2}$.
BAMBOO MATTING WITH BAMBOO REEPERS INCLUSIVE OF DOORS AND WINDOWS.						
Wall all round	1	272	...	10 $\frac{1}{2}$	2,856	
Gable ends	2	16	...	5 $\frac{1}{2}$	176	
Total matting, Sq. ft. ...					3,032	or Sqrs. 30.32.
BLOCK No. 1-A, FEMALE WARD FOR 8 BEDS.						
EARTHWORK.						
Excavating for foundation walls all round ...	1	234	$\frac{3}{4}$	$\frac{1}{4}$	132	
Filling in basement	1	96	19 $\frac{1}{2}$	$\frac{1}{4}$	468	
Total, C. ft. ...					600	600.
CONCRETE IN CHUNAM.						
Floor	1	69	19 $\frac{1}{2}$	$\frac{1}{4}$	936	C. ft. 936.
BRICK IN CLAY.						
Walls all round	1	234	$\frac{3}{4}$	1 $\frac{1}{2}$	263	C. ft. 263.
PLASTERING WITH CEMENT.						
Basement all round	1	237	...	$\frac{3}{4}$	178	
Top of floor	1	97 $\frac{1}{2}$	21	...	2,048	
Total plastering, Sq. ft. ...					2,226	Sqrs. 22.26.

Detailed Estimate for the Construction of a Plague Hospital—cont.

Detail of work.	Number.	Measurements in feet.			Area or contents.	Total quantity of each description of work.
		Length.	Breadth.	Depth.		
BLOCK No. 1-A, FEMALE WARD FOR 8 BEDS—cont.						
CASUARINA WOOD.						
Posts in ward	2×13	14½	...	...	384	
Do. in verandah	13	10½	...	...	140	
Coupled trusses	13	46	...	...	598	
Bressummers	3	97	...	...	291	
Total, Rg. ft.	...	...	...	...	1,413	Rg. ft. 1,413.
THATCHED ROOFING WITH BAMBOO RAFTERS, REEPERS AND MATS, &C., COMPLETE.						
Ward in front	1	98	19	...	1,862	
Do. in rear	1	98	14	...	1,372	
Total roofing, Sq. ft.	...	...	...	...	3,234	Sqrs. 32.34.
BAMBOO MATTING WITH BAMBOO REEPERS INCLUSIVE OF DOORS AND WINDOWS.						
Ward all round	1	224	...	10½	2,352	
Gable ends	2	16	...	5½	176	
Total matting, Sqr. ft.	...	...	...	...	2,528	Sqrs. 25.28.
BLOCK No. 2, HOSPITAL ASSISTANT'S QUARTERS.						
EARTHWORK.						
Excavating for foundation walls all round	1	95½	¾	¾	54	
Filling in basement of main building	...	26½	12	¼	118	
Verandah	1	12½	4½	½	20	
Bath room	1	5½	4½	½	9	
Total, ft.	...	...	...	...	201	C. ft. 201.
CONCRETE IN CHUNAM.						
Bath room	1	5½	4½	½	9	
Total, C. ft.	...	...	...	...	9	C. ft. 9.
GRAVEL FILLING.						
Flooring of main building	...	26½	12	¾	118	
Verandah	...	12½	4½	¾	20	
Total C. ft.	...	...	...	...	138	C. ft. 138.
BRICK IN CLAY.						
Walls all round	1	95½	¾	1½	107	C. ft. 107.
PLASTERING WITH CEMENT.						
Basement all round	1	101½	...	¾	76	
Top of basement	1	96½	5½	...	72	
Bath room	1	6	...	...	32	
Total, Sq. ft.	...	...	...	...	180	Sqrs. 1.8.
CASUARINA WOOD.						
Posts in main building	8	14½	...	...	118	
Do. in front verandah	4	9½	...	...	39	
Do. in side do.	3	10½	...	...	32	
Do. bath room	2	84	...	...	17	
Do. bath room	2	23½	...	...	47	
Bressummers	2	13½	...	...	27	
Do.	1	14	...	...	14	
Do.	1	6	...	...	6	

Detailed Estimate for the Construction of a Plague Hospital—cont.

Detail of work.	Num-ber.	Measurements in feet.			Area or contents.	Total quantity of each description of work.
		Length.	Breadth.	Depth.		
BLOCK No. 2, HOSPITAL ASSISTANT'S QUARTERS—cont.						
CASUARINA WOOD—cont.						
Coupled trusses	4	40				
Rafter in front verandah	4	8½				160
Do. inside verandah	3	9				34
Do. in bath room	2	12				27
						24
Total, Rg. ft.					545	Rg. ft. 545.
THATCHED ROOFING WITH BAMBOO RAFTERS, REEPERS, AND MATS, &c., COMPLETE.						
Main building	2	28½	10½			599
Bath room	1	6½	9½			62
Verandah in front	1	13½	8			108
Do. inside	1	14	6½			91
Total, Sq. ft.					860	Sqrs. 86.
BAMBOO MATTING WITH BAMBOO REEPERS INCLUSIVE OF DOORS AND WINDOWS.						
Main building all round	1	68		10½		714
Cross wall	1	12		10½		126
Gables	2	12		4½		108
Bath room, side	1	6		5½		33
Do. ends	2	6		9		108
Total matting, Sq. ft.					1,089	Sqrs. 1089.
BLOCK No. 3, QUARTERS FOR NURSES.						
EARTHWORK.						
Excavating for foundation—retaining wall all round the quarters	1	83½		½		47
Retaining wall round the bath rooms	2	15		½		16
Filling in basement	1	24	16½	½		162
Do. bath rooms	2	4½	4½	½		17
Total, C. ft.					242	C. ft. 242.
CONCRETE IN CHINAM.						
Bath rooms, floor	2	4½	4½	½		14
Total, C. ft.					14	C. ft. 14.
GRAVEL FILLING.						
Floor of Nurses' quarters	1	24	16½	½		130
Total, C. ft.					130	C. ft. 130.
BRICK IN CLAY.						
Retaining wall all round	1	83½		½		94
Do. in bath rooms	2	15		½		34
Total, C. ft.					128	C. ft. 128.
PLASTERING WITH CEMENT.						
Basement all round	1	107½		½		81
Bath rooms	2	6		½		72
Top of basement	1	71½		½		54
Total, Sqrs.					207	Sqrs. 207.
CASUARINA WOOD.						
Posts	6	14½				87
Do. in verandah	3	9½				29
Do. in bath rooms	4	8½				35
Bressummers	3	25½				77
Do. in bath rooms	2	6				12
Coupled trusses	2	42				84
Rafters	4	11				44
Do. in verandah	3	10				30
Total, Rg. ft.					442	Rg. ft. 442.

Detailed Estimate for the Construction of a Plague Hospital—cont.

Detail of work.	Num-ber.	Measurements in feet.			Area or contents.	Total quantity of each description of work.
		Length.	Breadth.	Depth.		
BLOCK No. 3, QUARTERS FOR NURSES—cont.						
THATCHED ROOFING WITH BAMBOO RAFTERS, REEPERS AND MATS, &c., COMPLETE.						
Roofing in front	1	26	19	...	494	
Do. in rear	1	26	11	...	286	
Do. over bath-rooms	2	7	8½	...	119	
Total, Sq. ft.					899	or Sqrs. 9.
BAMBOO MATTING WITH BAMBOO REEPERS INCLUSIVE OF DOORS AND WINDOWS.						
Main building, all round	1	72	...	10½	756	
Cross wall	1	12	...	10½	126	
Bath-rooms, side	2	6	...	6	72	
Do. ends	4	6	...	8½	204	
Gable ends	2	12	...	4½	108	
Total, Sq. ft.					1,266½	or Sqrs. 1266.
BLOCK No. 4, QUARTERS FOR RELATIVES OF PATIENTS.						
GRAVEL-FILLING.						
Floors of quarters	2	60½	15½	½	938	C. ft. 938.
CASUARINA WOOD.						
Posts, large	2 × 14	...	13½	...	378	
Do. small	2 × 7	...	7½	...	105	
Coupled trusses	2 × 7	...	44	...	616	
Bressummers	3½	60	...	...	180	
Total, Rg. ft.					1,279	Rg. ft. 1,279.
THATCHED ROOFING WITH BAMBOO RAFTERS, REEPERS AND MATS, &c., COMPLETE.						
Roofing in front	2	60	18	...	2,160	
Do. in rear	2	60	11	...	1,320	
Total, Sq. ft.					3,480	Sqrs. 35.
BAMBOO MATTING WITH BAMBOO REEPERS INCLUSIVE OF DOORS AND WINDOWS.						
Main building, all round	2	140	...	9	2,520	
Cross walls	2 × 5	10	...	9	900	
Gables	2 × 2	10	...	3½	140	
Total, Sq. ft.					3,560	Sqrs. 356.
BLOCK No. 5, SERVANTS' QUARTERS.						
GRAVEL-FILLING.						
Floors of quarters	2	30½	10½	...	641	
CASUARINA WOOD.						
Posts	2 × 8	10½	...	...	168	
Coupled trusses	2 × 4	36	...	...	288	
Bressummers	2 × 2	31	...	...	124	
Total, Rg. ft.					580	
THATCHED ROOFING WITH BAMBOO RAFTERS, REEPERS AND MATS, &c., COMPLETE.						
Roofing, front and rear	2 × 2	31	10	...	1,240	or Sqrs. 124.

Detailed Estimate for the Construction of a Plague Hospital—cont.

Detail of work.	Number.	Measurements in feet.			Area or contents.	Total quantity of each description of work.
		Length.	Breadth.	Depth.		
BLOCK No. 2, HOSPITAL ASSISTANT'S QUARTERS—cont.						
CASUARINA WOOD—cont.						
Coupled trusses	4	40			160	
Refters in front verandah	4	8½			34	
Do. inside verandah	3	9			27	
Do. in bath room	2	12			24	
Total, Rg. ft.					545	Rg. ft. 545.
THATCHED ROOFING WITH BAMBOO RAFTERS, REEPERS, AND MATS, &c., COMPLETE.						
Main building	2	28½	10½		599	
Bath room	1	6½	9½		62	
Verandah in front	1	13½	8		108	
Do. inside	1	14	6½		91	
Total, Sq. ft.					860	Sqrs. 860.
BAMBOO MATTING WITH BAMBOO REEPERS INCLUSIVE OF DOORS AND WINDOWS.						
Main building all round	1	68		10½	714	
Cross wall	1	12		10½	126	
Gables	2	12		4½	108	
Bath room, side	1	6		5½	33	
Do. ends	2	6		9	108	
Total matting, Sq. ft.					1,080	Sqrs. 1,080.
BLOCK No. 3, QUARTERS FOR NURSES.						
EARTHWORK.						
Excavating for foundation—retaining wall all round the quarters	1	83½		½	47	
Retaining wall round the bath rooms	2	15		½	16	
Filling in basement	1	24	16½	½	162	
Do. bath rooms	2	4½	4½	½	17	
Total, C. ft.					242	C. ft. 242.
CONCRETE IN CHENAM.						
Bath rooms, floor	2	4½	4½	½	14	C. ft. 14.
GRAVEL FILLING.						
Floor of Nurses' quarters	1	24	16½	½	130	C. ft. 130.
BRICK IN CLAY.						
Retaining wall all round	1	83½		½	94	
Do. in bath rooms	2	15		½	34	
Total, C. ft.					128	C. ft. 128.
PLASTERING WITH CEMENT.						
Basement all round	1	107½		½	81	
Bath rooms	2	6	6	½	72	
Top of basement	1	71½		½	54	
Total, Sqrs.					207	Sqrs. 207.
CASUARINA WOOD.						
Posts	6	14½			87	
Do. in verandah	3	9½			29	
Do. in bath rooms	4	8½			35	
Bressummers	3	25½			77	
Do. in bath rooms	2	6			12	
Coupled trusses	2	42			126	
Rafters	4	11			44	
Do. in verandah	3	10			30	
Total, Rg. ft.					442	Rg. ft. 442.

Detailed Estimate for the Construction of a Plague Hospital—cont.

Detail of work.	Number.	Measurements in feet.			Area or contents.	Total quantity of each description of work.
		Length.	Breadth.	Depth.		
BLOCK No. 3, QUARTERS FOR NURSES—cont.						
THATCHED ROOFING WITH BAMBOO RAFTERS, REEPERS AND MATS, &c., COMPLETE.						
Roofing in front	1	26	19	...	494	
Do. in rear	1	26	11	...	286	
Do. over bath-rooms	2	7	8½	...	119	
Total, Sq. ft.	...	...	...	...	899	or Sqrs. 9.
BAMBOO MATTING WITH BAMBOO REEPERS INCLUSIVE OF DOORS AND WINDOWS.						
Main building, all round	1	72	...	10½	756	
Cross wall	1	12	...	10½	126	
Bath-rooms, side	2	6	...	6	72	
Do. ends	4	6	...	8½	204	
Gable ends	2	12	...	4½	108	
Total, Sq. ft.	...	...	...	...	1,266½	or Sqrs. 1266½.
BLOCK No. 4, QUARTERS FOR RELATIVES OF PATIENTS.						
GRAVEL-FILLING.						
Floors of quarters	2	60½	15½	½	938	C. ft. 938.
CASUARINA WOOD.						
Posts, large	2 × 14	...	13½	...	378	
Do. small	2 × 7	...	7½	...	105	
Coupled trusses	2 × 7	...	44	...	616	
Bressummers	3½	60	...	...	180	
Total, Rg. ft.	...	...	...	...	1,279	Rg. ft. 1,279.
THATCHED ROOFING WITH BAMBOO RAFTERS, REEPERS AND MATS, &c., COMPLETE.						
Roofing in front	2	60	18	...	2,160	
Do. in rear	2	60	11	...	1,320	
Total, Sq. ft.	...	...	...	...	3,480	Sqrs. 35.
BAMBOO MATTING WITH BAMBOO REEPERS INCLUSIVE OF DOORS AND WINDOWS.						
Main building, all round	2	140	...	9	2,520	
Cross walls	2 × 5	10	...	9	900	
Gables	2 × 2	10	...	3½	140	
Total, Sq. ft.	...	...	...	...	3,560	Sqrs. 356.
BLOCK No. 5, SERVANTS' QUARTERS.						
GRAVEL-FILLING.						
Floors of quarters	2	30½	10½	...	641	
CASUARINA WOOD.						
Posts	2 × 8	...	10½	...	168	
Coupled trusses	2 × 4	36	...	...	288	
Bressummers	2 × 2	31	...	...	124	
Total, Rg. ft.	...	...	...	...	580	
THATCHED ROOFING WITH BAMBOO RAFTERS, REEPERS AND MATS, &c., COMPLETE.						
Roofing, front and rear	2 × 2	31	10	...	1,240	or Sqrs. 124.

Detailed Estimate for the Construction of a Plague Hospital—cont.

Statement for the Construction of a Plague Hospital—cont.						
Detail of work.	Num-ber.	Measurements in feet.			Area or contents.	Total quantity of each description of work.
		Length.	Breadth.	Depth.		
BLOCK No. 5, SERVANTS' QUARTERS—cont.						
BAMBOO MATTING WITH BAMBOO REEPERS INCLUSIVE OF DOORS AND WINDOWS.						
Building, all round	...	...	...	...	...	...
Cross walls	2	80	...	7	1,120	...
Gables at ends	2 × 2	10	...	7	280	...
	2 × 2	10	...	3½	140	...
Total, Sq. ft.	...	...	...	...	1,540	Sqrs. 15.4.
BLOCK No. 6, SWEEPERS' SHED.						
GRAVEL-FILLING.						
Floor of shed	1	40½	8½	...	344	C. ft. 344.
CASUARINA WOOD.						
Posts	10	10½	...	...	95	...
Bresssummers	2	41	...	...	82	...
Coupled trusses	5	30	...	...	150	...
Total, Rg. ft.	...	...	...	...	327	Rg. ft. 327.
THATCHED ROOFING WITH BAMBOO RAFTERS, REEPERS AND MATS, &c., COMPLETE.						
Roofing in front and rear	2	41	8½	...	697	Sqrs. 7.
BAMBOO MATTING WITH BAMBOO REEPERS INCLUSIVE OF DOORS AND WINDOWS.						
Walling, all round	1	96	...	...	624	...
Do. cross	3	8	...	6½	156	...
Do. gables	2	8	...	3	48	...
Total, Sq. ft.	...	...	...	...	828	Sqrs. 8.28.
BLOCK No. 7, DISINFECTING PLATFORM.						
EARTHWORK.						
Excavating for foundation retaining wall, all round	1	41	...	...	23	...
Filling in basement	1	10½	8½	...	37	...
Cess-pool	1	3	2½	2	14	...
Total, C. ft.	...	...	...	...	74	C. ft. 74.
CONCRETE IN CHUNAM.						
Floor of room	1	10½	8½	...	30	...
Cess-pool	1	3	3	1	7	...
Total, C. ft.	...	...	...	...	37	C. ft. 37.
BRICK IN CHUNAM.						
Retaining wall, all round	1	41	...	...	46	...
Cess-pool	1	6	...	1½	9	...
Do.	1	3	...	1½	3	...
Total, C. ft.	...	...	...	...	58	C. ft. 58.
PLASTERING WITH CEMENT.						
Basement, all round	1	48½	...	...	36	...
Inside of cess-pool	1	4½	...	...	9	...
Top and floor of cess-pool	1	3	2½	2	7	...
Floor of room	1	12	10	...	120	...
Total, Sq. ft.	...	...	...	...	172	Sqrs. 17½.

Detailed Estimate for the Construction of a Plague Hospital—cont.

Detail of work.	Number.	Measurements in feet.			Area or contents.	Total quantity of each description of work.
		Length.	Breadth.	Depth.		
BLOCK No. 8, MORTUARY.						
EARTHWORK.						
Excavating for foundations retaining wall, all round	1	57	$2\frac{1}{2}$		32	
Filling in basement	1	$18\frac{1}{2}$	$8\frac{1}{2}$		98	
Total, C. ft.					130	C. ft. 130.
CONCRETE IN CHUNAM.						
Floor of rooms	1	$18\frac{1}{2}$	$8\frac{1}{2}$	$\frac{1}{2}$	52	C. ft. 52.
BRICK IN CHUNAM.						
Retaining wall	1	57	$\frac{1}{2}$	$1\frac{1}{2}$	64	C. ft. 64.
PLASTERING WITH CEMENT.						
Basement, all round		60		$\frac{3}{4}$	45	
Floor	1	20	10		200	
Total, Sq. ft.					245	Sqrs. $4\frac{1}{2}$.
CASUARINA WOOD.						
Posts	6	$12\frac{1}{2}$			77	
Coupled trusses	3	35			105	
Bressummers	2	21			42	
Total, Rg. ft.					224	Rg. ft. 224.
THATCHED ROOFING WITH BAMBOO RAFTERS, REEPERS AND MATS, &c., COMPLETE.						
Roofing, both sides		21	$10\frac{1}{2}$		441	Sqrs. $4\frac{1}{2}$.
WALLING WITH CORRUGATED IRON SHEET.						
Walls exclusive of doors		$5\frac{1}{2}$		$2\frac{1}{2}$	135	
Cross wall		10		$2\frac{1}{2}$	25	
Total, Sq. ft.					160	lb. $\times 156 = 25$ Cwt.
BAMBOO MATTING WITH BAMBOO REEPERS INCLUSIVE OF DOORS AND WINDOWS.						
Walls, all round	1	60		$6\frac{1}{2}$	390	
Cross wall	1	10		$6\frac{1}{2}$	65	
Gables	2	10		4	80	
Total, Sq. ft.					535	Sqrs. 5.35.
BLOCK No. 9, HOSPITAL COOK ROOM, 20' $\times$ 8½.						
BRICKWORK IN CLAY.						
Wall in sides and rear of fire-place	1	$27\frac{1}{2}$	$\frac{1}{2}$	3	62	
Fire-place	1	20	$1\frac{1}{2}$	$\frac{1}{2}$	22	
Total, C. ft.					84	C. ft. 84.
BRICKWORK IN CHUNAM.						
Cess-pool	1	3	$3\frac{1}{2}$	3	27	
Sunk	1	3	$2\frac{1}{2}$	$\frac{1}{2}$	4	
Total, C. ft.					31	
Deduct races		$1\frac{1}{2}$	$1\frac{1}{2}$	2	5	
Total less deductions, C. ft.					26	C. ft. 26.

Detailed Estimate for the Construction of a Plague Hospital—cont.

Detail of work.		Num-ber.	Measurements in feet.			Area or Contents.	Total quantity of each description of work.
			Length.	Breadth.	Depth.		
BLOCK No. 9, HOSPITAL COOK ROOM, 20' X 8'—cont.							
EARTH-FILLING.							
Floor	...	1	22	8½	94	C. ft. 94.	
PLASTERING WITH CEMENT, ½" thick							
Cesspool, top and floor	...	1	3	3	9		
Sides, inside	...	1	6	0	12		
Do. outside	...	1	9	0	18		
Sink	...	1	3	2½	7½		
Total, Sq. ft.	...				36	Sqrs. 36.	
CASUARINA WOOD.							
Posts	...	8	10½		84		
Bressummers	...	2	22		44		
Coupled trusses	...	4	31		124		
Total, Rg. ft.	...				252	Rg. ft. 252.	
THATCHED ROOFING WITH BAMBOO RAFTERS, REEPERS AND MATS, &c., COMPLETE.							
Roof, both sides	...	2	22	9	396	Sqrs. 4.	
BAMBOO MATTING WITH BAMBOO REEPERS INCLUSIVE OF DOORS AND WINDOWS.							
Wall in front and sides	...	1	31½		205		
Do. in rear sides	...	1	27½		110		
Gables	...	2	8		56		
Total, Sq. ft.	...				371	Sqrs. 371.	
BLOCK No. 10, COOK ROOM							

BLOCK No. 10, COOK ROOM, 10' x 6' FOR THE HOSPITAL ASSISTANT.

EARTH-FILLING.						
Raising the floor	1	10½	6½		34	C. ft. 34.
BRICK WORK IN CLAY.						
Wall in rear and sides of fire-place	1	15	3		34	
Fire-place	1	8½	1½	3	10	
Total, C. ft.					44	C. ft. 44.
BRICK IN CHUNAM.						
Cess-pool	1	3	3		27	
Sink	1	3	2½		4	
Total, C. ft.					31	
Deduct recess	1	1½	1½	2	5	
Total less deductions, C. ft.					26	C. ft. 26.
PLASTERING WITH CEMENT, ½" thick.						
Cess-pool, top and floor	1	3	3		9	
Sides, inside	1	6	0	2	12	
Do. outside	1	9	0	2	18	
Sink	1	3	2½		7½	
Total, Sq. ft.					36	Sqrs. 36.

Detailed Estimate for the Construction of a Plague Hospital—cont.

Detail of work.		Num-ber.	Measurements in feet.			Area or contents.	Total quantity of each description of work.
			Length.	Breadth.	Depth.		
BLOCK No. 10, COOK ROOM, 10'x6', FOR THE HOSPITAL ASSISTANT -cont.							
CASUARINA WOOD.							
Posts	...	4	10½				
Bressummers	...	2	11			42	
Coupled trusses	...	2	22			22	
Total, Rg. ft.	...					44	
THATCHED ROOFING WITH BAMBOO RAFTERS, REEPERS AND MATS, &c., COMPLETE.							Rg. ft. 108
Roof, both sides	...	2	11	7½		165	Sqrs. 165
BAMBOO MATTING WITH BAMBOO REEPERS, INCLUSIVE OF DOORS AND WINDOWS.							
Wall in front and sides	...	1	16		6½	104	
Do. in rear do.	...	1	16		3½	56	
Gables	...	2	6		3	36	
Total, Sq. ft.	...					196	Sqrs. 2
BLOCK No. 10-A, COOK ROOM, 12'x6', FOR NURSES.							
EARTH FILLING.							
Raising the floor	...	1	12½	6½		41	C. ft. 41
BRICK WORK IN CLAY.							
Wall in rear and sides of fire-places	...	1	17	3		38	
Fire-place	...	1	10½	1½	3	12	
Total, C. ft.	...					50	C. ft. 50
BRICK IN CHUNAM.							
Cesspool	...	1	3	3		27	
Sink	...	1	3	2½	3	4	
Total	...					31	
Deduct recess	...	1	1½	1½	2		
Total less deduction, C. ft.	...						C. ft. 26
PLASTERING WITH CEMENT, ½" THICK.							
Cesspool, top and floor	...	1	3	3		9	
Sides, inside	...	1	6		2	12	
Do. outside	...	1	9		2	7	
Sink	...	1	3	2½		8	
Total, S. ft.	...					36	Sqrs. 36
CASUARINA WOOD.							
Post	...	4	10½			42	
Bressummers	...	2	13			26	
Coupled trusses	...	2	22			44	
Total, Rg. ft.	...					112	Rg. ft. 112
THATCHED ROOFING WITH BAMBOO RAFTERS, REEPERS AND MATS, &c., COMPLETE.							
Roof, both sides	...	2	13	7½		195	or Sqrs. 20
BAMBOO MATTING WITH BAMBOO REEPERS, INCLUSIVE OF DOORS AND WINDOWS.							
Wall in front and sides	...	1	18		6½	117	
Do. rear do.	...	1	18		3½	63	
Gables	...	2	6		3	36	
Total, Sq. ft.	...					216	or Sqrs. 216

Detailed Estimate for the Construction of a Plague Hospital—cont.

Detail of work.	Num-ber.	Measurements in feet.			Area or contents.	Total quantity of each description of work.
		Length.	Breadth.	Depth.		
BLOCK No. 10-B, COOK ROOM, 15' X 6", FOR RELATIVES OF PATIENTS.						
EARTH FILLING.						
Raising the floor	1	15½	6½	½	50	C. ft. 50
BRICKWORK IN CLAY.						
Wall in rear and sides of fire-place	1	20	¾	3	45	
Fire-place	1	19½	1½	¾	15	
Total, C. ft.					60	C. ft. 60
BRICK IN CHUNAM.						
Cesspool	1	3	3	¾	27	
Sink	1	3	2½	¾	4	
Total					31	
Queduct recess	1	1½	1½	2	5	
Total less deduction, C. ft.					26	C. ft. 26
PLASTERING WITH CEMENT, ½" THICK.						
Cesspool, top and floor	1	3	3		9	
Sides, inside	1	6		2	12	
Do. outside	1	9		¾	7	
Sink	1	3	2½		8	
Total, Sq. ft.					36	or Sqrs. 36
CASUARINA WOOD.						
Post	4	10½			42	
Bressummers	2	16			32	
Coupled trusses	2	22			44	
Total, Rg. ft.					118	Rg. ft. 118
THATCHED ROOFING WITH BAMBOO RAFTERS, REEFERS AND MATS, &c., COMPLETE.						
Roof, both sides		16	7½		240	or Sqrs. 24
BAMBOO MATTING WITH BAMBOO REEFERS, INCLUSIVE OF DOORS AND WINDOWS.						
Wall in front and sides	1	21		6½	187	
Do. in rear do.	1	21		3½	74	
Gables	2	6		3	36	
Total, Sq. ft.					247	or Sqrs. 25

BLOCK No. 11, BATH-ROOM.

EXCAVATION EARTHWORK.						
Walls, all round	1	21' 0"	0' 9"	0' 9"	12	
Filling in the basement	1	4' 6"	4' 6"	0' 4½"	8	
Total, C. ft.					20	C. ft. 20
CONCRETE IN CHUNAM.						
Under floor of bath-room	1	4' 6"	4' 6"	0' 4½"	8	
Do. of cesspool	1	3	3	¾	7	
Total, C. ft.						C. ft. 15

Detailed Estimate for the Construction of a Plague Hospital—cont.

Detail of work.	Number.	Measurement in feet.			Area or contents.	Total quantity of each description of work.
		Length.	Breadth.	Depth.		
BLOCK No. 11, BATH-ROOM—cont.						
BRICK IN CLAY.						
Walls, all round	1	21' 0"	0' 9"	1' 6"	24	C. ft. 24.
PLASTERING WITH CEMENT, $\frac{1}{2}$ " THICK.						
Basement, all round	1	24' 0"	...	0' 9"	18	
Top of floor	1	6' 0"	6' 0"	...	36	
Top and floor	1	3	2 $\frac{1}{4}$	2 $\frac{1}{4}$	7	
Side, inside	1	6	...	2 $\frac{1}{4}$	14	
Do. outside	1	7 $\frac{1}{4}$	...	1	6	
Total, S. ft.	...	...	...	...	81	Sqrs. 81.
CASUARINA WOOD.						
Post at corners	4	9' 9"	...	...	39	
Bressummers, all round	1	28' 0"	...	...	28	
Hip rafters	4	7' 0"	...	...	28	
Total, Rg. ft.	...	...	...	...	95	Rg. ft. 95.
BAMBOO MAT WITH BAMBOO REEFERS INCLUSIVE OF DOORS AND WINDOWS.						
All round the room	1	28' 0"	...	7' 0"	196	Sqrs. 20.
ROOFING, THATCHED.						
Front rear and sides	4	4' 6"	6' 0"	...	108	Sqrs. 108.
Cuddapah slab stone	1	1 0	1 0	0' 2"	$\frac{1}{2}$	C. ft. 1.
BRICK IN CHUNAM.						
Wall around	1	6	3	2 $\frac{1}{4}$	10	
Wall side	1	3	...	$\frac{1}{4}$	2	
Total, C. ft.	...	...	...	...	12	C. ft. 12.
BLOCK No. 12, LATRINE.						
EARTHWORK.						
Excavating for foundation wall around	1	30	6 $\frac{1}{2}$	1 $\frac{1}{2}$	17	
For concrete foundation and retaining wall	1	3	3	1 $\frac{1}{2}$	11	
Cesspool	1	...	...	...	14	
Total, C. ft.	...	...	...	...	42	C. ft. 42.
BRICK IN CHUNAM.						
Retaining wall, all round	1	30	6	1 $\frac{1}{2}$	34	
Cesspool	...	3	...	...	10	
Do.	...	...	...	...	2	
Total, C. ft.	...	...	...	...	46	C. ft. 46.
CONCRETE IN CHUNAM.						
Between retaining wall	1	9	4 $\frac{1}{2}$	...	30	
Under seats of drain	1	6 $\frac{1}{2}$	2 $\frac{1}{2}$	...	11	
Under cesspool	1	3	3	...	7	
Total, C. ft.	...	...	...	...	48	C. ft. 48.

Detailed Estimate for the Construction of a Plague Hospital—cont

Detail of work.	Num-ber.	Measurement in feet.			Area or contents.	Total quantity of each description of work.
		Length.	Breadth.	Depth.		
BLOCK NO. 12, LATRINE— <i>cont.</i>						
PLASTERING WITH CEMENT, $\frac{1}{2}$ " THICK.						
Basement, all round	1	33	...	...	25	Sqrs. 1-23.
Flooring	1	10 $\frac{1}{2}$	6	...	63	
Drain	1	7 $\frac{1}{2}$	1	...	8	
Cesspool, top and floor	1	3	2 $\frac{1}{2}$	...	7	
Do. inside	1	6	...	2 $\frac{1}{2}$	14	
Do. outside	1	7 $\frac{1}{2}$	...	...	6	
Total, Sq. ft.	...	...	...	...	123	
CASUARINA WOOD.						
Posts	4	9 $\frac{1}{2}$	...	...	38	Rg. ft. 102.
Bressummers	2	11	...	...	22	
Coupled trusses	2	21	...	...	42	
Total, Rg. ft.	...	...	...	...	102	
* THATCHED ROOFING WITH BAMBOO RAFTERS, REEPERS AND MATS, &c., COMPLETE.						
Roofing both sides	2	11	7 $\frac{1}{2}$	...	165	Sqrs. 1-65.
BAMBOO MATTING WITH BAMBOO REEPERS INCLUSIVE OF DOORS AND WINDOWS.						
Wall, all round	1	30	...	6 $\frac{1}{2}$	205	Sqrs. 2-39.
Screens	3	3	...	4	36	
Total, Sq. ft.	...	...	...	...	239	

for Plague Commissioner.

To the President, Municipal Commission, Madras,
with 30 spare copies of the hints and plans 2 and 3,
in supersession of the copies already sent.

Copy to all Collectors except Madras (A—K). *with 3 copies each of plans.*
" the Sanitary Commissioner.
" the Surgeon-General.
" the Secretary to Government, Local and Municipal Department.

*No. 2481 of today
They were sent
to you yesterday.
(26-10-98)
W. S. C.
27-10-98*

To The Plague Commr.

NOTE FOR THE Sanitary Commr.

The plans and lists to
accompany the new rules regarding
private plague hospitals
have not yet been received.
Will you kindly expedite
them?

*M. S. C.
Plague Commr.*

*Lim.
26/10/98*

E.



PLAGUE COMMISSIONER'S OFFICE.

(1898)

CURRENT No.

776

From

The Sanitary Commissioner
Madras

Order

No.

Dated 26-10-1898

Received 26-10-1898

Registered 26-10-1898

Enclosures 7 (3 plans)

Spare copies

SUBJECT.

Forwarding caste
plague hospital rules
and plans.

BACK PAPERS.

No.	Date.

FURTHER PAPERS.

No.	Date.

Dr. J. C. ...
approval.

As regards the plan
please see the note
of the Sanitary
Commissioner which
is placed below
the proof.

MS
7/10/10

(Print & send
30 copies to Sanitary Commission
& 2 cpy to Mr. C. J. ...
Copy to Govt. ...
7.2.10)

Sent 30 copies
of the 'Outfit' only.

... see if on
... we get to know
... we must
... send a fair

19 + 9

copy
to file
today
20/10

copies are available in office

NOTE FOR THE Sanitary Comm.

Kindly expedite the plan
& lists referred to in the
rules regarding private
hospitals in Madras
sent to 30 advance
of these rules to the
Municipal Commission

W. Hammett
Sanitary Comm.



Hints as regards the Provision of Private Plague Hospital Accommodation.

1. Three means of providing private plague hospital accommodation exist :
 - (a) Temporary sheds can be erected to suit the purpose on ground sites to be approved of by the Sanitary Commissioner.
 - (b) Houses may be taken up, such houses having been approved of for the purpose by the Sanitary Commissioner.
 - (c) A site can be selected and materials for hospital sheds collected ready for use at a moment's notice.
2. To save initial expense and at the same time to provide suitable accommodation, the Plague Commissioner would suggest that, wherever possible, arrangements may be made by a sub-committee to select suitable houses, either unoccupied, or houses which can be vacated for occupation in a few hours. The Plague Commissioner should be furnished with the addresses of such houses. He will then arrange to have them examined and reported upon by the Sanitary Commissioner. It is, however, pointed out that buildings will almost always require some alteration to fit them as hospitals. It would probably save much expense and much reduplication of staff if committees would unite to form one large private caste hospital for the north and one for the south, carefully equipped. A central committee elected by divisional committees and containing one member from each such committee might be formed to carry out two large central caste hospitals. Afterwards, if the plague attacked divisions one after another in force, separate divisional hospitals would no doubt be necessary.
3. The chief points about such houses are these :—
 - (a) It should have a compound. This need not be large, but it should be sufficient to prevent any chance of contact with the neighbouring houses.
 - (b) There should be a supply of Red Hills pipe water either laid on at the house or within 50 yards of it.
 - (c) The room in the house should be well ventilated and of considerable height.
 - (d) If possible, there should either be godowns in the compound or room available for the erection of sheds in the compound for families and attendants of patients.
 - (e) Each patient should be allowed 144 square feet and 2,000 cubic feet. If ventilation is not suitable, structural alterations will be required to secure it.
4. If, instead of obtaining the use of houses, which, in most cases, will probably be very difficult, temporary shed hospitals are preferred, arrangements should be made, as soon as possible, to fix the sites of such hospitals and to report on the matter to the Plague Commissioner, who will obtain the Sanitary Commissioner's opinion on the sites.
5. In choosing a site, the following points should be noticed :—
 - (a) The site should be as near as possible to the locality inhabited by the people for whom it is intended.
 - (b) The site should, if possible, be on gravelly dry soil and as free from vegetation as possible.
 - (c) The site should be close to a supply of Red Hills water.

Drugs—cont.

Pulvis ipecac.	..	..	oz.	$\frac{1}{2}$
Pulv. ipecac. co.	..	..	..	$\frac{1}{2}$
Pulv. jalap co.	..	..	..	1
Quinine sulphatis	..	..	..	$\frac{1}{2}$
Santonin	..	..	..	$\frac{1}{8}$
Soda bicarbonas	..	..	..	3
Spt. aetheris nitrosi	..	..	..	8
Spt. ammonia aromatici	..	..	..	8
Spt. of wine, methylated	..	..	..	4
Spt. vini rectificat.	..	..	..	4
Tinct. assafoetid.	..	..	..	2
Tinct. card. co.	..	..	..	2
Tinct. digitalis	..	..	..	1
Tinct. hamamelis	..	..	..	1
Tinct. hyoscyami	..	..	..	1
Tinct. nucis vom.	..	..	..	2
Tinct. opii	..	..	..	2
Vaseline	..	..	lb.	$\frac{1}{2}$

Stores.

Kerosine oil (125°)	..	..	tin	1
Firewood	..	..	(gallons 6)	
Charcoal	..	..	All bits.	
Arrowroot	..	..	..	lb. 2
Anglo-Swiss condensed milk (milkmaid brand)	..	..	..	tins 3
Sugar	..	..	..	lb. 1
Whiskey	..	..	..	bot. 1
Arrack	..	..	..	bots. 2
Kitchen towels	..	..	..	no. 6

For Medical Subordinate.

Cots (bed and pillow)	..	..	no.	2
Washstand (complete with enamel basin, &c.)	..	..	..	2
Towel rack	..	..	..	1
Table	..	..	..	1
Chair	..	..	..	1

Dispensary Furniture.

Shelf for drugs and appliances	..	..	no.	1
Box with lock and key for poisons	..	..	..	1
Dispensary table	..	..	..	1
Writing table	..	..	..	1
Chair	..	..	..	1
Washstand (complete with enamel basin, &c.)	..	..	..	1
Towel rack	..	..	..	1
Towels	..	..	..	1
Tin kettle	..	..	..	3

Blank folio books.	..	..	..	..
Admission register.	..	..	..	..
Case book.	..	..	..	..
Stock book.	..	..	..	..
Miscellaneous expenditure book.	..	..	..	..
Return book.	..	..	..	..

Ink	..	..	..	..
Pens	..	..	..	..
Pins	..	..	..	..
Stationery	..	..	..	..

The above estimate has been framed in response to a demand made by certain committees for information as to the various appliances and drugs that should be purchased and kept ready for a caste hospital on the smallest feasible scale. It is not implied, therefore, that there are not drugs that might usefully be added to the above list; as soon as patients were received in the hospital, the medical officer† in charge would be entitled to make a further indent for medicines† that though useful are yet probably not so urgently required as those above enumerated. Such an indent might, however, reasonably be confined to the drugs and appliances, &c., stated in list B.*

STAFF.

In the matter of expenditure on account of staff, it would not be found advantageous to open hospitals with so limited accommodation as five beds. The nursing attendance that must be rendered to patients in the grave condition usual in plague is of a peculiarly harassing nature; therefore, unless circumstances such as the limited number of the caste, the nature of the site available, or the funds at disposal, forbid, it is advisable that accommodation for not less than ten beds in one locality be provided, because to secure effective nursing, and reasonable hours of rest, in practice, the staff for nursing five patients should be as complete as for nursing ten. However, following the principle of securing that which is essential before the appearance of plague, and trusting to expanding the scope subsequently, as has been suggested above in the case of supply of medicine, it may

* Will follow.

† It is, of course, to be distinctly understood that these notes convey mere suggestions, and that, if the committees so elect, none but drugs commonly used by natives, hakims or vydians need be made ready. Similarly, the medical men employed need not be versed in European methods of treatment.

be held that the following staff should be kept in readiness for a hospital for five (say, three males and two females) and not exceeding ten patients:—

1 qualified nurse.
2 male ward attendants.
1 female ward attendant.
1 male toty.
1 female toty.
1 cook.

1 waterman.
1 dhoby.
1 hospital assistant.
Police guard to be estimated for by the Police officer responsible in each locality.

CONSTRUCTION OF CASTE HOSPITALS (TEMPORARY STRUCTURES).

As a rule, it is advised that the unit for hospital construction and administration be a twenty-bed hospital. This is an arrangement found to have worked well in Bombay, where scales for staffs, equipment and drugs followed closely the lines advised in lists *B and C. From information thus supplied, committees can readily frame estimates in relation to the number of beds for which they wish to make provision.

Annexed is a site plan showing the arrangement for a hospital of twenty beds—a "one-section hospital." Following this terminology, a ten-bed hospital would be a half-section hospital.

Plan * No. I (a modification of that designed by Mr. James, C.E., of Bombay) is arranged with the object of economizing space as much as possible. When, however, more ground is at disposal, it would be advisable to allow considerably greater intervals between the buildings. It is not often in this Presidency that materials for temporary wards, 24 feet broad, can be obtained cheaply; hence, it would usually be found cheaper to make hospitals suitable for a single row of beds. Plan * No. II shows the character of buildings suggested. The purpose of each structure is stated on the plan so as to prevent unnecessary description.

MATERIALS.

The sheds ordinary would be built of bamboos, bamboo matting with paddy straw or cadjan leaves roofing. Beams or old iron rails may, under certain circumstances, offer advantages of economy and durability. Without going into details of structure of temporary buildings, which are doubtless familiar to members of committees, the following general points are worthy of consideration:—

(a) Experience shows that well-built temporary sheds, with occasional repairs, will last seven or more years. Sheds hastily put up on the theory that any rough structure will suffice will, in the end, prove very expensive. Sheds with crooked and thin bamboos, with matting little thicker than brown paper, such as a contractor usually considers himself justified in giving for the money paid him, are a source of annoyance and discomfort to patients and medical staff alike and of endless expense in effecting repairs. Committees are, therefore, strongly advised to use material that may reasonably be expected to protect patients from sun and rain, and will not stand in need of much repair for two years.

(b) All structures intended for dwellings should be provided with basements. Rammed gravel of 9 inches will suffice for the purpose; but, wherever funds are available, it will contribute much to the sanitary safety and comfort of staffs and patients if the plinth be built with brick in mud—the interior filling being of gravel upon which concrete plastered with cement should be laid to form a flooring—vide sections in annexed plan * No. II. If an impervious flooring be thus provided, it should have a gentle slope towards a shallow "saucer drain" made in the cement plaster, which would lead to a small impervious reservoir immediately outside the wall.

(c) Bathing platforms should be of brick or concrete cement-plastered, leading to cement-lined reservoirs. These spaces need not be elevated above the surface of the ground more than 3 or 4 inches, but should be provided with a

* Will follow.

Drugs—cont.

Pulvis ipecac.	..	..	oz.	$\frac{1}{2}$
Pulv. ipecac. co.	..	..	..	$\frac{1}{2}$
Pulv. jalap co.	..	..	..	1
Quinine sulphatis	..	..	..	$\frac{1}{2}$
Santonin	..	..	..	$\frac{1}{2}$
Soda bicarbonas	..	..	..	3
Spt. aetheris nitrosi	..	..	..	8
Spt. ammonia aromati	..	..	..	8
Spt. of wine, methylated	..	..	..	4
Spt. vini rectificat.	..	..	..	4
Tinct. assafoetid.	..	..	..	2
Tinct. card. co.	..	..	..	2
Tinct. digitalis	..	..	..	1
Tinct. hamamelis	..	..	..	1
Tinct. hyoscyami	..	..	..	1
Tinct. nucis vom.	..	..	..	2
Tinct. opii	..	..	..	2
Vaseline	..	..	lb.	$\frac{1}{4}$

Stores.

Kerosine oil (125°)	..	..	tin	1
Firewood	..	..	(gallons 6)	
Charcoal	..	..	All bits.	
Arrowroot	..	..	lb.	2
Anglo-Swiss condensed milk (milkmaid brand)	..	..	tins	3
Sugar	..	..	lb.	1
Whiskey	..	..	bot.	1
Arrack	..	..	bots.	2
Kitchen towels	..	..	no.	6

For Medical Subordinate.

Cots (bed and pillow)	..	..	no.	2
Washstand (complete with enamel basin, &c.)	..	..	..	2
Towel rack	..	..	..	1
Table	..	..	..	1
Chair	..	..	..	1

Dispensary Furniture.

Shelf for drugs and appliances	..	..	no.	1
Box with lock and key for poisons	..	..	..	1
Dispensary table	..	..	..	1
Writing table	..	..	..	1
Chair	..	..	..	1
Washstand (complete with enamel basin, &c.)	..	..	..	1
Towel rack	..	..	..	1
Towels	..	..	..	3
Tin kettle	..	..	..	1

Admission register.	..	..	..	..
Case book.	..	..	..	..
Stock book.	..	..	..	..
Miscellaneous expenditure book.	..	..	..	..
Return book.	..	..	..	..
Blank folio books.	..	..	..	..
Ink	..	..	..	..
Pens	..	..	..	..
Pins	..	..	..	..
Stationery	..	..	..	..

The above estimate has been framed in response to a demand made by certain committees for information as to the various appliances and drugs that should be purchased and kept ready for a caste hospital on the smallest feasible scale. It is not implied, therefore, that there are not drugs that might usefully be added to the above list; as soon as patients were received in the hospital, the medical officer† in charge would be entitled to make a further indent for medicines† that though useful are yet probably not so urgently required as those above enumerated. Such an indent might, however, reasonably be confined to the drugs and appliances, &c., stated in list B.*

STAFF.

In the matter of expenditure on account of staff, it would not be found advantageous to open hospitals with so limited accommodation as five beds. The nursing attendance that must be rendered to patients in the grave condition usual in plague is of a peculiarly harassing nature; therefore, unless circumstances such as the limited number of the caste, the nature of the site available, or the funds at disposal, forbid, it is advisable that accommodation for not less than ten beds in one locality be provided, because to secure effective nursing, and reasonable hours of rest, in practice, the staff for nursing five patients should be as complete as for nursing ten. However, following the principle of securing that which is essential before the appearance of plague, and trusting to expanding the scope subsequently, as has been suggested above in the case of supply of medicine, it may

* Will follow.

† It is, of course, to be distinctly understood that these notes convey mere suggestion and that, if the committees so elect, none but drugs commonly used by natives, bakims or vydians need be made ready. Similarly, the medical men employed need not be versed in European methods of treatment.

be held that the following staff should be kept in readiness for a hospital for five (say, three males and two females) and not exceeding ten patients:—

1 qualified nurse.
2 male ward attendants.
1 female ward attendant.
1 male toty.
1 female toty.
1 cook.

1 waterman.
1 dhoby.
1 hospital assistant.
Police guard to be estimated for by the Police officer responsible in each locality.

CONSTRUCTION OF CASTE HOSPITALS (TEMPORARY STRUCTURES).

As a rule, it is advised that the unit for hospital construction and administration be a twenty-bed hospital. This is an arrangement found to have worked well in Bombay, where scales for staffs, equipment and drugs followed closely the lines advised in lists *B and C. From information thus supplied, committees can readily frame estimates in relation to the number of beds for which they wish to make provision.

Annexed is a site plan showing the arrangement for a hospital of twenty beds—a "one-section hospital." Following this terminology, a ten-bed hospital would be a half-section hospital.

Plan * No. I (a modification of that designed by Mr. James, C.E., of Bombay) is arranged with the object of economizing space as much as possible. When, however, more ground is at disposal, it would be advisable to allow considerably greater intervals between the buildings. It is not often in this Presidency that materials for temporary wards, 24 feet broad, can be obtained cheaply; hence, it would usually be found cheaper to make hospitals suitable for a single row of beds. Plan * No. II shows the character of buildings suggested. The purpose of each structure is stated on the plan so as to prevent unnecessary description.

MATERIALS.

The sheds ordinary would be built of bamboos, bamboo matting with paddy straw or cadjan leaves roofing. Beams or old iron rails may, under certain circumstances, offer advantages of economy and durability. Without going into details of structure of temporary buildings, which are doubtless familiar to members of committees, the following general points are worthy of consideration:—

(a) Experience shows that well-built temporary sheds, with occasional repairs, will last seven or more years. Sheds hastily put up on the theory that any rough structure will suffice will, in the end, prove very expensive. Sheds with crooked and thin bamboos, with matting little thicker than brown paper, such as a contractor usually considers himself justified in giving for the money paid him, are a source of annoyance and discomfort to patients and medical staff alike and of endless expense in effecting repairs. Committees are, therefore, strongly advised to use material that may reasonably be expected to protect patients from sun and rain, and will not stand in need of much repair for two years.

(b) All structures intended for dwellings should be provided with basements. Rammed gravel of 9 inches will suffice for the purpose; but, wherever funds are available, it will contribute much to the sanitary safety and comfort of staffs and patients if the plinth be built with brick in mud—the interior filling being of gravel upon which concrete plastered with cement should be laid to form a flooring—vide sections in annexed plan * No. II. If an impervious flooring be thus provided, it should have a gentle slope towards a shallow "saucer drain" made in the cement plaster, which would lead to a small impervious reservoir immediately outside the wall.

(c) Bathing platforms should be of brick or concrete cement-plastered, leading to cement-lined reservoirs. These spaces need not be elevated above the surface of the ground more than 3 or 4 inches, but should be provided with a

* Will follow.

Drugs—cont.

Pulvis ipecac.	..	..	oz.	1/2
Pulv. ipecac. co.	..	..	..	1
Pulv. jalap co.	..	..	..	1
Quinine sulphatis	..	..	..	1
Santonin	..	..	..	1
Soda bicarbonas	..	..	..	1
Spt. ætheris nitrosi	..	..	..	8
Spt. ammonia aromatiæ	..	..	..	8
Spt. of wine, methylated	..	..	..	4
Spt. vini rectificat.	..	..	..	4
Tinct. assafœtid.	..	..	..	2
Tinct. card. co.	..	..	..	2
Tinct. digitalis	..	..	..	1
Tinct. hamamelis	..	..	..	1
Tinct. hyoscyami	..	..	..	1
Tinct. nucis vom.	..	..	..	2
Tinct. opii	..	..	..	2
Vaseline	..	..	lb.	1/4

Stores.

Kerosine oil (125°)	..	..	tin	1
Firewood	..	..	(gallons 6)	
Charcoal	..	..	All bits.	
Arrowroot	..	..	..	
Anglo-Swiss condensed milk (milkmaid brand)	..	..	lb.	2
Sugar	..	..	tins	3
Whiskey	..	..	lb.	1
Arrack	..	..	bot.	1
Kitchen towels	..	..	bots.	2
	..	..	no.	6

For Medical Subordinate.

Cots (bed and pillow)	..	..	no.	2
Washstand (complete with enamel basin, &c.)	..	..	..	2
Towel rack	..	..	..	1
Table	..	..	..	1
Chair	..	..	..	1

Dispensary Furniture.

Shelf for drugs and appliances	..	..	no.	1
Box with lock and key for poisons	..	..	..	1
Dispensary table	..	..	..	1
Writing table	..	..	..	1
Chair	..	..	..	1
Washstand (complete with enamel basin, &c.)	..	..	..	1
Towel rack	..	..	..	1
Towels	..	..	..	1
Tin kettle	..	..	..	1

Blank folio books.	Admission register.
	Case book.
	Stock book.
	Miscellaneous expenditure book.
	Return book.
Ink	..
Pens	..
Pins	..
Stationery	..
	On indent.

The above estimate has been framed in response to a demand made by certain committees for information as to the various appliances and drugs that should be purchased and kept ready for a caste hospital on the smallest feasible scale. It is not implied, therefore, that there are not drugs that might usefully be added to the above list; as soon as patients were received in the hospital, the medical officer† in charge would be entitled to make a further indent for medicines† that though useful are yet probably not so urgently required as those above enumerated. Such an indent might, however, reasonably be confined to the drugs and appliances, &c., stated in list B.*

STAFF.

In the matter of expenditure on account of staff, it would not be found advantageous to open hospitals with so limited accommodation as five beds. The nursing attendance that must be rendered to patients in the grave condition usual in plague is of a peculiarly harassing nature; therefore, unless circumstances such as the limited number of the caste, the nature of the site available, or the funds at disposal, forbid, it is advisable that accommodation for not less than ten beds in one locality be provided, because to secure effective nursing, and reasonable hours of rest, in practice, the staff for nursing five patients should be as complete as for nursing ten. However, following the principle of securing that which is essential before the appearance of plague, and trusting to expanding the scope subsequently, as has been suggested above in the case of supply of medicine, it may

* Will follow.

† It is, of course, to be distinctly understood that these notes convey mere suggestion and that, if the committees so elect, none but drugs commonly used by natives, hakims or vydhias need be made ready. Similarly, the medical men employed need not be versed in European methods of treatment.

be held that the following staff should be kept in readiness for a hospital for five (say, three males and two females) and not exceeding ten patients:—

1 qualified nurse.
2 male ward attendants.
1 female ward attendant.
1 male toty.
1 female toty.
1 cook.

1 waterman.
1 dhoby.
1 hospital assistant.
Police guard to be estimated for by the Police officer responsible in each locality.

CONSTRUCTION OF CASTE HOSPITALS (TEMPORARY STRUCTURES).

As a rule, it is advised that the unit for hospital construction and administration be a twenty-bed hospital. This is an arrangement found to have worked well in Bombay, where scales for staffs, equipment and drugs followed closely the lines advised in lists *B and C. From information thus supplied, committees can readily frame estimates in relation to the number of beds for which they wish to make provision.

Annexed is a site plan showing the arrangement for a hospital of twenty beds—a "one-section hospital." Following this terminology, a ten-bed hospital would be a half-section hospital.

Plan * No. I (a modification of that designed by Mr. James, C.E., of Bombay) is arranged with the object of economizing space as much as possible. When, however, more ground is at disposal, it would be advisable to allow considerably greater intervals between the buildings. It is not often in this Presidency that materials for temporary wards, 24 feet broad, can be obtained cheaply; hence, it would usually be found cheaper to make hospitals suitable for a single row of beds. Plan * No. II shows the character of buildings suggested. The purpose of each structure is stated on the plan so as to prevent unnecessary description.

MATERIALS.

The sheds ordinary would be built of bamboos, bamboo matting with paddy straw or cadjan leaves roofing. Beams or old iron rails may, under certain circumstances, offer advantages of economy and durability. Without going into details of structure of temporary buildings, which are doubtless familiar to members of committees, the following general points are worthy of consideration:—

(a) Experience shows that well-built temporary sheds, with occasional repairs, will last seven or more years. Sheds hastily put up on the theory that any rough structure will suffice will, in the end, prove very expensive. Sheds with crooked and thin bamboos, with matting little thicker than brown paper, such as a contractor usually considers himself justified in giving for the money paid him, are a source of annoyance and discomfort to patients and medical staff alike and of endless expense in effecting repairs. Committees are, therefore, strongly advised to use material that may reasonably be expected to protect patients from sun and rain, and will not stand in need of much repair for two years.

(b) All structures intended for dwellings should be provided with basements. Rammed gravel of 9 inches will suffice for the purpose; but, wherever funds are available, it will contribute much to the sanitary safety and comfort of staffs and patients if the plinth be built with brick in mud—the interior filling being of gravel upon which concrete plastered with cement should be laid to form a flooring—vide sections in annexed plan * No. II. If an impervious flooring be thus provided, it should have a gentle slope towards a shallow "saucer drain" made in the cement plaster, which would lead to a small impervious reservoir immediately outside the wall.

(c) Bathing platforms should be of brick or concrete cement-plastered, leading to cement-lined reservoirs. These spaces need not be elevated above the surface of the ground more than 3 or 4 inches, but should be provided with a

* Will follow.

own houses, or in segregation camps. Temporary leave of absence may be given at any time if the District Surgeon is of opinion that the persons are of a class that may be trusted to keep their promise to return, provided disinfection of the body and of the clothing be previously conducted to the satisfaction of the District Surgeon.

Superior nursing and medical staffs will not be subjected to segregation, provided such measures be taken for disinfection of their bodies and clothing as may satisfy the District Surgeon.

Visitors to patients who have not handled the patient will be permitted to leave the hospital after disinfection with perchloride solution of their feet if bare, or of their boots if these be used. Menial servants may be allowed temporary leave of absence under the same rule as affects relatives of patients.

Medical, nursing and menial staffs shall wear shoes and "putties," or other efficient protection, for their feet during hours of duty.

GENERAL SANITARY PRECAUTIONS.

In each ward, solutions of lysol and of perchloride of mercury coloured with aniline blue should be kept in suitable bowls or basins for disinfection of the hands of the attendants.

Each patient should be provided with a suitable impervious spittoon, such as tarred "mullays," containing coloured solutions of perchloride of mercury.

Immediately outside of each ward should be kept a tub containing a coloured solution of the perchloride of mercury (1-1,000). Into this, all bedding and clothing, which it is not desired to destroy by fire, should be placed previous to sending them for final disinfection and washing.

Clothing and bedding, which it is intended the hospital dhoby should wash, should, on removal from the tubs, be again plunged into clean perchloride of mercury solution (1-1,000) for an hour. They should then be boiled for an hour previous to final washing. All rags and sweepings should be carefully burnt. Collection and subsequent burning of the latter may be facilitated by using carbonized sawdust.

Faecal matter both in the latrines and in bedpans should be received on disinfectants and should be deposited in a special closed receptacle. Kerosine iron drums with close-fitting lids will be found sufficiently convenient.

In hospitals of and about twenty beds, Field Silchar incinerators will offer convenient facilities for destruction of all infected matter, including faeces. Where destruction of faecal matter cannot be thus effected, committees should arrange for a special form of conservancy cart, which could receive the air-tight drums abovementioned containing faeces from one or more hospitals. The contents of each could be disposed of at points specially indicated by the municipality.

No. 2201.

Forwarded to the President, Municipal Commission, Madras, with 30 spare copies for distribution. Plans and lists referred to in the rules will follow.

October 18, 1898.

(Signed) M. HAMMICK,
Plague Commissioner.

Copy to all Collectors (A-2)
to be sent to the D. H. Dept.
to be sent to the
Sanitary Comm.

Handwritten notes and sketches on the right page:

Plan of Private Plague Hospital Accommodation - as per form

Sketch of Plague Hospital Accommodation - Exit

61. (a) needed to suit the purpose on ground sites
(b) Such houses having been approved & stored near the
(c) sanitary Comm.
and materials for Hospital sheds collected
To save
Accommodation at the same time to provide suitable
points, viz. women suggest that whereas
suitable houses by a sub-committee to select
occupied on houses which can be vacated for
the address Plague Comm. houses be furnished with
are then arrange to have them examined
& refuse
The Chief
(a) The houses are there -
(b) The
(c) The
(d) The
(e) The
(f) The
(g) The
(h) The
(i) The
(j) The
(k) The
(l) The
(m) The
(n) The
(o) The
(p) The
(q) The
(r) The
(s) The
(t) The
(u) The
(v) The
(w) The
(x) The
(y) The
(z) The

12. The sooner arrangements are made and reported upon to the Health Officer, Madras Municipality - or the Plague Commⁿ: the better -
13. In case Committees desire to employ European Medics in their Hospitals a list is appended showing the Medics considered necessary by the Sanitary Commⁿ: The list contains also the equipment really necessary for a Hospital of 5 beds
14. In case of death in Hospitals every possible precaution will be made to the relations of the deceased, as regards arrangements for burial. It is earnestly hoped that every possible precaution will be given to these rules and that every possible precaution will be taken to prevent the spread of further & false reports regarding the action of authorities in Plague matters.
15. The office of the Plague Commⁿ: is in the Secretariat building in the fort and he will be always glad to see any one wanting information on matters connected with Plague & to give every assistance within his power to those who desire to use private efforts in dealing with Plague cases
16. The earliest possible information should be given of the occurrence of any case of Plague. It is at the beginning of an epidemic that our best chance lies and if the public will assist the authorities in the early report of first cases and in carrying out of the approved efficient measures at the beginning, there is considerable hope that as has been done in Calcutta we may be able to head off what the disease is cheap, if it put in its appearance here.

Appendix

1. Plan of Hospital
2. Scale of Equipment

2 + 90

of
the
for

the South Range, Com-
 munity and carefully
 equipped. This might
 be secured by contri-
 bution from each Com-
 mittee for what might
 be known as Central
 Case Hospital. Your
 paragraph would
 then be made appli-
 cable for the stage
 of invasion when
 Division after Division
 is attacked. It seems
 to me this would
 meet ^{prop.} demands
 cheaply. A house
 suitably modified
 for plague might
 have to be rented
 for months without
 an occupant.

Para 3(4) An upstairs
 building means
 greater difficulty in
 administration than a
 one-story building.

Add a clause lay-
 ing down that each
 unit must be
 allowed

When under management
 of a committee having
 a member from each
 Divisional Committee

but I have found
 that the
 buildings are more
 as if one or two
 can be up to
 a patient
 for

allowed 144 Sq Feet
 and 2000 Cubic feet
 and that if ventila-
 tion be not suitable
 structural alteration
 be made to secure
 it.

Para 8. Add a clause
 stating that if struc-
 tural alterations be
 necessary to adapt
 a permanent building
 a concession of one-
 half the cost ^{unit} be
 made.

Para 16. I would sug-
 gest that you do not
 commit yourself to
 the statement at the
 end of para 16. the
 plague microbe is
 probably "scotched"
 not killed.

W. H. King
 S. C.
 Dr. The Mayor Com-
 missioner.

No.

NOTE by the Sanitary Commissioner for Madras, dated 6-9-88

Reference Cash Hospital rules.

The Personal Act.
to the Plague Commission
The enclosed draft,
in the absence of
the Plague Commission
and in view of urgency
of action being necessary
I am suggesting to you
to get his draft "Hindi"
as regards the printed
at once forwarded to
the Com. to him as he
requests. The plan
for the one Section Hospital
however requires some
modification to fulfil
requirements. Further
the Committee seem
to wish more aid in
to rules for hospitals.
Hence I think it would
be better to keep back
the plan and the out-
let "rule" till later.
Hammitt is con-
sulting. I am writing
to him on the subject
to-night. W. King
S. C.

+ But the Committee
proposed as advised
in the Committee.
The

Drugs—cont.

Ol. ricini	lb.	1
Opium	oz.	1
Tinct. assafetid.	oz.	2
Liq. ammonia acetatis	lb.	1
Ether pur.	oz.	4

Stores.

Kerosine oil (125°)	tin	1
Firewood	(gallons 6)	
Charcoal	All bits.	
Arrowroot	lb.	2
Anglo-Swiss condensed milk (milkmaid brand)	tins	3
Sugar	lb.	1
Whiskey	bot.	1
Arrack	bot.	2
Kitchen towels	no.	6

For Medical Subordinate.

Cots (bed and pillow)	no.	2
Washstand (complete with enamel basin, &c.)	"	2

For Medical Subordinate—cont.

Towel rack	no.	1
Table	"	1
Chair	"	1

Dispensary Furniture.

Shelf for drugs and appliances	no.	1
Box with lock and key, for poisons	"	1
Dispensary table	"	1
Writing table	"	1
Chair	"	1
Washstand (complete with enamel basin, &c.)	"	1
Towel rack	"	1
Towels	"	3
Tin kettle	"	1

Blank folio books. {	Admission register.	
	Cash book.	
	Stock book.	
	Expenditure book.	
	Return book.	

Ink		
Pens		
Pins		
Stationery		

Miscellaneous

M. HAMMICK,
Plague Commissioner.

Sent to Presy

No.

NOTE by the Sanitary Commissioner for Madras, dated
10-10-98.Reference.— *Carle Hospitals*

Now complete rules
are herewith forwarded
for approval or modification. If approved,
kindly direct that
a proof be sent to me
for correction and number-
ing of the paras.

The plan, I have
placed myself in con-
sultation with Mr.
James, and intend for
the month as pointed as
possible. It is assumed
that the Building plan
issued cannot do more
than carry a general
idea. Committee on day
of require details—
thereafter they cannot
work.

W. H. M.
S. C.
In the Plague Commission

ask to press
print this as a
continuation of the
Paper sent to the day
Hunt of Private Hospitals
list of medicines - a Sans
the whole paper as a proof
again - I have now the
proof I have before of the Hunt
& have not now for it
13 + 98

Supply for Caste Hospitals.
(Drugs and appliances continued)

The above estimate has been framed in response to a demand made by certain Committees for information as to the various appliances and drugs that should be purchased and kept ready for a Caste Hospital, on the smallest feasible scale. It is not implied, therefore, that there are not drugs that might usefully be added to the above list; as soon as patients were received in the Hospital, the Medical Officer *in charge would be entitled to make a further indent for medicines that though useful ^{are} yet probably not so urgently required as those above enumerated. Such an indent ^{however,} might reasonably be comprised to the drugs and appliances &c, stated in list B.

Staff.

On the matter of expenditure

*It is of course to be distinctly understood that these notes convey mere suggestions, and that if the Committees do elect some such drugs commonly used by natives, Mahreens or Vyollens need be made ready. Similarly, the medical men employed need not be versed in European methods of treatment.

on account of staff, it would not be found advantageous to open hospitals with so limited accommodation as five beds. The nursing attendance that must be rendered to patients in the grave condition usual in plague, is of a peculiarly harassing nature; therefore, unless circumstances such as the limited number of the caste, the nature of the site available, or the funds at disposal, forbid, it is advisable that accommodation for not less than 10 beds in one locality be provided; because to secure effective nursing, and reasonable hours of rest, in practice, the staff for nursing five patients should be as complete as for nursing ten. However, following the principle of securing that which is essential before the appearance of plague, and trusting to the expanding

expanding the scope subsequently as has been suggested above in the case of supply of medicine, it may be held that the following staff should be kept in readiness for a hospital for five (day, three males, and two females) and not exceeding ten patients:

- 1. Male nurse.

- 2. Male ward attendants.

- 1. Female do - do.

- 1. Male cook.

- 1. Female ditto.

- 1. Cook.

- 1. Waterman.

- 1. Dhoby.

- 1. Hospital Assistant.

Police guard; to be stationed for as a rule, it is advised

that the unit for hospital construction and administration be a twenty bed hospital. This is an arrangement found to have worked well in Bombay, where scales for staffs, equipment and drugs followed closely the lines advised in lists

by the police officer responsible in each locality

Construction of caste hospitals (Temporary structures)

B. & C. From information
thus supplied, Committees
can readily frame estimates
in relation to the number
of beds for which they wish
to make provision.

Annexed is a site plan
showing the arrangement
for a hospital of twenty
beds - a "one section hos-
pital". Following this ter-
minology, a ten-bed hos-
pital would be a half section
hospital.

Plan No I (a modifi-
cation of that designed by
Mr James C. E. of Bombay)
is arranged with the object
of economizing space as
much as possible. When,
however, more ground is
at disposal, it would be
advisable to allow consid-
erably greater intervals be-
tween the buildings. It
is not often in this Presidency
that materials for tempo-
rary wards 24 feet broad
can be obtained cheaply;
hence, it would usually
be

he found cheaper to make
hospitals suitable for a
single row of beds. Plan No II
shows the character of build-
ings suggested. The
purpose of each structure
is stated on the plan - so
as to prevent unnecessary
description.

Materials

The sheds ordinary would be
built of bamboo, bamboo
matting with paddy straw
or cadjan leaves roofing.
Beams or old iron rails
may, under certain circum-
stances, offer advantages of
economy and durability.
Without going into details
of structure of temporary
buildings which are doubt-
less well known to members
of Committees, the follow-
ing general points are
worthy of consideration: -
(a) Experience shows that
well built temporary
sheds, with occasional
repairs, will last several

or more years. Sheds
hastily put up on the
theory that any rough
structure will suffice, will,
in the end, prove very
expensive. Sheds with
crooked and trim bam-
boos, with matting little
thicker than ~~the~~ brown
paper, such as a con-
tractor usually considers
himself justified in
giving for the money
paid him, are a source
of annoyance and dis-
comfort to patients and
medical staff alike, and
of endless expense in
effecting repairs. Com-
mittees are, therefore,
strongly advised to use
material that may
reasonably be expected
to protect patients from
sun and rain, and will
not stand in need of much
repair for two years.

(b) All structures intend-
ed for dwellings should
be provided with base-
ments

(Note Section
in annexed
plan No 2.)

Rammed gravel of 9" will
suffice for the purpose;
but, wherever funds are
available, it will contri-
bute much to the sani-
tary safety and comfort
of staffs and patients if
the plinth be built with
brick in mud - the inte-
rior filling being of
gravel upon which con-
crete plastered with
cement should be laid
to form a flooring. If an
improvising flooring be
thus provided, it should
have a gentle slope to-
wards a shallow "sauce-
drain" made in the cement
plaster, which would
lead to a small imper-
vious reservoir imme-
diately outside the wall.
(c) Batting platforms
should be of brick or con-
crete cement plastered,
leaving 8 cement lined
reservoirs. These spaces
need not be elevated
above the surface of the

ground more than 3 or 4 inches, but should be provided with a slightly elevated border so as to prevent overflow on the surrounding surface. They should be screened in the interests of decency, and should be apart in the respective sexes.

(d) Latrines should be provided with impervious receptacles. A very simple form of latrine is shown in plan No III. This represents a cement plastered 9" ovoid drain, such as commonly used in Madras Town leading to a cement plastered reservoir. Immediately over the drain are placed tarred earthen mullays, or specially made ^{iron} receptacles, for receipt of fecal matter. These receptacles are placed at intervals of 2'-6", and are separated by bamboo screens forming separate

separate apartments. The latrine is used by squatting across the drain. The urine passes direct ^{into} the drain, and thence to the reservoir. The foot path may be of tamped gravel, but preferably should be of concrete cement plastered. It should not be more than 2'-6" in breadth, which with the curb of the drain, will afford ample space for the passage of persons, although sufficiently limited to prevent its illegitimate use. Latrines should have thatched coverings to prevent flooding during rain, but space should be provided between the screen-walls and the eaves to permit of the free entrance of light and air.

(e) A platform made in the manner laid down for bathing purposes should be provided ^{for}

for disinfection of clothing.
Adjoining it, should be
ovens made with earthen
chatties such as used by
dhobies. If found to be suf-
ficient, it is better to pro-
vide copper cauldrons in-
stead of the earthen chat-
ties. As the copper can be
sold on breaking up of the
Hospitals, very little loss
need be incurred.

(8) Where the town water
supply is available, it
should be brought with-
in the Hospital compound
by pipes. These should
be provided with taps. The
cement plastered platform
with a drain leading to a
suitable position should
be formed round the
taps. In positions where
supply of water is in-
termittent, owing to de-
ficient pressure, cube iron
tanks resting on trestles or
masonry and provided
with self-closing taps
should be used, so as to
store

store a supply. Where no
town water-supply is avail-
able, Rule 36 page 103 in
the brochure "Madras
Plague Regulations and
Rules" should be followed.
(9) A brick-in-cum in-
cinerator 3'-6" high, of
3' diameter at the base
and 2'-6" at the mouth,
should be provided. The
general design is that
of the common country
lime kiln. In this all
rags, sweepings, old
bedding &c &c should
be destroyed daily.

^{converted}
In permanent buildings.
When permanent buildings
are selected care as to the
following points is desirable,
in addition to such matters
as are applicable to temporary
structures already describ-
ed:—

Ventilation, preferably by
perflation by means of
doors and windows, should
be carefully provided whenever

feasible. Similarly, the free admission of light should be systematically arranged for. As a minimum, the ~~doors and~~ windows of the ward should measure one square foot in every 50 ~~feet of superficial~~ ^{cubic} ~~area~~ ^{area}. Rooms that do not permit of entrance of air and light direct from the outside, should not be used for wards. If it can be so arranged a window should be placed so as to separate each bed from its neighbour. In reckoning the cubic capacity of the room under para ~~III~~ ³⁽²⁾, its height at not less than 13 feet should be regarded as contributing to the total available. Each ward should have stated at the door tray on a painted board the cubic capacity of the room, its superficial area, and the number of patients for whom it is intended, having regard to the standard laid down in Para ~~III~~ ³⁽²⁾.

12

Irregular brick tile floors such
as commonly found in dwelling
cannot be considered suitable
for plague wars. These should
be plastered with cement.
It should be seen that a
suitable exit for the lavage-
ing of the floors is made,
and that these are receiv-
ed in special impervious
reservoirs for subsequent dis-
posal. Walls out of repair
should be put in order,
and rendered ~~smooth~~
reasonably smooth, and
be subsequently whitewashed.
Every care should be taken to
see that no dark corners or
recesses exist in the house.
All such places should be
opened up, so as to admit
light and air freely. Bath-
rooms & kitchens in existing
houses are ^{generally} ~~especially~~ defect-
ive in these respects, and
should be freely opened
up. It should not be
actively assumed that the
existing bathrooms or
kitchens will suffice; the

condition of these floors (which
should be cement plastered)
and the nature of the
exit for water and its ul-
timate disposal ^{should} be care-
fully ascertained in each
case.

San. General instructions
Administration

Committees for
Caste Hospitals will
be primarily respon-
sible, and will issue
their own orders for
all matters connect-
ed with observance
of caste, gotha or race
requirements, and for
appointing persons
responsible to them
for the feeding, nursing
and medical treat-
ment ^(of patients) after such
methods as they
may approve. They
are advised to make
their arrangements
conform with the wish-
es of the uneducated
masses - not of the
educated minority
only. It is presumed
that treatment by ^{by} doctors
and hakims will
prove most popular,
and should ordinarily
be

be provided for. Where,
in exceptional cases,
European treatment
is specially desired,
no difficulty need
be experienced in
securing it, by appli-
cation to private prac-
titioners. For instance,
if it be felt that the
majority of subscribers
would prefer treat-
ment by indigenous
methods (rendering
it unnecessary to
store European
medicines and
appliances) it
might be possible
to secure that a
private practitioner
practising European
methods ~~would~~
attend, and that a
Chemist ~~would~~
supply medicines
on contract rates;
or, in the case of a
patient well-off,
he might be allowed
to

to select his own
medical man
practising European
methods.

~~Sanitary arrangements~~

The District Surgeon
is responsible that
the Caste Hospitals in
his District are con-
ducted with such
care as to sanitary
details as shall pre-
vent the possibility
of danger of spread
from infected pa-
tients and material,
unless so required
in writing by the
Committee respon-
sible for the Caste
Hospital concerned,
he shall not interfere
in any way - and less
than with reference
to sanitary precau-
tions - in any matter
concerning the medi-
cal treatment, food
or attendance of the
patient

patient.

If, at any time, in the opinion of the District Surgeon reasonable sanitary precautions have not been taken in a caste hospital, he may give such orders and may incur such expenditure recoverable from the Committee responsible provided he furnish a certificate or presentation of a certificate that he considered the amount expended is essential for protection of ^{the} public interests. If the Committee so elect, before discharging the bill, they may obtain the opinion of the Sanitary Commissioner as to the necessity for the action taken.

All caste Hospitals
Should

as he may think absolutely
necessary;

should be open to the inspection of the Sanitary Commission, who should give such advice on sanitary matters to the Committee responsible, the District Surgeon, the Municipality or the Plague Commission, as he may consider the nature of the circumstances demands.

¶ ~~The~~ Castle Hospitals in which Committees elect to use European methods of treatment, as a matter of routine, and Government medical staffs are maintained, shall be subject to inspection by the Surgeon General, who may advise the Committee on any matter affecting medical treatment, feeding, attendance, or comfort of

of the patients

Relatives of patients should be encouraged to assist in nursing persons for whom they are responsible. For this purpose, as shown in the annexed plans, special dwellings should be provided within the hospital compound. The number of relatives that may thus be accommodated should ordinarily not exceed 2 per patient; the discretion on this point will rest with the officer in immediate charge, subject to permission by the District Surgeon.

Patients and relatives must regard themselves

themselves as subject to the following ^{General} Rules for segregation:-
Patients will not be allowed to leave ^{the} hospital ^{premises} without receiving a certificate of discharge signed or countersigned, as he may desire, (having regard to the status of the medical officer in immediate charge) by the District Surgeon.
1. Relatives of patients who have undertaken nursing shall not ^{finally} leave the hospital without the permission of the District Surgeon in writing, and ^{while} ~~arrangements~~ ^{arrangements} have been made to maintain them ~~under observation~~ ^{under observation} ~~having undergone~~ ^{having undergone} ten days observation in their own houses either in their own houses, or in segregation camps. Temporary leave of absence may be

By him

be given at any time,
if the District-Surgeon
is of opinion that the
persons are of a class
that may be trusted
to keep their promises
to return; provided
disinfection of the body
and of the clothing be
previously conducted
to the satisfaction of
the District-Surgeon. (D)

Superior nursing
and medical staffs
will not be subjected
to segregation, provided
such measures be
taken for disinfection
of their bodies and
clothing, as may satis-
fy the District-Surgeon.

Visitors to patients
who have nothausted
the patient will be
permitted to leave
the hospital, after dis-
infection with per-
chloride solution of their
body, if bare, or of their
boots, if these be used.

menial

menial servants
may be allowed
temporary leave
of absence under
the same rule as
affects relatives of
patients.

Medical, nursing
and menial staffs
shall wear shoes
and "putties", or other
efficient protection
for their feet during
hours of duty.

General sanitary
precautions.

In each ward, solutions of
Lysol and of perchloride of
mercury colored with aniline
blue should be kept in suit-
able bowls or basins, for dis-
infection of the hands of
the attendants.

Each patient should be
provided with a suitable
inexpensive spittoon - such
as tarred mullays, containing
colored solutions of perchlo-
ride of mercury.

Immediately outside of

of each ward should be kept a tub containing a 5% Colored solution of the perchloride of mercury - (1-1000). Into this, all bedding and clothing, which is not desired to destroy by fire, should be placed previous to sending them ^{final} for disinfection and washing.

Clothing and bedding, which it is intended the hospital doctor should wear, should, on removal from the tubs, be again plunged into clean perchloride of mercury solution ~~1-1000~~ (1-1000) for an hour. ~~After~~ They should then be boiled for an hour previous to final washing. All rags and sweepings should be carefully burnt. Collection and subsequent burning of the latter may be facilitated by using carbolizer sawdust.

Focal matter both in the latrines and in bedpans should be received in

disinfectants, and should be deposited in a special closed receptacle. Kerosene iron drums with close fitting lids will be found sufficiently convenient.

In hospitals of and about twenty beds, Field Silcher incinerators will offer convenient facilities for destruction of all infected matter, including faeces. The destruction of faecal matter cannot be thus expected, Committees should arrange for a special form of conservancy cart, which could receive the air tight drums, ^{above mentioned} containing faeces from one or more hospitals. The contents of each could be disposed of at points specially indicated by the Municipality.

of each ward should be kept a tub containing a 10% Colored solution of the perchloride of mercury - (1-1000). Into this, all bedding and clothing, which it is not desired to destroy by fire, should be placed previous to sending them ^{final} for disinfection and washing. Clothing and bedding, which it is intended the hospital should have, should, on removal from the tub, be again plunged into clean perchloride of mercury solution ~~1-1000~~ (1-1000) for an hour. ~~After~~ They should then be boiled for an hour previous to final washing. All rags and sweepings should be carefully burnt. Collection and subsequent burning of the latter may be facilitated by using carbolized sawdust.

Faecal matter both in the latrines and in bedpans should be received in

disinfectants, and should be deposited in a special closed receptacle. Kerosene iron drums with close fitting lids will be found sufficiently convenient. In hospitals of and about twenty beds, Field Silcher incinerators will offer convenient facilities for destruction of all infected matter, including faeces. The destruction of faecal matter cannot be thus expected. Committees should arrange for a special form of conveyance cart, which could receive the air tight ^{above mentioned} drums, containing faeces from one or more hospitals. The contents of each could be disposed of at points specially indicated by the Municipality.

Government {1898} of Madras.
LOCAL AND MUNICIPAL.

Recd.

Enclosures

} 1898.

Regd.

Spare copies

G.O., No. 256 P., 23rd March 1898.

MARCH.

Plan for Plague Hospitals.

Forwarding to all Collectors, Municipalities and Local Boards copy of a —.

GOVERNMENT OF MADRAS.
LOCAL AND MUNICIPAL DEPARTMENT.

READ—again the following papers :—

G.O., No. 2448 M., dated 6th November 1897.

ABSTRACT.—Communicating, with remarks, to the Surgeon-General, the Sanitary Commissioner and the President, Municipal Commission, Madras, Surgeon-Major Bannerman's report on plague in Bombay and Poona.

G.O., Mis. No. 2755 M., dated 9th December 1897.

ABSTRACT.—Requesting the Sanitary Commissioner, with remarks, to revise and resubmit to Government the plan for plague hospitals sent by Dr. Bannerman.

READ—also the following paper :—

From Surgeon-Lieutenant-Colonel W. G. KING, M.B., C.M., D.P.H., Sanitary Commissioner for Madras, to the Secretary to Government, Local and Municipal Department, dated Fort St. George, 19th March 1898, No. 654-S.

With reference to G.O., Mis. No. 2755 M., dated 9th December 1897, I have the honour to forward the plan, as required by Government, duly modified as to the slope of the roof. In my opinion, the use of sheds in which double rows of beds are used, requiring a span of not less than 24 feet, is likely to prove very expensive in most localities in this Presidency. The design by Mr. James, C.E., was primarily intended for use within the City of Bombay, where necessarily ground of the nature required is scarce and valuable. Where, as would be the case in most of our mufassal towns, more room could readily be procured, the camp should, I consider, be more extended.

ORDER—No. 256 P., dated 23rd March 1898.

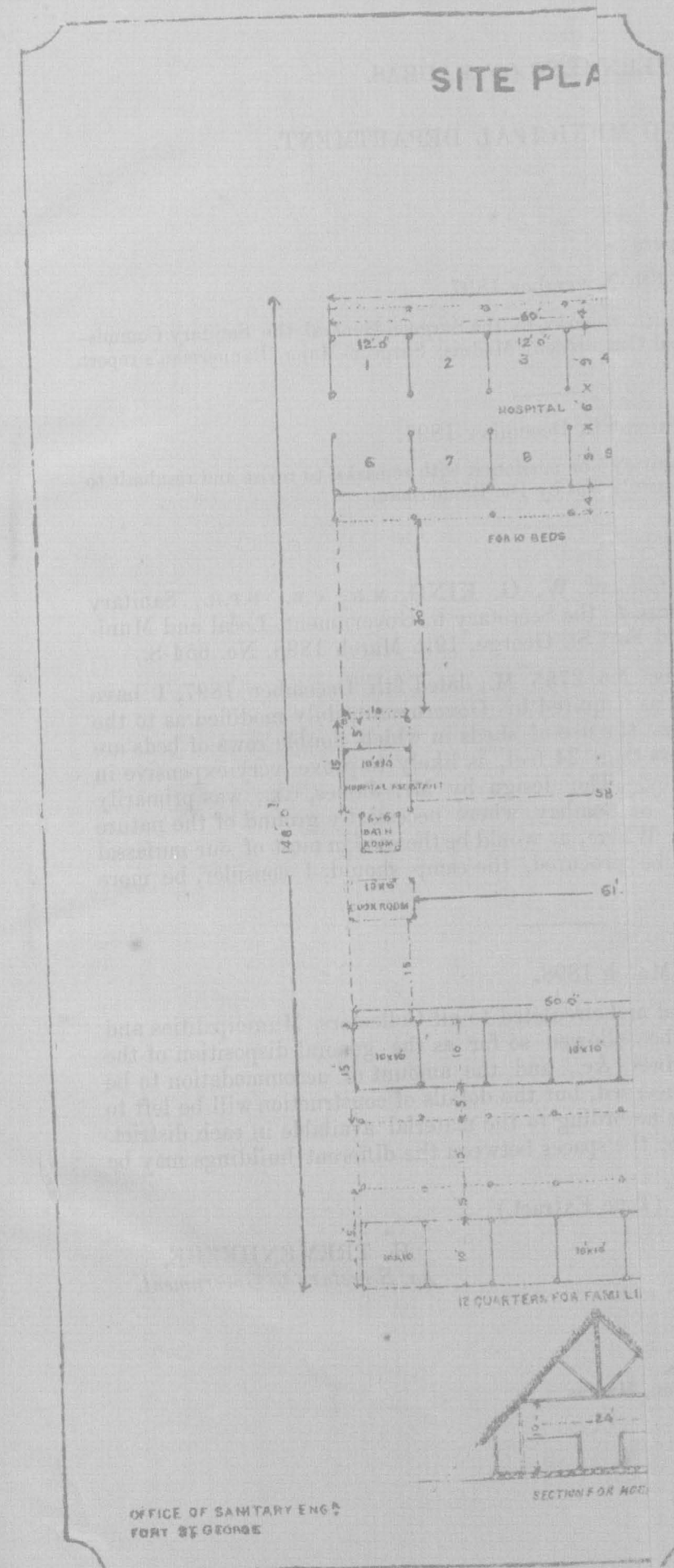
The plan will be lithographed and circulated to all Collectors, Municipalities and Local Fund Boards. It should be followed so far as the general disposition of the hospital, servants' quarters, latrines, &c., and the amount of accommodation to be provided in each building, are concerned, but the details of construction will be left to be settled by the local authorities according to the material available in each district. Where sufficient land is available, the spaces between the different buildings may be increased.

(True Extract.)

H. TREMENHEERE,
Ag. Secretary to Government.

To all Collectors.
„ all Presidents of District Boards.
„ all Chairmen of Municipal Councils.
„ the President, Municipal Commission, Madras.
„ the Sanitary Board.
„ the Surgeon-General.
„ the Sanitary Commissioner.
„ the Sanitary Engineer.
„ the Superintendent, Madras Survey.

Ed. A. Raitt.



S. O. (Reg. No. 4319)
1898 (Copies 715)

si
oi

hont

26 signatures were recd. fully 5/11/98
Please attend to connections within and then strike off

PC 920-48187
Hints as regards the Provision of Private Plague Hospital Accommodation.

1. Three means of providing private plague hospital accommodation exist—

- (a) Temporary sheds can be erected to suit the purpose on ground sites to be approved of by the Sanitary Commissioner.
- (b) Houses may be taken up, such houses having been approved of for the purpose by the Sanitary Commissioner.
- (c) A site can be selected and materials for hospital sheds collected ready for use at a moment's notice.

2. To save initial expense and at the same time to provide suitable accommodation, the Plague Commissioner would suggest that, wherever possible, arrangements may be made by a sub-committee to select suitable houses, either unoccupied, or houses which can be vacated for occupation in a few hours. The Plague Commissioner should be furnished with the addresses of such houses. He will then arrange to have them examined and reported upon by the Sanitary Commissioner. It is, however, pointed out that buildings will almost always require some alteration to fit them as hospitals. It would probably save much expense and much reduplication of staff if committees would unite to form one large private caste hospital for the north and one for the south, carefully equipped. A central committee elected by divisional committees and containing one member from each such committee might be formed to carry out two large central caste hospitals. Afterwards, if the plague attacked divisions one after another in force, separate divisional hospitals would no doubt be necessary.

3. The chief points about such houses are these—

- The house/
- (a) It should have a compound. This need not be large, but it should be sufficient to prevent any chance of contact with the neighbouring houses. As a *minimum* standard, no buildings included in the hospital premises should be nearer neighbouring dwellings than 40 feet. In judging of the required size of a compound, it should be remembered that if suitable permanent buildings be not available, space must be at disposal for temporary buildings so as to bring up the total accommodation to the standard shown in the accompanying plans.
 - (b) There should be a supply of Red Hills pipe water either laid on at the house or within 50 yards of it.
 - (c) The room in the house should be well ventilated and of considerable height.
 - (d) If possible, there should either be godowns in the compound or room available for the erection of sheds in the compound for families and attendants of patients.
 - (e) Each patient should be allowed 144 square feet and 2,000 cubic feet. If ventilation is not suitable, structural alterations will be required to secure it.

4. If, instead of obtaining the use of houses, which, in most cases, will probably be very difficult, temporary shed hospitals are preferred, arrangements should be made, as soon as possible, to fix the sites of such hospitals and to report on the matter to the Plague Commissioner, who will obtain the Sanitary Commissioner's opinion on the sites.

5. In choosing a site, the following points should be noticed :—
- (a) The site should be as near as possible to the locality inhabited by the people for whom it is intended.
 - (b) The site should, if possible, be on gravelly dry soil and as free from vegetation as possible.
 - (c) The site should be close to a supply of Red Hills water.

6. In order to avoid expense, it is suggested that materials to make the hospital (which should now be built, if possible, on the lines of the plan* annexed to these notes) should be collected at once and held ready-stored near the approved sites of the proposed hospitals ready for immediate use when necessary.

7. The Plague Commissioner understands that, if possible, the Municipal Comsites, the money being advanced to it by the committees appointed for the purpose. This, no doubt, would meet a great difficulty.

8. The Plague Commissioner, on behalf of Government, will be ready to advance half the cost of any *bond fide* plague hospital erected with his sanction on an approved site; also he will advance half the cost of such structural alterations as are referred to in paragraph 3 (e).

9. In private hospitals, as long as the arrangements are supervised by and approved of by the Sanitary Commissioner, the patients may be treated in any way their relations or caste people desire. The use of English medicines will not be required, nor need certificated medical officers be employed. All that is necessary is that the building and site should be approved by the Sanitary Commissioner and that due arrangements are made and approved of by the medical officers on plague duty in the city, under which all risk of infection to neighbouring houses and people is prevented.

10. Free access by relations and friends of patients to the patients in all hospitals will be permitted, provided that arrangements can be made to segregate such people in the compound of the hospital so as to prevent any chance of their carrying infection elsewhere.

11. Arrangements should be made as soon as possible to secure that the services of hospital assistants, hakims or native medical officers and lady attendants may be available for private hospitals when required.

12. The sooner arrangements are made and reported upon to the Health Officer, Madras Municipality, or the Plague Commissioner the better.

13. In case committees desire to use European medicines in their hospitals, a list is appended showing the medicines considered necessary by the Sanitary Commissioner. The list contains all the equipments really necessary for a hospital of five beds.

14. In case of deaths in hospitals, every possible concession will be made to the relations of the deceased as regards arrangements for burial. It is earnestly hoped that every possible publicity will be given to these rules and that every possible opportunity will be taken to prevent the spread of foolish and false reports regarding the action of the authorities on plague matters.

15. The office of the Plague Commissioner is in the Secretariat buildings in the Fort, and he will be always glad to see any one wanting information on matters connected with plague and to give every assistance within his power to those who desire to use private efforts in dealing with plague cases.

16. The earliest possible information should be given of the occurrence of any case of plague. It is at the beginning of an epidemic that our best chance lies, and it is for the public to assist the authorities in the early report of first cases and in carrying out of the approved efficient measures at the beginning.

* Will follow.

* Same as that not printed, being same as that circulated with G.O. No. 23-3-96.

APPENDIX.

LIST A.

OUTFIT FOR A FIVE-BED CASTE HOSPITAL.*

The following is a moderate equipment for a hospital for five patients. It will be of use to persons wishing to establish private caste or other plague hospitals:—

Disinfectants.		Appliances—cont.	
Perchloride of mercury	lb. 1	Flannel	yd. 1
Phenyle	5	Carbolic soap	cakes 2
Potassium permanganate	1	Lint	lb. 1
Acid, hydrochloric (commercial)	2	Cotton wool	1
Equipment.		Linseed	5
Cots with tape	no. 7	Tow	3
Mattresses (to be filled with straw)	7	Spirit lamp	no. 1
Date mats	15	Test tubes	2
"Burmese spoons" (for water)	6	Nitric acid	oz. 1
Cumblies	8	Drainage tube	grs. 1
Carpets	8	Scales and weights, with spare set of grain weights	set 1
Pillow cases	8	Dispensing bottles	no. 10
Wire teapots for bedside	6	Corks	doz. 2
Slippers for ward coolies	2	Draught glasses	no. 6
Copper dekshas for boiling clothing	1	One-ounce and one-minim glass measure	1
Copper dekshas, small, for cooking food	4	Slab	1
Cocunut spoons (small)	6	Spatula	1
Iron enamel cooking pots	2	Roll of sticking plaster	1
Block tin saucepans (2-pints and 1-pint)	2	Large mixture bottles	3
Zinc buckets	2	Clinical thermometers	2
Firewood axe	1	Drugs.	
Kitchen knife		Acid, boric	oz. 4
Iron kettle		Acid, carbolic	8
Hanging lamps		Acid, nitric hydrochlor. dil.	lb. 1
Hurricane lanterns		Acid, sulphuric dil.	oz. 2
Portable tables		Ammonia bromide	2
Portable chairs		Ammonia carbonas	1
Time-piece		Ammonia chloride	2
Folding screen		Bismuth subnitras	1
Bed-head ticket frames	4	Caffeina citras	1
Temperature charts	20	Camphor liniment	1
Zinc dressing trays	1	Ether pur.	4
Large jars (old arrack) for disinfectants	2	Extractum belladonna	1
Hand-basins for disinfectants	2	Ext. Ergot. liquid	1
Washstand with basin, complete	1	Glycerine	4
Lotion bowls	2	Gum acacia	2
Earthen chippas	doz. 2	Hydrargyri perchloridum	1
Drinking-water chatties	no. 6	Hydrargyri subchloridum	1
Bed pans	8	Iodoform	1
Ice box	1	Liniment terebinthinae	lb. 1
Pewter or enamel urinals	4	Liq. ammoniae acetatis	1
Appliances.		Liq. hydrargyri perchloride	oz. 4
Small pocket dressing case	no. 1	Liq. strychnia	1
Gum elastic catheters (male)	2	Lysol	lb. 2
Hypodermic syringes	1	Magnesia sulphatis	1
Enema syringe	1	Ol. menth. pip.	oz. 1
Two-ounce syringe	1	Ol. ricini	lb. 1
Ice bags	1	Opium	oz. 1
Waterproof sheets	1	Phenacetin	1
Pestle and mortar	1	Pil. col. co.	1
Glass rod	1	Pil. rhea co.	1
Bandage cloth	2	Pot. iodid.	1

* In making Estimate for lists A & B, the standards laid down for Bombay Plague Hospitals have been largely adopted.

Drugs—cont.			For Medical Subordinate.		
Pulvis ipecac.	..	oz. $\frac{1}{2}$	Cots (bed and pillow)	..	no. 2
Pulv. ipecac. co.	..	" $\frac{1}{2}$	Washstand (complete with enamel basin, &c.)	..	" 2
Pulv. jalap co.	..	" 1	Towel rack	..	" 1
Quinine sulphatis	..	" $\frac{1}{2}$	Table	..	" 1
Santonin	..	" $\frac{1}{2}$	Chair	..	" 1
Soda bicarbonas	..	" 3			
Spt. aetheris nitrosi	..	" 8			
Spt. ammonia aromatici	..	" 8			
Spt. of wine, methylated	..	" 4			
Spt. vini rectificat.	..	" 4			
Tinct. assafoetid.	..	" 2			
Tinct. card. co.	..	" 2			
Tinct. digitalis	..	" 1			
Tinct. hamamelis	..	" 1			
Tinct. hyoscyami	..	" 1			
Tinct. nucis vom.	..	" 2			
Tinct. opii	..	" 2			
Vaseline	..	lb. $\frac{1}{4}$			
Stores.			Dispensary Furniture.		
Kerosine oil (125°)	..	tin 1	Shelf for drugs and appliances	..	no. 1
Firewood	..	(gallons 6)	Box with lock and key for poisons	..	" 1
Charcoal	..	At discretion.	Dispensary table	..	" 1
Arrowroot	..	lb. 2	Writing table	..	" 1
Anglo-Swiss condensed milk (milkmaid brand)	..	tins 3	Chair	..	" 1
Sugar	..	lb. 1	Washstand (complete with enamel basin, &c.)	..	" 1
Whiskey	..	bot. 1	Towel rack	..	" 1
Arrack	..	bots. 2	Towels	..	" 3
Kitchen towels	..	no. 6	Tin kettle	..	" 1
			Admission register.		
			Case book.		
			Stock book.		
			Miscellaneous expenditure book.		
			Return book.		
			Ink		
			Pens		
			Pins		
			Stationery		
			On indent.		

(2) The above estimate has been framed in response to a demand made by certain committees for information as to the various appliances and drugs that should be purchased and kept ready for a caste hospital, on the smallest feasible scale. It is not implied, therefore, that there are not drugs that might usefully be added to the above list; as soon as patients were received in the hospital, the medical officer* in charge would be entitled to make a further indent for medicines* that though useful are yet probably not so urgently required as those above enumerated. Such an indent might, however, reasonably be confined to the drugs and appliances, &c., stated in list B.

LIST B.

EQUIPMENT FOR A HOSPITAL NOT EXCEEDING TWENTY BEDS.

Furniture.			Furniture—cont.		
Wards—			Office—		
Tables	..	no. 2	Table	..	no. 1
Screens	..	" 4	Chairs	..	" 2
Chairs	..	" 2			
Washstand table	..	" 1	Cook-room—		
Cupboard	..	" 1	Table common	..	" 1
Almirah	..	" 1	Kettle	..	" 1
Cots	..	" 20	Cooking utensils	..	" 6
Lanterns	..	" 6	Cans for hot water, etc.	..	" 4
Towels	..	" 20	Spoon, large	..	" 1
Plates	..	" 20	Knife	..	" 1
Spoons	..	" 6	Plates, iron	..	" 3
Pails	..	" 2	Pail	..	" 1
Spittoons, earthenware	..	" 20	Dispensary—		
Iron can for poultices	..	" 1	Table	..	" 1
Bowls, common	..	" 20	Shelf	..	" 1
Mats for cots	..	" 20			

* It is, of course, to be distinctly understood that these notes convey mere suggestions, and that, if the committees so elect, none but drugs commonly used by natives, hakims or vydians need be made ready. Similarly, the medical men employed need not be versed in European methods of treatment.

Furniture—cont.			Instruments—cont.		
Hospital Assistants' Quarters—			Syringes, hypodermic	..	no. 1
Table	..	no. 1	Syringes, enema	..	" 2
Chair	..	" 1	Syringes, glass	..	" 2
Bedstead, cheap, cane	..	" 1	Catheters, Nos. 6, 7, 8	..	" 3
Nurses' Quarters—			Corkscrew	..	" 1
Two Nurses—			Ice bags	..	" 3
Table	..	" 2	Lint	..	lb. $\frac{1}{4}$
Chairs	..	" 2	Cloth, sheeting	..	yds. 12
Arm chair	..	" 1	Red pans	..	no. 3
Shelf	..	" 1	Pocket case	..	" 1
Bedsteads, complete	..	" 2			
Commodore	..	" 2			
Chambers	..	" 2			
Washstand and crockery	..	sets 2			
Towel, horse	..	no. 2			
Crockery, etc., for Nurses.			Medicines.		
Knives	..	no. 4	Acid, boric	..	lb. 1
Forks	..	" 4	Acid, carbolic	..	" 3
Spoons	..	" 2	Acid, galic	..	oz. 2
Teaspoons	..	" 2	Acid, hydrocyanicum dil.	..	" 1
Cups and saucers	..	" 2	Acid, sulphuric	..	" 6
Plates, large	..	" 2	Ammonii bromid.	..	" 6
Plates, small	..	" 2	Ammonii carbonas	..	" 2
Tumblers	..	" 2	Aqua distillata	..	lb. 2
Teapot	..	" 1	Argenti nitras	..	dr. 1
			Acid, tartaric	..	oz. 8
			Alumen	..	" 8
			Ammonii chloride	..	lb. 1
			Atropin. sulph.	..	dr. 1
			Bismuthi subnitras	..	oz. 4
			Borax	..	" 4
			Caffein citratis	..	" $\frac{1}{2}$
			Camphora	..	" 2
			Cocaine hydrochloras	..	dr. 1
			Chiretta	..	lb. 2
			Chloroform	..	oz. 4
			Collodion	..	" 2
			Creosotum	..	" 1
			Cupri sulph.	..	drs. 4
			Diachylon plaster	..	yd. $\frac{1}{2}$
			Extractum belladonnæ	..	oz. $\frac{1}{2}$
			Extractum ergot. liqui.	..	" 2
			Extractum gentian	..	" 1
			Guaiacul	..	" $\frac{1}{2}$
			Glycerine	..	lb. $\frac{1}{2}$
			Gum acaciæ pulv. opt.	..	" $\frac{1}{2}$
			Hydrargyri perchloridum	..	oz. 4
			Hydrargyri subchloridum	..	" $\frac{1}{2}$
			Iodoform	..	" 2
			Lint. camph. co.	..	lb. $\frac{1}{2}$
			Lint. iodi	..	oz. 4
			Lint. saponis	..	lb. 1
			Liq. ammon. acetatis	..	oz. 4
			Liq. arsenicalis	..	" 4
			Liq. epispasticus	..	" $\frac{1}{2}$
			Liq. morph. hydrochloris	..	" 1
			Liq. plumbi sabacofuti	..	lb. 1
			Liq. strychnine	..	oz. 2
			Magnes. sulph.	..	lb. 4
			Oleum anethi	..	oz. 4
			Oleum menthæ piperitæ	..	" 1
			Oleum cinnamon	..	" 2
			Oleum ricini	..	" 5
			Oleum terebinthinæ	..	lb. 1
			Oleum arachis	..	" 6
			Opium	..	drs. 4
			Potass. citratis	..	oz. 2
			Potass. iodidum	..	" 2
			Pulvis ipecacuanhæ co.	..	" 1
			Pulvis jalapæ compositus	..	" 2
			Phenacetin	..	" 4
			Pil. hydrargyri	..	" 1
			Potass. bicarbonas	..	" 2
			Potass. chloras	..	" 8
			Potass. nitras	..	" 8
			Potass. permanganatis	..	" 4
			Pul. cretæ aromatic c. opio	..	" 8
			Quinii sulph.	..	" 8
			Potass. bromidum	..	" 6
Food.					
Medical officers to arrange with contractor, 20th March 1897.					
Clothing.					
Pillow cases	..	no. 20			
Towels	..	doz. 2			
Dusters (dungræ)	..	" 2			
Blankets	..	no. 40			
Coats	..	" 30			
Trowsers	..	" 30			
Dhoties	..	" 50			
Sheets	..	" 36			
Saries	..	" 10			
Slippers (for ward boys)	..	prs. 20			
Socks	..	" 40			
Linen caps	..	doz. 3			
Table cloths for nurses	..	no. 3			
Women's night dresses	..	doz. 1			
Children's do.	..	" $\frac{1}{2}$			
Instruments.					
Enema tubes	..	no. 2			
Bottles, empty (6 oz.)	..	doz. 3			
Corks of sizes	..	grs. $\frac{1}{2}$			
Glasses for serving medicines	..	no. 10			
Feeding cups	..	" 10			
Clinical thermometers	..	" 4			
Bandages	..	doz. 1			
Cotton wool	..	lb. $\frac{1}{2}$			
Syringe, large	..	no. 1			
Syringe, small	..	" 1			
Spatulas of sizes	..	" 2			
Pestle and mortar	..	" 1			
Slab, small	..	" 1			
Spirit lamp	..	" 1			
Scales with weights and measures, grains, drams	..	set 1			
Measure glass (4 oz.)	..	no. 1			
Measure glass (2 oz.)	..	" 1			
Measure glass, minim	..	" 1			
Scissors	..	pr 1			
Pill boxes of sizes	..	packs 2			
Pot., decoction, tin	..	no. 2			
Pots, infusion	..	" 1			
Penal's camel hair	..	" 3			

Medicines—cont.

Saccharum alb.	lb.	½
Santoninum	..	..
Sodii bicarbonas	oz.	1
Sodii salicylas	..	3 (4)
Spiritus methylatum	..	4
Spiritus ætheris nitrosi	lb.	1
Spiritus ammon. aromat.	..	1
Spiritus rectificatus	..	2
Sulphur sublimati	..	1
Syrup chloral hydrate	oz.	8
Syrup tolu	..	8
Tincture aconiti	..	½
Tincture aurantii	drs.	2
Tincture cardamomi co.	oz.	2
Tincture cinchonæ	..	2

Medicines—cont.

Tincture digitalis	oz.	2
Tincture hamamelidis	..	2
Tincture hyoscyami	..	2
Tincture iodi	..	4
Tincture opii	..	4
Tincture scillæ	..	2
Tincture assafœtid.	..	2
Tincture belladonnæ	..	2
Tincture catechu	..	4
Unguentum hydrargyri	lb.	1
Unguentum simplex	..	1
Vaselina	..	½
Vin. ipecac.	..	½
Zinci oxidum	oz.	½
Zinci sulph.	..	2

STAFF.

(3) In the matter of expenditure on account of staff, it would not be found advantageous to open hospitals with so limited accommodation as five beds. The nursing attendance that must be rendered to patients in the grave condition usual in plague, is of a peculiarly harassing nature; therefore, unless circumstances such as the limited number of the caste, the nature of the site available, or the funds at disposal, forbid, it is advisable that accommodation for not less than ten beds in one locality be provided; because to secure effective nursing, and reasonable hours of rest, in practice, the staff for nursing five patients should be as complete as for nursing ten. However, following the principle of securing that which is essential before the appearance of plague, and trusting to expanding the scope subsequently, as has been suggested above in the case of supply of medicine, it may be held that the following staff should be kept in readiness for a hospital for five (say, three males and two females) and not exceeding ten patients:—

1 qualified nurse.	1 waterman.
2 male ward attendants.	1 dhoby.
1 female ward attendant.	1 hospital assistant.
1 male toty.	Police guard to be estimated for
1 female toty.	by the Police officer responsible
1 cook.	in each locality.

CONSTRUCTION OF CASTE HOSPITALS (TEMPORARY STRUCTURES).

(4) As a rule, it is advised that the unit for hospital construction and administration be a twenty-bed hospital. This is an arrangement found to have worked well in Bombay, where scales for staffs, equipment and drugs followed closely the lines advised in lists A and B. From information thus supplied, committees can readily frame estimates in relation to the number of beds for which they wish to make provision.

(5) Annexed is a site plan (Plan No. I) showing the arrangement for a hospital of twenty beds—a "one-section hospital." Following this terminology, a ten-bed hospital would be a half-section hospital.

(6) Plan * No. I (a modification of that designed by Mr. James, C.E., of Bombay) is arranged with the object of economizing space as much as possible. When, however, more ground is at disposal, it would be advisable to allow considerably greater intervals between the buildings. It is not often in this Presidency that materials for temporary wards, 24 feet broad, can be obtained cheaply; hence, it would usually be found cheaper to make hospitals suitable for a single row of beds. Plan No. II shows the character of buildings suggested. The purpose of each structure is stated on the plan so as to prevent unnecessary description.

* Will follow. Vide note on page 2.

MATERIALS.

(7) The sheds ordinary would be built of bamboos and bamboo matting, with paddy straw or cadjan leaves roofing. Beams or old iron rails may, under certain circumstances, offer advantages of economy and durability. Without going into details of structure of temporary buildings, which will be found fully entered into in the "Notes and Specification appended," the following general points are worthy of consideration:—

(a) Experience shows that well-built temporary sheds, with occasional repairs, will last seven or more years. Sheds hastily put up on the theory that any rough structure will suffice will, in the end, prove very expensive. Sheds with crooked and thin bamboos, with matting little thicker than brown paper, such as a contractor usually considers himself justified in giving for the money paid him, are a source of annoyance and discomfort to patients and medical staff alike, and of endless expense in effecting repairs. Committees are, therefore, strongly advised to use material that may reasonably be expected to protect patients from sun and rain, and will not stand in need of much repair for two years.

(b) All structures intended for dwellings should be provided with basements. Rammed gravel of 9 inches will suffice for the purpose; but, wherever funds are available, it will contribute much to the sanitary safety and comfort of staffs and patients if in the case of the wards the plinths be built with brick in mud—the interior filling being of gravel upon which concrete plastered with cement should be laid to form a flooring—vide sections in annexed plan No. II. If an impervious flooring be thus provided, it should have a gentle slope towards a shallow "saucer drain" made in the cement plaster, which would lead to a small impervious reservoir immediately outside the wall.

(c) Bathing platforms should be of brick or concrete cement-plastered, leading to cement-lined reservoirs. These spaces need not be elevated above the surface of the ground more than 3 or 4 inches, but should be provided with a slightly elevated border so as to prevent overflow on the surrounding surface. They should be screened in the interests of decency and should be apart for the respective sexes.

(d) Latrines should be provided with impervious receptacles. A very simple form of latrine is shown in plan * No. III (Block No. 12). This represents a cement-plastered 9 inches ovoid drain, such as commonly used in Madras town leading to a cement-plastered reservoir. Immediately over the drain are placed tarred earthen mullays, or specially-made iron receptacles, for receipt of faecal matter. These receptacles are placed at intervals of 2 feet 6 inches, and are separated by bamboo screens forming separate compartments. The latrine is used by squatting across the drain. The urine passes direct into the drain, and thus to the reservoir. The foot-path may be of tamped gravel, but preferably should be of concrete cement-plastered. It should not be more than 2 feet 6 inches in breadth, which, with the curb of the drain, will afford ample space for the passage of persons although sufficiently limited to prevent its illegitimate use. Latrines should have thatched coverings to prevent flooding during rain, but space should be provided between the screen-walls and the eaves to permit of the free entrance of light and air.

(e) A platform made in the manner laid down for bathing purposes should be provided for disinfection of clothing. Adjoining it should be ovens made with earthen chatties, such as used by dhobies. If funds be sufficient, it is better to provide copper cauldrons in lieu of the earthen chatties. As the copper can be sold on breaking up of the hospitals, very little loss need be incurred.

(f) Where the town water-supply is available, it should be brought within the hospital compound by pipes. These should be provided with taps. A cement-plastered platform with a drain leading to a suitable position should be formed round the taps. In positions where supply of water is intermittent, owing to deficient pressure, cube iron tanks, resting on trestles or masonry and provided

* Will follow.

with self-closing taps, should be used, so as to store a supply. Where no town water-supply is available, rule 36, page 103, in the brochure, "Madras Plague Regulations and Rules," should be followed.

(g) A brick-in-mud incinerator, 3 feet 6 inches high, of 3 feet diameter at the base, and 2 feet 6 inches at the mouth, should be provided. The general design is that of the common country lime-kiln. In this all rags, sweepings, old bedding, &c., should be destroyed daily.

IN CONVERTED PERMANENT BUILDINGS.

(8) When permanent buildings are selected, care as to the following points is desirable, in addition to such matters as are applicable to temporary structures already described :—

Ventilation, preferably by perfilation by means of doors and windows, should be carefully provided wherever feasible. Similarly, the free admission of light should be systematically arranged for. As a minimum, the windows of the wards should measure one square foot for every 50 cubic feet. Rooms that do not permit of entrance of air and light direct from the outside should not be used for wards. If it can be so arranged, a window should be placed so as to separate each bed from its neighbour. In reckoning the cubic capacity of the rooms under paragraph 3 (e), no height above 13 feet should be regarded as contributing to the total available. Each ward should have stated at the doorway, on a painted board, the cubic capacity of the room, its superficial area, and the number of patients for whom it is intended, having regard to the standard laid down in paragraph 3 (e). Irregular brick tile floors, such as commonly found in dwellings, cannot be considered suitable for plague wards. These should be plastered with cement. It should be seen that a suitable exit for the washing of the floors is made, and that these are received in special impervious reservoirs for subsequent disposal. Walls out of repair should be put in order and rendered reasonably smooth, and be subsequently whitewashed. Every care should be taken to see that no dark corners or recesses exist in the house. All such places should be opened up, so as to admit light and air freely. Bath rooms and kitchens in existing houses are generally defective in these respects, and should be freely opened up. It should not be hastily assumed that the existing bath-rooms or latrines will suffice; the condition of their floors (which should be cement-plastered) and the nature of the exit for water, and its ultimate disposal should be carefully ascertained in each case.

GENERAL ADMINISTRATION.

(9) Committees for caste hospitals will be primarily responsible, and will issue their own orders, for all matters connected with observances of caste, gosha, or race requirements, and for appointing persons responsible to them for the feeding, nursing and medical treatment of patients after such methods as they may approve. They are advised to make their arrangements conform with the wishes of the uneducated masses—not of the educated minority only. It is presumed that treatment by vydians and hakims will prove most popular, and should ordinarily be provided for. Where, in exceptional cases, European treatment is specially desired, no difficulty need be experienced in securing it by application to private practitioners. For instance, if it be felt that the majority of subscribers would prefer treatment by indigenous methods (rendering it unnecessary to store European medicines and appliances), it might be possible to secure that a private practitioner practising European methods attend, and that a chemist supply medicines on contract rates; or, in the case of a patient well off, he might be allowed to select his own medical man practising European methods.

(10) The District Surgeon is responsible that the caste hospitals in his district are conducted with such care as to sanitary details as shall prevent the possibility of danger of spread from infected patients and material. Unless so required in writing by the committee responsible for the caste hospital concerned, he shall not interfere—unless with reference to sanitary precautions—in any matter concerning the medical treatment, food or attendance of the patient.

(11) If, at any time, in the opinion of the District Surgeon, reasonable sanitary precautions have not been taken in a caste hospital, he may give such orders, and may incur such expenditure recoverable from the committee responsible, as he may think absolutely necessary; provided he furnish a certificate that he considered the amount expended essential for protection of the public interests. If the committee so elect, before discharging the bill, they may obtain the opinion of the Sanitary Commissioner as to the necessity for the action taken.

(12) All caste hospitals should be open to the inspection of the Sanitary Commissioner, who should give such advice on sanitary matters to the committee responsible, the District Surgeon, the Municipality, or the Plague Commissioner, as he may consider the nature of the circumstances demands.

(13) Caste hospitals in which committees elect to use European methods of treatment as a matter of routine, and Government medical staffs are maintained, shall be subject to inspection by the Surgeon-General, who may advise the committee on any matter affecting medical treatment, feeding, attendance, or comfort of the patients.

(14) Relatives of patients should be encouraged to assist in nursing persons for whom they are responsible. For this purpose, as shown in the annexed plans, special dwellings should be provided within the hospital compound. The number of relatives that may thus be accommodated should ordinarily not exceed 2 per patient; discretion on this point will rest with the officer in immediate charge, subject to revision by the District Surgeon.

(15) Patients and relatives must regard themselves as subject to the following general rules for segregation :—

(a) Patients will not be allowed to leave the hospital precincts without receiving a certificate of discharge signed or countersigned, as he may desire (having regard to the status of the Medical officer in immediate charge), by the District Surgeon.

(b) Relatives of patients who have undertaken nursing shall not finally leave the hospital without the permission of the District Surgeon in writing, and until arrangements have been made by him to maintain them under observation either in their own houses, or in segregation camps. Temporary leave of absence may be given at any time if the District Surgeon is of opinion that the persons are of a class that may be trusted to keep their promise to return, provided disinfection of the body and of the clothing be previously conducted to the satisfaction of the District Surgeon.

(c) Superior nursing and medical staffs will not be subjected to segregation, provided such measures be taken for disinfection of their bodies and clothing as may satisfy the District Surgeon.

(d) Visitors to patients who have not handled the patient will be permitted to leave the hospital after disinfection with perchloride solution of their feet if bare, or of their boots if these be used. Menial servants may be allowed temporary leave of absence under the same rule as affects relatives of patients.

(e) Medical, nursing and menial staffs shall wear shoes and "putties," or other efficient protection, for their feet during hours of duty.

GENERAL SANITARY PRECAUTIONS.

(16) In each ward, solutions of lysol and of perchloride of mercury coloured with aniline blue should be kept in suitable bowls or basins for disinfection of the hands of the attendants.

(17) Each patient should be provided with a suitable impervious spittoon, such as tarred "mullays," containing coloured solutions of perchloride of mercury.

(18) Immediately outside of each ward should be kept a tub containing a coloured solution of the perchloride of mercury (1—1,000). Into this, all bedding and clothing, which it is not desired to destroy by fire, should be placed previous to sending them for final disinfection and washing.

(19) Clothing and bedding, which it is intended the hospital dhoby should wash, should, on removal from the tubs, be again plunged into clean perchloride of mercury solution (1—1,000) for an hour. They should then be boiled for an hour previous to final washing. All rags and sweepings should be carefully burnt. Collection and subsequent burning of the latter may be facilitated by using carbonized sawdust.

(20) Faecal matter both in the latrines and in bedpans should be received on disinfectants, and should be deposited in a special closed receptacle. Kerosine iron drums with close-fitting lids will be found sufficiently convenient.

(21) In hospitals of and above twenty beds, Field Silchar incinerators will offer convenient facilities for destruction of all infected matter, including faeces. Where destruction of faecal matter cannot be thus effected, committees should arrange for a special form of conservancy cart, which could receive the air-tight drums abovementioned containing faeces from one or more hospitals. The contents of each could be disposed of at points specially indicated by the municipality.

NOTES AND SPECIFICATION TO ACCOMPANY STANDARD DESIGN FOR A CASTE PLAGUE HOSPITAL. (PLAN No. II.)

GENERAL.

Basement Walls.—These, wherever shown, are not intended to support the superstructure. They are merely for retaining the earth filling in the basement and are therefore only 9" in thickness. The basement walls should be built after the posts and the framework of the roof have been placed in position. The basement walls may be constructed of materials described below, the choice depending on the funds available:—

- (1) Brickwork in chunam, plastered over with cement, or
- (2) Brickwork in clay, plastered over with cement, or
- (3) Brickwork in chunam, pointed, or
- (4) Brickwork in clay, pointed with chunam. The basement walls shall be 9" in thickness raised 9" above ground and with a foundation of 9" below ground.

2. Flooring.—The concrete floor shall be formed of 4" of concrete plastered over with Portland cement. The concrete shall be composed of 4 parts of broken bricks (1" gauge), 2 parts of sand and 1 part of slaked chunam. The cement plastering shall be laid in a single coat of $\frac{1}{2}$ " thickness, and shall consist of 1 of cement and 2 of sand. If sufficient funds be available, concrete cement plaster should be employed as shown on the plans; if not, gravel may be substituted, except in latrines, bath-rooms, disinfecting platform and mortuary. The gravel floor shall consist of 4" of gravel rammed down to as smooth a surface as possible.

3. Posts and Bressummer.—These may be either of casuarina or any other approved wood. The posts shall be fixed at least 2' deep in the ground. A greater depth may be allowed if, by nature of the soil, the contractor considers it necessary. The posts shall be well-tarred before being fixed in the ground, and the tarring shall be carried to a height of 2' above floor level.

The position of the posts are clearly indicated on the plan.

4. Walling.—The walling as well as doors and windows will consist of double bamboo mats framed with bamboo reapers on bamboo runners, securely fixed to the posts. The walling shall be carried to within $1\frac{1}{2}$ ' of the bressummers, the space of $1\frac{1}{2}$ ' at the top being left entirely open.

5. Doors and Windows.—The doors and windows shall all open on the outside. The windows shall be hinged on the top and bamboo struts shall be provided to keep them open. The struts shall be secured to the walling by a sufficiently long rope. The hinges of the doors and windows shall be of strong coir rope. All windows will be 3' x 2', the longer dimension being placed horizontally.

The doors of the wards, hospital assistants' quarters, nurses' quarters and the mortuary will be 3' x 6 $\frac{1}{2}$ '. All other doors will be 3' x 6'.

6. Roofing.—The manner of trussing the various roofs is shown on the plan. But the contractor will be allowed to modify the arrangement with the consent of the supervising officer according to circumstances. The roofing will consist of single bamboo matting and over that paddy straw or hill grass supported by, and firmly secured to, bamboo rafters and reapers. In thatching the material employed should so overlap and be of a thickness that will render the roof watertight.

The roof shall have a slope of 2 to 1, or in other words, the rise of the roof shall be equal to half the span. The verandah roof shall have the same slope as the main roof.

7. Wards.—The wards are two in number—one for males and one for females. The male ward measures (available space) 120' x 16', and the female ward 96' x 16'. They are intended to accommodate 10 and 8 patients, respectively, with a wall space of 12' and a superficial area of 12' x 16' = 192 square feet for each bed. The number of square feet allowed over the standard of 144 square feet laid down in paragraph 3 of hints is due to the necessity where a single row of beds is used to allow additional space for relatives and nursing staff, &c. The wards have a verandah 5' wide running all along on one side. The communication between the wards and the verandahs will be by as many doors, each 3' x 6 $\frac{1}{2}$ ', as there are beds in the ward. So as to secure the advantages of the protection afforded by the verandah, the beds of the patients should be placed on this side at a distance of 2' from the wall. On the opposite side of the ward, there will be two windows 3' x 2', one on each side of the bed. There will thus be two windows between each two beds. The doors and windows are so arranged, because of the necessity that may arise for cutting off any bed or beds from the others. The arrangement of doors and windows shown will allow of this being done without interfering with ventilation or easy ingress and egress. The height of wards from the floor to the bressummer is 12'.

The wards will have a basement wall all round as described in paragraph 1 *supra*. The flooring will consist of concrete plastered over with Portland cement, or if economy is essential, the floor may be formed of gravel as described before. If a concrete floor is laid it should have a fall of 1 in 100 from the verandah side to the opposite to facilitate the cleansing of the floor. Each ward will have a detached latrine and bath-room as shown on plan, and there will be a common cook room, measuring 20' x 8' for the patients.

8. Hospital Assistant's Quarters.—This will consist of the following:—

- (1) A drug-room 10' x 12' with an adjoining verandah 5' wide.
- (2) A living-room 12' x 12' with an adjoining verandah 5' wide and a bath-room 6' x 6' attached to the rear side.
- (3) A detached cook-room.

The main block will have a basement wall as described before and a gravelled floor. The height of the rooms will be 12' from the floor to the bressummer. The bath and cook rooms will be as specified elsewhere.

9. Nurses' Quarters.—These will consist of two adjoining rooms, each 12' x 12' and 12' high with a bath-room 6' x 6' attached to each. The rooms will have a gravelled floor with a basement wall around; pertaining to these quarters there will be a common cook-room 12' x 6'.

10. Quarters for Relatives of Patients.—These will consist of two blocks, each containing six rooms 10' x 10' and 11' high with a verandah 5' wide on one side. The floor will be of gravel made into a ramp 6" high without any basement wall. There will be a bath-room and latrine, one each for males and females, and a common cook-room for the use of all the inmates.

11. Servants' Quarters and Sweepers' Quarters.—These will consist of three blocks as shown on the plan. The blocks for servants and orderlies will have three rooms each 10' x 10' and 8' high. The block for sweepers will contain four rooms each 10' x 8' and 7' high. The floor will be of gravel made into a ramp 6" above

ground without any basement wall. A latrine will be provided as shown on plan for the use of these people.

12. *Mortuary*.—This will be in two compartments each 10' × 16' and 10' high, one for male corpses and the other for female corpses. The building will have a basement wall with concrete floor plastered over with cement. The floor will have slope of 1 in 100 towards the side on which the cesspool is situated. Along the edge of the floor there will be a low wall 3" high and one brick thick. The walling will be of corrugated iron sheets to a height of about 2' from floor and above this the usual bamboo matting.

13. *The Disinfecting Platform*.—This will be an open platform (without any tatty walling or roof) 12' × 10' with floor formed exactly the same as that for the mortuary.

14. *Cook-rooms*.—These will be of the dimensions given below:—

For patients	...	20' × 8' with ten fire places.
For relatives of patients	...	15' × 6' with seven fire places.
For Hospital Assistant	...	10' × 6' with two fire places.
For nurses	...	12' × 6' with three fire places.

All these rooms will be 8' high and have a plain gravelled floor without a basement wall. The fire places will be formed in the usual manner in this part of the country with earthenware *adduppos* bedded in clay and placed 2' from centre to centre. As a protection to the tatty walling from fire there will be a brick in clay wall 2' high between the fire place and the tatties as shown on the plan.

There will be a small sink in each of the cook-rooms connected with a cesspool outside. The sinks will be formed of 4" concrete with a curb wall 4½" wide and 3" high, the whole plastered over with cement.

15. *Bath-rooms*.—All bath-rooms, whether attached or detached from the main blocks, will be 6' square and 7' high from the floor to the bressummer. They will have a basement wall with concrete floor plastered over with Portland cement. Along the edge of the floor there will be a low wall 3" high and one brick thick. The floor will slope in the direction of the cesspool. The bath-rooms will have tatty walling.

16. *Latrines*.—The privy receptacles will consist of a 9" semi-oval channel formed of concrete *in situ* between two parallel masonry walls. The channel will be partitioned into spaces 2½' wide. In each space there will be placed a galvanized iron or stoneware pan across the channel with the edges of the pan resting on the walls of the channel. These pans will be shallower than the channel itself so as to allow a clear passage between the two. The walls of the channel will serve as foot rests. The solid excrement will be received in the pans and the urine will be discharged into the open channel. The channel shall have a fall in the direction of the cesspool of not less than ¼" per every foot of its length. The building will have tatty walling and a roof as in other structures. The whole of the exposed masonry, including the channel, shall be plastered in cement as already specified.

17. *Cesspools*.—The cesspools shall measure 1½' × 1½' × 1½' inside. The floor shall be of 4" concrete, the walls of 9" thick brickwork and the whole of the interior and the top of the walls shall be plastered with cement.

Abstract of Detailed Estimate for the Construction of a Plague Hospital.

Quantity.	Description of work.	Rate.	Per	Amount.	Total.
BLOCK No. 1, MALE WARD FOR 10 BEDS.					
744 c.ft.	Earthwork	...	RS.	A.	P.
1,170 "	Concrete in chunam	...	RS.	A.	P.
317 "	Brickwork in clay	...	RS.	A.	P.
276 sqrs.	Plastering with cement, ½" thick	...	RS.	A.	P.
1,743 r.ft.	Casuarina wood	...	RS.	A.	P.
40½ sqrs.	Thatched roofing with bamboo rafters and reapers and mats, &c., complete.	...	RS.	A.	P.
30-32 "	Bamboo matting including bamboo runners and reapers, doors and windows.	...	RS.	A.	P.
1 no.	Cesspool	...	RS.	A.	P.
...	Contingencies	...	RS.	A.	P.
Total		...	RS.	A.	P.
BLOCK No. 1-A, FEMALE WARD FOR 8 BEDS.					
600 c.ft.	Earthwork	...	RS.	A.	P.
935 "	Concrete in chunam	...	RS.	A.	P.
263 "	Brick in clay	...	RS.	A.	P.
22-26 sqrs.	Plastering with cement, ½" thick	...	RS.	A.	P.
1,413 r.ft.	Casuarina wood	...	RS.	A.	P.
32-34 sqrs.	Thatched roofing with bamboo rafters and reapers and mats, &c., complete.	...	RS.	A.	P.
25-23 "	Bamboo matting with bamboo runners and reapers including doors and windows.	...	RS.	A.	P.
1 no.	Cesspool	...	RS.	A.	P.
...	Contingencies	...	RS.	A.	P.
Total		...	RS.	A.	P.
BLOCK No. 2, HOSPITAL ASSISTANTS' QUARTERS.					
201 c.ft.	Earthwork	...	RS.	A.	P.
138 "	Gravel filling	...	RS.	A.	P.
9 "	Concrete in chunam	...	RS.	A.	P.
107 "	Brick in clay	...	RS.	A.	P.
1-3 sqrs.	Plastering with cement, ½" thick	...	RS.	A.	P.
545 r.ft.	Casuarina wood	...	RS.	A.	P.
86 sqrs.	Thatched roofing with bamboo rafters and reapers and mats, &c., complete.	...	RS.	A.	P.
10-80 "	Bamboo matting with bamboo runners and reapers including doors and windows.	...	RS.	A.	P.
1 no.	Cesspool	...	RS.	A.	P.
...	Contingencies	...	RS.	A.	P.
Total		...	RS.	A.	P.
BLOCK No. 3, QUARTERS FOR NURSES.					
242 c.ft.	Earthwork	...	RS.	A.	P.
14 "	Concrete in chunam	...	RS.	A.	P.
130 "	Gravel filling	...	RS.	A.	P.
128 "	Brick in clay	...	RS.	A.	P.
2-075 sqrs.	Plastering with cement, ½" thick	...	RS.	A.	P.
442 r.ft.	Casuarina wood	...	RS.	A.	P.
9 sqrs.	Thatched roofing with bamboo rafters and reapers and mats, &c., complete.	...	RS.	A.	P.
12-36 sqrs.	Bamboo matting with bamboo runners and reapers including doors, &c.	...	RS.	A.	P.
2 nos.	Cesspools	...	RS.	A.	P.
...	Contingencies	...	RS.	A.	P.
Total		...	RS.	A.	P.
Carried over		...	RS.	A.	P.

Abstract of Detailed Estimate for the Construction of a Plague Hospital—cont.

Quantity.	Description of work.	Rate.	Per	Amount.	Total.
BLOCK No. 11, BATH-ROOM.					
		RS.	A.	P.	RS. A. P.
	Brought forward ...				
20 c.ft.	Earthwork ...				
15 "	Concrete in chunam ...				
24 "	Brick in clay ...				
12 "	Brick in chunam ...				
81 sqrs.	Cement plastering, 1" thick ...				
95 r.ft.	Casuarina wood ...				
108 sqrs.	Thatched roofing with bamboo rafters, reapers and mats, &c., complete.				
200 "	Bamboo matting with bamboo reapers inclusive of doors and windows.				
1 sq.ft.	Cuddapah slab stone ...				
...	Contingencies ...				
...	Add for 3 similar bath-rooms ...				
	Total ...				
BLOCK No. 12, LATRINE.					
42 c.ft.	Earthwork ...				
46 "	Brick in chunam ...				
48 "	Concrete in chunam ...				
123 sqrs.	Plastering with cement, 1" thick ...				
102 r.ft.	Casuarina wood ...				
165 sqrs.	Thatched roofing with bamboo rafters, reapers and mats, &c., complete.				
23 sqrs.	Bamboo matting with bamboo reapers inclusive of doors and windows.				
...	Contingencies ...				
4 nos.	Latrines as per above ...				
	Total ...				

General note

Detailed Estimate for the Construction of a Plague Hospital—cont.

Detail of work.	Num-ber.	Measurements in feet.			Area or contents.	Total quantity of each description of work.
		Length.	Breadth.	Depth.		
BLOCK No. 1-A, FEMALE WARD FOR 8 BEDS—cont.						
CASUARINA WOOD.						
Posts in ward	2x13	14½	...	...	384	
Do. in verandah	13	10½	...	...	140	
Coupled trusses	13	46	...	...	598	
Bressummers	3	97	...	...	291	
Total, Rg. ft. ...	...	...	...	...	1,413	Rg. ft. 1,413
THATCHED ROOFING WITH BAMBOO RAFTERS, REEPERS AND MATH, &C., COMPLETE.						
Ward in front	1	98	19	...	1,862	
Do. in rear	1	98	14	...	1,372	
Total, Sq. ft. ...	...	...	...	...	3,234	Sqrs. 3234
BAMBOO MATTING WITH BAMBOO REEPERS INCLUSIVE OF DOORS AND WINDOWS.						
Ward all round	1	224	...	10½	2,352	
Gable ends	2	16	...	5½	176	
Total, Sqr. ft. ...	...	...	...	...	2,528	Sqrs. 2528
BLOCK No. 2, HOSPITAL ASSISTANT'S QUARTERS.						
EARTHWORK.						
Excavating for foundation walls all round ...	1	95½	¾	¾	54	
Filling in basement of main building ...	...	26½	12	¾	118	
Verandah	1	12½	4½	¾	20	
Bath room	1	5½	4½	¾	9	
Total, ft. ...	...	...	...	...	201	C. ft. 201
CONCRETE IN CHUNAM.						
Bath room	1	5½	4½	¾	9	
Total, C. ft. ...	...	...	...	...	9	C. ft. 9
GRAVEL FILLING.						
Flooring of main building	...	26½	12	¾	118	
Verandah	...	12½	4½	¾	20	
Total C. ft. ...	...	...	...	...	138	C. ft. 138
BRICK IN CLAY.						
Walls all round	1	95½	¾	1½	107	C. ft. 107
PLASTERING WITH CEMENT.						
Basement all round	1	101½	...	¾	76	
Top of basement	1	95½	...	...	72	
Bath room	1	6	5½	...	32	
Total, Sq. ft. ...	...	...	...	...	180	Sqrs. 18
CASUARINA WOOD.						
Posts in main building	8	14½	...	...	118	
Do. in front verandah	4	9½	...	...	39	
Do. in side do.	3	10½	...	...	32	
Do. bath room	...	8½	...	...	17	
Bressummers	...	23½	...	...	47	
Do.	...	13½	...	...	27	
Do.	1	14	...	...	14	
Do.	1	6	...	...	6	

Detailed Estimate for the Construction of a Plague Hospital—cont.

Detail of work.	Num-ber.	Measurement in feet.			Area or contents.	Total quantity of each description of work.
		Length.	Breadth.	Depth.		
BLOCK No. 8, MORTUARY.						
EARTHWORK.						
Excavating for foundations retaining wall, all round	1	57	$\frac{3}{4}$	$\frac{3}{8}$	32	
Filling in basement	1	18 $\frac{1}{2}$	8 $\frac{1}{2}$	$\frac{3}{8}$	98	
Total, C. ft. ...	...	...	...	...	130	C. ft. 130
CONCRETE IN CHUNAM.						
Floor of rooms	1	18 $\frac{1}{2}$	8 $\frac{1}{2}$	$\frac{1}{3}$	52	C. ft. 52
BRICK IN CHUNAM.						
Retaining wall	1	57	$\frac{1}{2}$	1 $\frac{1}{2}$	64	C. ft. 64
PLASTERING WITH CEMENT.						
Basement, all round	...	60	...	$\frac{1}{2}$	45	
Floor	1	20	10	...	200	
Total, Sq. ft. ...	...	...	...	...	245	Sqrs. 4 $\frac{1}{2}$
CASUARINA WOOD.						
Posts	6	12 $\frac{1}{2}$	...	...	77	
Coupled trusses	3	35	...	...	105	
Bressummers	2	21	...	...	42	
Total, Rg. ft. ...	...	...	...	...	224	Rg. ft. 224
THATCHED ROOFING WITH BAMBOO RAFTERS, REEFERS AND MATS, &c., COMPLETE.						
Roofing, both sides	2	21	10 $\frac{1}{2}$	...	441	Sqrs. 4 $\frac{1}{2}$
WALLING WITH CORRUGATED IRON SHEET.						
Walls exclusive of doors	...	54	...	2 $\frac{1}{2}$	135	
Cross wall	...	10	...	2 $\frac{1}{2}$	25	
Total, Sq. ft. ...	...	...	...	...	160	lb. $\times 1.56 = 2.5$ Cwt.
BAMBOO MATTING WITH BAMBOO REEFERS INCLUSIVE OF DOORS AND WINDOWS.						
Wal's, all round	1	60	...	6 $\frac{1}{2}$	390	
Cross wall	1	10	...	6 $\frac{1}{2}$	65	
Gables	2	10	...	4	80	
Total, Sq. ft. ...	...	...	...	...	535	Sqrs. 5.35
BLOCK No. 9, HOSPITAL COOK ROOM, 20' x 8'.						
BRICKWORK IN CLAY.						
Wall in sides and rear of fireplace	1	27 $\frac{1}{2}$	$\frac{1}{2}$	3	62	
Fireplace	1	20	1 $\frac{1}{2}$	$\frac{1}{2}$	22	
Total, C. ft. ...	...	...	...	...	84	C. ft. 84
BRICKWORK IN CHUNAM.						
Cess pool	1	3	3	3	27	
Sunk	1	3	2 $\frac{1}{2}$	$\frac{1}{2}$	4	
Total, C. ft. ...	...	...	...	...	31	
Deduct races	...	1 $\frac{1}{2}$	1 $\frac{1}{2}$	2	5	
Total less deductions, C. ft. ...	...	...	...	...	26	C. ft. 26

Detail Estimate for the Construction of a Plague Hospital—cont.

Detail of work.	Num-ber.	Measurements in feet.			Area or contents.	Total quantity of each description of work.
		Length.	Breadth	Depth.		
BLOCK No. 10, COOK ROOM, 10'x6', FOR THE HOSPITAL ASSISTANT -cont.						
CASUARINA WOOD.						
Posts	4	10½	...	...	42	Rg. ft. 108
Bressummers	2	11	...	...	22	
Coupled trusses	2	22	...	...	44	
Total, Rg. ft. ...	...	...	...	...	108	
THATCHED ROOFING WITH BAMBOO RAFTERS, REEPERS AND MATS, &c., COMPLETE.						
Roof, both sides	2	11	7½	...	165	Sqrs. 1-65
BAMBOO MATTING WITH BAMBOO REEPERS, INCLUSIVE OF DOORS AND WINDOWS.						
Wall in front and sides	1	16	...	6½	104	Sqrs. 2
Do. in rear do.	1	16	...	3½	56	
Gables	2	6	...	3	36	
Total, Sq. ft. ...	...	...	...	...	196	
BLOCK No. 10-A, COOK ROOM, 12'x6', FOR NURSES.						
EARTH FILLING.						
Raising the floor	1	12½	6½	½	41	C. ft. 41
BRICK WORK IN CLAY.						
Wall in rear and sides of fire-places	1	17	½	3	39	C. ft. 50
Fire-place	1	10½	1½	3	12	
Total, C. ft. ...	...	...	...	...	50	
BRICK IN CHUNAM.						
Cesspool	1	3	3	3	27	C. ft. 26
Sink... ..	1	3	2½	½	4	
Total ...	...	...	...	...	31	
Deduct recess	1	1½	1½	2	5	C. ft. 26
Total less deduction, C. ft. ...	...	...	...	...	...	
PLASTERING WITH CEMENT, ½" THICK.						
Cesspool, top and floor	1	3	3	...	9	Sqrs. 36
Sides, inside	1	6	...	2	12	
Do. outside	1	9	...	2	7	
Sink... ..	1	3	2½	...	8	Rg. ft. 112
Total, S. ft. ...	...	...	...	...	36	
CASUARINA WOOD.						
Post	4	10½	...	...	42	Rg. ft. 112
Bressummers	2	13	...	...	26	
Coupled trusses	2	22	...	...	44	
Total, Rg. ft. ...	...	...	...	...	112	
THATCHED ROOFING WITH BAMBOO RAFTERS, REEPERS AND MATS, &c., COMPLETE.						
Roof, both sides	2	13	7½	...	195	or Sqrs. 2-0
BAMBOO MATTING WITH BAMBOO REEPERS, INCLUSIVE OF DOORS AND WINDOWS.						
Wall in front and sides	1	18	...	9½	117	or Sqrs. 2-16
Do. rear do.	1	18	...	3½	63	
Gables	2	6	...	3	36	
Total, Sq. ft. ...	...	...	...	...	216	

Detail Estimate for the Construction of a Plague Hospital- cont.

Estimate for the Construction of a *Plague Hospital*— cont.

Detail of work.	Num-ber.	Measurements in feet.			Area or contents.	Total quantity of each description of work.
		Length.	Breadth.	Depth.		
BLOCK No. 10, COOK ROOM, 10'x8', FOR THE HOSPITAL ASSISTANT—cont.						
CASUARINA WOOD.						
Posts	4	10½				
Bressummers	2	11			42	
Coupled trusses	2	22			22	
					44	
Total, Bg. ft.						
THATCHED ROOFING WITH BAMBOO RAFTERS, REEPERS AND MATS, &c., COMPLETE.						
Roof, both sides	2	11	7½		165	Rg. ft. 108
BAMBOO MATTING WITH BAMBOO REEPERS, INCLUSIVE OF DOORS AND WINDOWS.						
Wall in front and sides	1	16		6½	104	
Do. in rear do.	1	16		3½	56	
Gables	2	6		3	36	
Total, Sq. ft.					196	Sqrs. 2
BLOCK No. 10-A, COOK ROOM, 12'x6', FOR NURSES.						
EARTH FILLING.						
Raising the floor	1	12½	6½	1	41	C. ft. 41
BRICK WORK IN CLAY.						
Wall in rear and sides of fire-places	1	17			33	
Fire-place	1	10½	1½	3½	12	
Total, C. ft.					50	C. ft. 50
BRICK IN CHUNAM.						
Cesspool	1	3	3	3	27	
Sink...	1	3	2½	½	4	
Total					31	
Deduct recess	1	1½	1½	2	5	
Total less deduction, C. ft.						C. ft. 26
PLASTERING WITH CEMENT, 1" THICK.						
Cesspool, top and floor	1	3	3		9	
Sides, inside	1	6			12	
Do. outside	1	9		2	7	
Sink...	1	3	2½	½	8	
Total, S. ft.						
					36	Sqrs. 36
CASUARINA WOOD.						
Post ..	4	10½			42	
Bressummers	2	13			26	
Coupled trusses	2	22			44	
Total, Bg. ft.						
THATCHED ROOFING WITH BAMBOO RAFTERS, REEPERS AND MATS, &c., COMPLETE.						
Roof, both sides	2	13	7½		195	Rg. ft. 112
BAMBOO MATTING WITH BAMBOO REEPERS, INCLUSIVE OF DOORS AND WINDOWS.						
Wall in front and sides	1	18		6½	117	
Do. rear do.	1	18		3½	63	
Gables	2	6		3	36	
Total, Sq. ft.					216	or Sqrs. 216