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Not to be folded or roughly handled

No. 261. Read the following papers—

From the President Sanitary Commission.

Submits observations of the Madras Sanitary Commission on Colonel Crommelin's Plans for Hospitals for European and Native Troops in India. (Here enter 31st March 1865, No. 605A.)

No. 262. From R. COLE, Esq., Principal Inspector General, Medical Department, to Colonel C. A. ORR, R. E., Secretary to Government, Public Works Department, dated Fort Saint George, 13th April 1865, No. 130 B:—

SIR,
I have the honor to submit herewith the following Memorandum on the proposed plans of Hospital construction by Colonel Crommelin, in obedience to Proceedings of Government and order thereon calling on me for report, dated 17th January 1865, No. 155.

MEMORANDUM.

1. It will be convenient to follow the arrangement of the subject adopted in Colonel Crommelin's Memoranda, and first in the order thereof come

NATIVE HOSPITALS.

And here I will adopt, to express my views, the recapitulation given at the end of the 1st Memorandum:—

I. I entirely approve that single storied buildings, having their floors raised 3 feet in dry climates and 5 feet in damp climates, suffice for Native Regimental Hospitals; a second story being, in no case that I am aware of, necessary or even desirable.

II. A single building should suffice for every description of Native Regimental Hospitals.

III. The component parts of a Native Regimental Hospital should consist of—

(1) Wards for the sick. The dimensions of these must depend on the numerical strength of the Regiments, which has been found to vary considerably from time to time. Every Native Hospital that I am acquainted with in this Presidency is much too small for the *maximum* number of sick of a corps, say 10 per cent; and, in these cases, the wards have to be overcrowded, the verandahs having sick placed in them sometimes, or tents are pitched outside for their reception.

(2) The Hospital "administration" being in the centre of the building, as in the plan, I think good. In this Presidency the arrangement is much simpler, one long ward with verandah all round, and this latter enclosed at the four corners into small rooms for dispensary, store-room, bath-room, and guard, thus blocking up the ventilation of the centre of the building in those directions. The six apartments in the centre might be reduced to two, in this Presidency, one for dispensary and store-room (all medicines being preserved in almirahs with locks), and one for Surgeon's receiving-room; in which arrangements for light might be so made as to admit of the room being used for operating, and at other times might be occupied as a sitting room by the Medical subordinate on duty. "Small wards" for special cases might much more appropriately occupy the spaces assigned to "sculleries" in the plan. *sculleries* no doubt would be useful for the purposes named, but the multiplication of *sculleries* places would augment the expenditure of fuel, and a single one in the centre of the Hospital enclosure, to the rear, would suffice for the simple culinary purposes of a Native Hospital, as well as for medical preparations. The two privies and two wash-houses, at each corner of the main building, but outside the verandah, and the former opening obliquely to the wards, I think admirable and very desirable.

*Proceedings of the Madras Government, Public Works Department,
12th May 1865.*

(3) Accommodation for Medical subordinates, other than I have named, within the Hospital itself, is unnecessary; but quarters for them, outside in immediate vicinity, should be provided.

(4.) Dispensary and Receiving-rooms I have provided for.

(5) Cook-room. I believe that in the other Presidencies, as in Madras, no diets are prepared for the sick, nor does a Native Cook prepare the food of the sick in the Hospital kitchen. In Burmah and the Straits the Native Troops are dieted with excellent results. If such arrangements did exist in other Hospitals, treatment would be much more efficacious and satisfactory to the Surgeon. A simple building, somewhat larger and more complete than those we now have, with separate fire places for Hindoos and Mahomedans, is all that is needed.

(6.) An out door lavatory would, no doubt, be a most desirable adjunct to a Hospital.

(7) An out-door privy is indispensable.

(8.) A guard-room is no doubt desirable. The men composing the guard usually encumber the front verandah, or sometimes have a corner room assigned to them, both objectionable.

(9) A dead-house, for obvious reasons, is desirable, but rarely, if ever, exist attached to Madras Hospitals.

(10) Servants' houses would be a great boon to these under-paid classes (not over-near to the Hospital), and would increase the efficiency of menial attendants. The only servants of this class in Native Hospitals are two Tories.

(11) An iron railing on a two feet wall, would be an appropriate enclosure, and the guard-room should be at the gate.

IV. I consider that the following numbers of wards should suffice.

For Infantry Hospitals, two general wards, and two small wards for special cases to accommodate a number of 50 beds.

For Cavalry Hospitals, two general and one small ward for a full Regiment; and one general and one small ward for a Detachment.

V. I am of opinion that it is not necessary to provide convalescent wards for Native Regimental Hospitals.

VI. The beds should be arranged, as recommended, for European Hospitals, and Barracks for unmarried European Soldiers, viz, that they be arranged on the opposite sides of the wards, with their heads to the walls; that not more than two beds be placed in the wall space between two doors on the same side of the ward, or between the opposite doors of the ward, that there be not less than half as many doors in the length of the ward as there are beds.

VII. That all large wards should be 25 feet in width and 16 feet in height from floor to wall plate, and that the wall space per bed should be 7½ running feet, thus giving an area of 97½ square feet per bed.

VIII. That a privy and ablution-room should be attached to each large ward. The privy to be suited for the dry earth system.

IX. That a dispensary and a receiving-room (to serve as an occasional operating-room, and as a sitting-room for Medical subordinates on duty) should be placed in the Hospital proper, close to the wards.

X. That a cook-room, a privy, a lavatory, a guard-room, and a dead-house should be provided in out-buildings.

XI. That special accommodation is not necessary for day-rooms for the sick, for stores, Hospital Serjeant, or Orderlies.

XII. That, with the exceptions indicated, the proposed two plans of Hospitals are approved.

XIII. That a filth cart should be allowed for each Native Regiment and Hospital. The Hospital alone would not afford enough work, but the cart might be employed with advantage in removing all effete matters from the Regimental lines, very strong recommendations reach me from Executive Officers and Deputy Inspectors General that one should be provided.

*Proceedings of the Madras Government, Public Works Department,
12th May 1865.*

2. With regard to Colonel Crommelin's second Memorandum, on the principles to be attended to in designing Hospitals for European Troops, I beg to observe that I consider it of no use to enter into details therein laid down, as I most cordially concur in all his recommendations.

3. On the question, however, of the necessity of providing detached wards for the reception of infectious diseases, it is very true that, if the perfection of Hospital construction and administration is attained, there would be no danger of a disease, though really infectious, being communicated. But there are so many chances against this absolute perfection being secured, that I think it would be a wise precaution to isolate such cases. In India, particularly, where native agency is necessarily so much employed in Hospital administration, less dependence can be placed on the fulfilment of orders to keep such cases entirely separate, if they are received into the great wards. I think each European Regimental Hospital should have a detached ward for Cholera or Small Pox patients.

4. One building for all the corps in a garrison is very undesirable for obvious reasons; and I think that the small wards in the middle of the building, where there must necessarily be less segregation on account of this situation being a centre of resort, are not appropriately placed for the reception of infectious diseases.

5. If an entirely detached building is provided, it would, as Colonel Crommelin observes, involve difficulties as to attendance. I would therefore suggest that complete segregation might be effected, and yet the patients not be far removed from supervision and attendance, and without necessitating a separate establishment, if a small ward with covered passage from the main building, were projected from the centre, where the administrative offices and small wards are laid down in Colonel Crommelin's plan; great care would be required, however, in such case, that the position should not be to windward at any season of the year, so as to interfere with due atmospheric perfusion and the ventilation of the wards.

(Signed) R. COLE,

Prin. Insp. Genl, Medical Department

No. 263. ORDER THEREON, 12th May 1865, No. 1,296.

MILITARY WORKS, No. 23.

The foregoing papers will be communicated to the Government of India, with an intimation that this Government concur generally in the views of the Sanitary Commission, but that they are of opinion that the restriction of the treatment of European sick to upper rooms only is not necessary in this Presidency, and that an absolute adherence to the principle will involve an unnecessary expenditure in providing Hospital accommodation.

Ordered that the following letter be sent:—
(Here enter No. 1,297, dated 12th May 1865.)

(True Extract.)

(Signed) CHARLES A. ORR, Colonel, R. E.,
Secretary to Government.

To the Superintending Engineers.
" Military Department.
" President Sanitary Commission.
" Principal Inspector General Medical Department.

Ed S. T. Augustin.

(3)
PUBLIC WORKS DEPARTMENT.
FORT SAINT GEORGE,
12th May 1865.

No. 264.

No. 1,297.

From

COLONEL C. A. ORR, R. E.,
Secretary to the Government of Fort Saint George, P. W. D.,

To

THE SECRETARY TO THE GOVERNMENT OF INDIA, P. W. D.

SIR,

MILITARY WORKS, No. 24.

With reference to the Circular of the Government of India, No. 84, dated 25th November 1864, forwarding Memoranda

by Lieutenant-Colonel Crommelin upon some of the principles which should be attended to in designing Hospitals for European and Native Troops in India, I am directed to transmit copies of the communications noted in the margin, and to observe that this Government concur generally in the views of the Sanitary Commission, but are of opinion that the restriction of the treatment of European sick to upper rooms only does not seem necessary, at least, in this Presidency, and that an absolute adherence to the principle will involve an unnecessary expenditure in providing Hospital accommodation.

From the Sanitary Commission, No. 605A, dated 31st March 1865
Do Principal Inspector General, Medical Department, No. 130B, dated 13th April 1865

I have the honor to be,

Sir,

Your most obedient Servant,

[(Signed)] CHARLES A. ORR, Colonel, R. E.,
Secretary to Government.

Exd. S. T. Augustin.

41

OFFICE OF SANITARY COMMISSION,
MADRAS, 31st March 1865

No 605A.

From

THE HONORABLE R S ELLIS, C. B.,
President, Sanitary Commission, Madras

To

COLONEL CHARLES A. ORR, R. E.,
Secretary to Government, Public Works Dept.,
Fort St George

SIR,

I have the honor to acknowledge the receipt of Proceedings of Government, dated 17th January, and Order Thereon, No. 155.

2. I beg to point out that the Circular letter by Colonel Strachey, is dated 25th November 1864, and also, that the Order of the Madras Government, 17th January, did not reach this office until one month and six days after its date.

3. The papers contained in these Proceedings have been carefully considered by this Commission, and I have to submit the following observations for the consideration of Government.

Hospitals for Native Troops.

4. In accordance with orders of Government, the scale of accommodation to be provided for Native Troops has been fixed. But as the "full Regiment" of Bengal may not accord with the "full Regiment" of the Madras Presidency, I thought it advisable to place myself in communication with the Principal Inspector General, as regards the proportion of sick to the strength of the Cavalry and Infantry Regiments of the Native Army in this Presidency.

5. I have just received this return, and am therefore now able to submit the reply of this Commission to your requisition in a more complete form than I could otherwise have done.

6. There was some difficulty in fixing on the numbers of sick to be provided for, as there were up to this time no statistics available to give the requisite data upon which to base any conclusions. But the information afforded by the Principal Inspector General shows that—

(1.) In four Native Cavalry Regiments the average annual daily sick of three years varied from 4 to 16, the mean average being 9. But the highest monthly average rose as high as 21, and 8 was the least number, the mean average of highest monthly sick being 14.6. But as there are a number of followers who might require treatment, and as some cases may require additional accommodation or seclusion, I think provision should be made for 25 beds, in four Wards, one for 17—one for 6—and 2 for one patient each. To these should be added a Surgery Receiving room, Bath room, Washing room, Larder, Scullery, houses for Apothecary, Dresser, Hospital Servants, two sepulchral arrangements and Dead house and Hospital Clothing Store. The principles of construction should be only requisites for such a building should be in accordance with the during the Surgeon's Commission for a Native Infantry Hospital.

(2.) Very great variations appear in the highest and lowest annual average daily sick in Native Infantry Regiments. The lowest being only 5 and the highest 64, the mean annual daily sick of one Regiment being 17.1. An equal variance is observable between the highest and lowest monthly average of daily sick, which are represented respectively by the figures 7 and 128: the mean highest monthly sick being 30.3.

of the beds, and
if central tables are re-
has been found too,
if the width of 22 feet
in favor of the narrow
ridge ventilated
buildings

On the whole, it is believed that 40 cots will be sufficient for ordinary sick, although in some instances this amount of accommodation may not be required. Colonel Crommelin assigns 48 cots and 2 special Wards for the same purpose; we think this somewhat in excess.

7. I may observe, however, that the general salubrity or otherwise of a station should be strictly borne in mind, for at stations where fever is frequently witnessed a much larger amount of accommodation would be required than at others where it is rarely prevalent.

8. In my present observations, therefore, I shall confine myself to the consideration of such principles of Hospital construction as are worthy of determination. In discussing these I purpose chiefly to submit the remarks of this Commission upon the "Plans" and "Recapitulation" of Colonel Crommelin.

9. This Commission entirely concurs with Colonel Crommelin, that upper stories are not required for Native Hospitals, except in situations where want of space may demand an upper floor to be added. A well-raised basement should, however, be invariably provided, and this recommendation applies especially to stations on the Western Coast in this Presidency.

10. The number (60) fixed by Colonel Crommelin to be contained in one building is larger than that ordinarily required by any Native Infantry Regiment in this Presidency. But I am inclined to think that the limit of sick to be aggregated in one building, i. e., under one roof, is as necessary to be defined in Native as in European Hospitals and for the same reasons.

11. As to the apartments required to constitute a good Hospital for Native Infantry or Cavalry, this Commission concurs generally in the observations under notice. But it is also our opinion that the precise use of individual apartments may be somewhat better arranged; and that the relative position of some of these might be altered with advantage.

12. Three general Wards will probably suffice for the treatment of ordinary Regimental sick. But as it is necessary to make suitable provision for cases of *contagious disease*, it appears desirable to provide two small Wards each containing two beds entirely separated from the general Wards. These are shown in the annexed Plan as *Separate Wards*.

13. This Commission concurs with Colonel Crommelin's suggestions regarding the arrangement of beds in the Wards.

14. The superficial space 97½ feet assigned by Colonel Crommelin is not so necessary with ridge ventilation as if flat roofs are designed, and this Commission is disposed to recommend 88 as amply sufficient with ridge ventilation. The width of Wards, however, recommended (26 feet) seems open to some objection. The width of Wards in the General Hospital at Madras (occupied by Europeans) is only 20 feet and is found convenient (provided that for Europeans separate dining rooms are attached). The width of 22 feet gives 8 feet clear between the ends, and this is ample. The width of 26 feet can only be necessary if the ends are required, and these are never seen in a Native Hospital. It is by experience, that the cost of buildings is greatly increased by the necessity of the ends, and this is much exceeded.

15. Another argument in favor of ridge ventilation is the more perfect ventilation that can be ensured in buildings of this kind, and the cost of pointed roofing increases considerably in wider buildings.

16. Should the Government of Madras agree in the propriety of these views, then assuming 88 superficial feet to be fixed as a standard, each native patient would have 8 feet of wall-space in lieu of 7½ allowed by Colonel Crommelin. I think these proportions

better than those suggested in his recommendations—because they give a wider space between adjoining beds.

17. As this Commission recommend one-storied buildings, they would prefer to see them with tiled roofs and ridge ventilated—the height of the Wards to wall-plate should be 15 feet and to ridge 22 feet thus each patient would have 1,628 cubic feet of breathing room, with abundant ventilation by the ridge and attics. The doors of the Wards, I think, should be provided with panes of glass for their upper third, and one or two of these in each door might be fitted with hinges so as to open if required.

18. The verandah may, with a view to economy, be made by continuing the roof down at the same incline as over the Wards. If, however, the verandah is 8 feet wide, the roof would then be only 11 feet high at outside and no swing attics could be introduced with good effect. This Commission would prefer that the verandah should be made flat-roofed and level with the Ward walls, with swing ventilators under the verandah-roof and over each door and window. The verandahs need not be more than 8 feet deep.

19. In illustration of the foregoing and subsequent remarks of this Commission, I forward block sketch of an Hospital with all necessary out-offices and subsidiary buildings—this plan shows the size and arrangement of the different rooms in sufficient detail.

20. Colonel Crommelin's "recapitulation" contemplates single-storied buildings only. In this, this Commission concurs with him.

21. Colonel Crommelin considers that a single building will be sufficient for the whole Hospital. This Commission is somewhat inclined to question the propriety of this rule. We are of opinion that apartments for Executive offices, Apothecary's Quarters and separate Wards for contagious cases should be detached more or less from Wards to be occupied exclusively by sick persons, and the relative position of these latter rooms could, in our opinion, be better arranged.

22. The internal organization of a Native Infantry Regiment is doubtless somewhat different in Bengal from that prevailing in this Presidency, and this must be borne in mind in considering the "component parts" of which a Native Infantry Regimental Hospital should consist.

23. Provision should be made for (say 36) sick in General Wards, 3 in number to contain 20, 10 and 6 patients respectively. Two small Wards each for 2 "special cases" should also be provided in the same block but cut off from the other Wards.

24. There should also be one or two "Separate" Wards for contagious cases entirely apart from the main building, each to contain two beds.

25. Connected with the main building there should be a Surgery easily accessible to all Wards, but not necessarily under the same roof. Pavilion construction would meet this view, and we would recommend that this mode of building be adopted, and that next to the Surgery there should be a "Receiving Room" for men to be seen in when reporting sick or for the examination of convalescents attending daily during the Surgeon's visit.

26. As this room would be only required for an hour or so daily and chiefly during the Surgeon's visit or on the occurrence of accident or sudden illness, at both which times the Medical subordinates would be professionally engaged, this Commission is of opinion that the "Receiving Room" could be made to answer as a day-room for the Apothecary, or Dresser, or Pupils on duty.

27. The usual allotment of Medical subordinates to a Native Infantry Regiment in the Madras Presidency is one Assistant Apothecary and one Dresser. These persons are, as a rule,

married, and we think that suitable residences for them should be provided near to, but not forming an integral portion of, the Hospital.

28. I proceed to remark on the situations proposed by Colonel Crommelin for the subsidiary buildings required as Privies, Lavatories, Cook-rooms, Servants' apartments, &c

29. It is proposed in the papers under report to have two sets of privies. The necessity for this is very questionable. Assuming that 40 men are in Hospital, not more than 12 privy seats can possibly be required, and this is greatly in excess of the usual allotment to Hospitals; but we intentionally allow six compartments to be attached to each wing of the proposed Hospital. These compartments should be made as separate as possible from the adjoining ones and should be sufficiently removed from the Wards and not open directly into the verandahs as shown in Colonel Crommelin's plan.

30. These apartments should be to the rear of the two wings of the Hospital occupied by the ordinary sick and should be approached by covered ways. The privies should be worked on the "Dry Earth" system.

31. At either side of the passage leading from the Hospital verandah to the privy, and opening from the Hospital verandah, should be two Bathing rooms, one of them with fixed baths and one for ordinary bathing, and a small scullery should be placed at the side of the passage connecting the Executive rooms with the sick Wards and a small store for Hospital clothing.

32. The accompanying plan will show the dimensions of all these buildings and their relative position.

33. A Cook-room might be provided, although this Commission somewhat questions the necessity for it. All cooking for men in Hospital in this Presidency is done by the families in the Lines and the food is brought to the men. But a Cook-room might prove useful for the preparation of soups and other articles of extra diet and for keeping the Surgery supplied with hot water, &c.

34. A Guard room should be built in front of the Hospital in some central position overlooking the main building, and this with a surrounding dwarf wall with railing would prevent men leaving the Hospital at night or receiving supplies of food or liquor surreptitiously.

35. A Dead house is an essential element of Hospital construction that has been too often overlooked. Although, as a result of native prejudice, *post mortem* examinations are rarely held, yet it is exceedingly desirable that dead bodies should not be allowed to remain in Wards occupied by sick patients.

36. The servants of all Native Infantry Hospitals should be provided with quarters, as their absence at their houses for meals, &c., interferes very considerably with the efficient performance of their duties.

37. I have before recommended that the dry earth system of conservancy should be adopted, and this would necessitate the provision of two soil carts to each Hospital. The one in use should be kept in the Cart shed shown in the design for the lavatories and privy.

Hospitals for European Troops.

38. I intentionally defer to another opportunity entering upon the question of the desirability or otherwise of instituting General Hospitals at large stations for European troops, and for the reasons assigned by Colonel Crommelin confine my remarks to

the opinion of this Commission regarding the proposed plans submitted for, and the principles to be adopted in designing, Regimental and Detachment Hospitals for Europeans

39. This Commission agrees generally in Colonel Crommelin's calculation that accommodation at the rate of 12 per cent. will suffice for the sick of European Troops at ordinary stations. An examination of the Returns contained in the Proceedings of Government, dated 26th August 1864, with Order No. 2,972, and those dated 13th September 1864 with Order No. 3,226, gives the following results as regards European sick for the last five years.

Ratio per 1,000 daily sick to strength		But it must be remembered that during epidemics a greatly increased number of sick would require to be provided for on these grounds and	
1	Thyettmyoo 44 94	9	Tonghoo 65 25
2	Kamptee 50 92	10	Secunderabad 67 46
3	Wellington 51 70	11	Madras 67 62
4	Waltair 54 59	12	Bangalore 68 73
5	Bellary 57 09	13	Trichinopoly 82 96
6	Trimulgherry 58 47	14	Sunt Thomas' Mount 88 08
7	Cananore 60 57	15	Poonamallee 136 97
8	Rangoon 60 96		

in accordance with practical experience, I think that Colonel Crommelin's estimate should be accepted as the rule.

40. This Commission concurs in the proposal that sick should be treated in upstairs rooms, and the only argument against it is the cost of providing such accommodation. But if the sanction of the Supreme Government is accorded to this arrangement, it will then be only necessary to utilize to the greatest possible extent the lower or ground floor.

41. This Commission is, however, strongly opposed to third or fourth stories, as we believe that they would be found practically exceedingly inconvenient. Proper supervision of patients would be almost impossible without entailing extreme fatigue upon Medical subordinates, Orderlies, and attendants, and the transport to upper Wards of food, water, clothing and medicine, would be difficult.

42. In the case of General Hospitals, contemplated by Colonel Crommelin as possibly requiring these additional upper stories, an increased number of pavilions connected by arcades would, with much greater convenience, meet the required end, namely, increased accommodation.

43. It should also be remembered that, if the principle of fixing a limit to the number of sick to be aggregated under one roof be admitted, and if sick Wards are to be supplied with all necessary apartments shown in Colonel Crommelin's Plan II, the lower floor would not provide sufficient space for "day" "orderly" and "dining" rooms for three stories.

44. The Commission for the improvement of Barracks and Hospitals recommends that in warm climates not more than 60 sick persons should be placed under one roof, and 2 Wards of 24 sick would, with a very few convalescents and special cases fully reach that number on the upper floor alone.

45. Colonel Crommelin's argument in favor of the non-necessity of minute segregation of Military sick possesses considerable weight, but this Commission desires to point out that in many of the Hospitals in this Presidency, not only is the space per cot afforded to the sick below the standard of accommodation now recommended, but the cots are so few in number as to be almost constantly occupied. Colonel Crommelin's views, therefore, can only be upheld if all Military sick are treated in upstairs rooms and if cots are provided at the rate of 12 per cent.

46. As regards the number of Wards to be provided for the sick of a Regiment, or other branch of the Service, this Commission is of opinion that Wards containing 24 patients each

Component parts of a Military Hospital.

should not be unnecessarily multiplied, and on this point would remark that Colonel Crommelin has selected the maximum number allowed by the Commissioners who reported on Barrack and Hospital improvement. The small Wards in his plan also only allow special accommodation for 4 persons out of a Regiment 920 strong

47. This arrangement seems open to improvement. There should, if possible, in every European Hospital be rooms sufficiently capacious for from 6 to 12 patients laboring under skin disease or other contagious affections not of a malignant character, and who might exceed in number the accommodation provided in distinctly separate and detached Wards

48. Cases of eye disease (non-contagious) might also require separate accommodation in apartments more airy than ordinary special Wards, and, above all things, it is desirable that one or two middle-sized Wards should be provided, into which the remaining patients of a large Ward could be shifted if, after continuous occupation, it required to be cleansed

49. For these reasons this Commission would be glad to see some alterations in the allotment of patients to the several Wards, and would therefore suggest that each European Infantry Hospital should contain,

2	at	24	Cots = 48	Cots	(General Wards)
2	"	16	" = 32	"	(Middle-sized "
2	"	6	" = 12	"	(Small "
4	"	2	" = 8	"	(Special "
1	"	12	" = 12	"	(Convalescent "

112

50. Similarly for a Cavalry Regiment we would recommend :-

1	Ward at	24	= 24	Cots	(General Ward)
1	"	16	= 16	"	(Middle sized "
2	"	9	= 18	"	(Small "
2	"	2	= 4	"	(Special "

62

51. For a Light Field Battery we would assign the same allotment as that recommended by Colonel Crommelin.

52. For an Infantry Female Hospital we would allot,

1	Ward at	10	= 10	(General Ward)
1	"	6	= 6	(Small "
2	"	2	= 4	(Special "

20

53. For a Cavalry Female Hospital we would fix the following numbers :-

2	Wards at	6	= 12	(Small Wards)
1	"	2	= 2	(Special "

14

54. There is one element of Hospital construction somewhat hastily passed over by Colonel Crommelin and before alluded to in this Report. I here refer to the desirability of affording small Wards to be used if required as Ophthalmic Wards. Another point requiring attention is the provision of distinctly separate and detached Wards for cases of epidemic disease.

55. This latter precaution should be invariably adopted, and in the Plan No 2, submitted with this Report, I have shown the relative position they should occupy with reference to an Hospital chiefly in two pavilions and supposed to face the prevailing wind.

56. This Commission cannot concur in Colonel Crommelin's argument as to the necessary expense attendant upon the erection of these separate Wards, for beyond very limited Latrine and Bath-room accommodation, nothing but Wards would be required

57. These Wards would, as a rule, be sparingly occupied, and often, it is to be hoped, closed altogether, and the patients in them would not usually need Day rooms, Dining rooms, or Attendants' rooms to be built. They would be attended by the general staff of servants, and would probably during their detention here be confined to their beds. Cholera patients, those suffering under small-pox, &c., should not be introduced within the buildings occupied by ordinary sick. If they are, disease originally sporadic may become epidemic and the most serious results ensue.

58. These separate Wards need not be numerous nor need they be calculated to hold very many patients; indeed, in them, minor sub-division is urgently required, so that the permanent cleansing of them after occupation can be rapidly effected at small cost. They should at all times be kept thoroughly clean and prepared for occupation on the shortest notice.

59. As to the questions raised by Colonel Crommelin regarding the necessity of these separate Wards in small Hospitals, this Commission would observe that if the necessity of them be admitted, and we entertain no doubt of it, they must be an essential part of all Hospitals large or small, and herein consists one of the manifest advantages of "General" over "Regimental" Hospitals.

60. The erection of several sets of these Wards is avoided, and thus considerable expenditure is rendered unnecessary, while the attention of the Medical Staff is directed to the existence of infectious disease against which they can adopt the proper precautions

61. Colonel Crommelin's argument against too great sub-division of Wards is based on two considerations, the difficulty of ventilation and the increased cost of supervision and nursing

62. On the first point I may observe that if a building consist simply of single rooms with verandahs front and rear, no difficulty can be experienced if sufficient doors and windows be provided and if tubular shaft ventilation be insisted on. As to the second point, it yet remains to be seen how far the introduction of trained Nurses is practicable, and according to what system it is to be carried out before it is possible to calculate upon the effect of the slight sub-division of Hospital, recommended in the Remarks.

63. The plan proposed by Colonel Crommelin of placing cots *along* instead of *across* the Wards appears to be a good one, and the provisions for altering the plan architecturally to meet this intention seem well calculated to allow of this

arrangement of the cots.

64. For the reasons before stated, this Commission would prefer Wards only 24 feet wide.

Width of Wards

65. 120 square feet is fully sufficient superficial area per bed in convalescent Wards. In large well-ventilated General Wards 126 feet would probably be sufficient—130 in medium

Superficial space per bed

Wards, and about 150 in special Wards.

66. The proposals regarding Ward Lavatories are identical with those long advocated by this Commission, and it is observed the recommendation submitted by us with reference to the General Hospital at Madras is here repeated, namely, that fixed tubs and basins

Lavatories.

should be provided, and that a urinal should be erected in these rooms. And when required a supply of hot and cold water should also be available.

67. I would recommend that Privies on the dry earth system should be provided, but not situated as shown in Colonel Crommelin's design, but placed directly behind each pavilion both on the upper and lower floors.

68. This Commission does not believe that Water closets are desirable in India. Even in a temperate climate they are often a source of nuisance, and with the known careless habits of Soldiers they are almost certain to prove so in India. Besides at many stations water may not be easily laid on, and the dry earth system has proved so successful and is so easily managed, that I would prefer the introduction of it to that of Water closets, which are almost certain to get out of order.

69. The proportion between the Dining and Day rooms on the ground floor does not meet the approval of this Commission, as the dining room designed by Colonel Crommelin is too small, and the Day room is unnecessarily cut off from the Dining room.

70. This Commission is of opinion that quarters for the Apothecary should be detached from the body of the Hospital, but in close proximity to it. This Officer should, like the Hospital Sergeant, be accommodated in the administrative block, and upstairs.

71. The quarters of the Hospital Sergeant should similarly be adjacent to, but detached from the body of the Hospital (vide Plan by this Commission).

72. Good rooms for the reception and proper stowage of soldiers' kits are essential to a good Military Hospital, as are rooms for Hospital clothing, &c, &c.

73. We think that the Surgery and Receiving room would be better in a detached building, the upper portion of which could be occupied by Hospital Sergeant and Apothecary.

74. The proposed kitchen should be, like the Dead house and separate Wards, to leeward of the Hospital.

75. The Lavatory on lower floor of Hospital need only be very small but with one good hot, or cold bath, also a shower bath to be used only by Orderlies not by patients. The foregoing Remarks apply to the lower privy.

76. The Guard room should be at the entrance of the Hospital compound and not in the body of the Hospital.

77. Shed for ambulance cart and hearse should be behind the Hospital or to one side.

78. It only remains for this Commission to submit a plan for an European Infantry Regiment exhibiting our views of the alterations that might be made in Colonel Crommelin's designs. This plan will sufficiently explain our views regarding the relative position of the several buildings requisite for the accommodation of 112 sick. The number of Wards required for this purpose has been already detailed, and the accompanying block plan will sufficiently show the arrangements we propose.

79. In submitting it for comparison with that of Colonel Crommelin, I beg first to direct attention to certain objections to his "block plan" (I)

80. Supposing the Hospital to face the direction from which the prevailing wind comes, we consider that the cook-rooms and wash-houses are badly placed and that the covered passages con-

necting these with the main building are calculated to prevent perfect ventilation between the two large blocks of buildings on either side.

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87. In compliance with your wish I submit this Report in printed form and beg that it may be laid before Government with as little delay as possible with a view to its being considered and forwarded to the Supreme Government.

I have the honor to be,

Sir,
Your most obedient Servant,

President, Sanitary Commission.

8
OFFICE OF SANITARY COMMISSION,
MADRAS, 31st March 1865

No 605A

From THE HONORABLE R S ELLIS, C B,
President, Sanitary Commission, Madras
To COLONEL CHARLES A ORR, R E,
Secretary to Government, Public Works Dept.,
Fort St. George

SIR,
I have the honor to acknowledge the receipt of Proceedings of Government, dated 17th January, and Order Thereon, No. 155

2. I beg to point out that the Circular letter by Colonel Strachey, is dated 25th November 1864, and also, that the Order of the Madras Government, 17th January, did not reach this office until one month and six days after its date

3. The papers contained in these Proceedings have been carefully considered by this Commission, and I have to submit the following observations for the consideration of Government

Hospitals for Native Troops.

4. In accordance with orders of Government, the scale of accommodation to be provided for Native Troops has been fixed. But as the "full Regiment" of Bengal may not accord with the "full Regiment" of the Madras Presidency, I thought it advisable to place myself in communication with the Principal Inspector General, as regards the proportion of sick to the strength of the Cavalry and Infantry Regiments of the Native Army in this Presidency.

5. I have just received this return, and am therefore now able to submit the reply of this Commission to your requisition in a more complete form than I could otherwise have done.

6. There was some difficulty in fixing on the numbers of sick to be provided for, as there were up to this time no statistics available to give the requisite data upon which to base any conclusions. But the information afforded by the Principal Inspector General shows that—

(1) In four Native Cavalry Regiments the average annual daily sick of three years varied from 4 to 16, the mean average being 9. But the highest monthly average rose as high as 21, and 8 was the least number, the mean average of highest monthly sick being 14 6. But as there are a number of followers who might require treatment, and as some cases may require additional accommodation or seclusion, I think provision should be made for 25 beds, in four Wards, one for 17—one for 6—and 2 for one patient each. To these should be added a Surgery, Receiving room, Bath room, Washing room, Latrine and Scullery, houses for Apothecary, Dresser, Hospital Servants, two separate Wards, Cook-room and Dead house, and Hospital Clothing Store. The principles of construction and general arrangement of such a building should be in accordance with the plans proposed by this Commission for a Native Infantry Hospital.

(2) Very great variations appear between the highest and lowest annual average daily sick in Native Infantry Regiments. The lowest being only 5 and the highest 64, the mean annual daily sick of one Regiment being 17 1/2. An equal variance is observable between the highest and lowest monthly average of daily sick, which are represented respectively by the figures 7 and 128. the mean highest monthly sick being 30 2/3.

On the whole, it is believed that 40 cots will be sufficient for ordinary sick, although in some instances this amount of accommodation may not be required. Colonel Crommelin assigns 48 cots and 2 special Wards for the same purpose; we think this somewhat in excess.

7 I may observe, however, that the general salubrity or otherwise of a station should be strictly borne in mind, for at stations where fever is frequently witnessed a much larger amount of accommodation would be required than at others where it is rarely prevalent.

8 In my present observations, therefore, I shall confine myself to the consideration of such principles of Hospital construction as are worthy of determination. In discussing these I purpose chiefly to submit the remarks of this Commission upon the "Plans" and "Recapitulation" of Colonel Crommelin.

9. This Commission entirely concurs with Colonel Crommelin, that upper stories are not required for Native Hospitals, except in situations where want of space may demand an upper floor to be added. A well-raised basement should, however, be invariably provided, and this recommendation applies especially to stations on the Western Coast in this Presidency.

10 The number (60) fixed by Colonel Crommelin to be contained in one building is larger than that ordinarily required by any Native Infantry Regiment in this Presidency. But I am inclined to think that the limit of sick to be aggregated in one building, *i. e.*, under one roof, is as necessary to be defined in Native as in European Hospitals and for the same reasons.

11. As to the apartments required to constitute a good Hospital for Native Infantry or Cavalry, this Commission concurs generally in the observations under notice. But it is also our opinion that the precise use of individual apartments may be somewhat better arranged; and that the relative position of some of these might be altered with advantage.

12 Three general Wards will probably suffice for the treatment of ordinary Regimental sick. But as it is necessary to make suitable provision for cases of *contagious disease*, it appears desirable to provide two small Wards each containing two beds entirely separated from the general Wards. These are shown in the annexed Plan as Separate Wards.

13 This Commission concurs with Colonel Crommelin's suggestions regarding the arrangement of beds in the Wards.

14 The superficial space 97½ feet assigned by Colonel Crommelin is not so necessary with ridge ventilation as if flat roofs are designed, and this Commission is disposed to recommend 88 as amply sufficient with ridge ventilation. The width of Wards, however, recommended (26 feet) seems open to some objection. The width of Wards in the General Hospital at Madras (occupied by Europeans) is only 20 feet and is found convenient (provided that for Europeans separate dining rooms are attached). The width of 22 feet gives 8 feet clear between the ends of the beds, and this is ample: the width of 26 feet can only be necessary if central tables are required, and these are never seen in a Native Hospital. It has been found too, by experience, that the cost of buildings is greatly enhanced if the width of 22 feet is much exceeded.

15. Another argument in favor of the narrower Ward is the more perfect ventilation that can be ensured by ridge ventilation, and the cost of pointed roofing increases considerably in wider buildings.

16. Should the Government of Madras agree in the propriety of these views, then assuming 88 superficial feet to be fixed as a standard, each native patient would have 8 feet of wall-space in lieu of 7½ allowed by Colonel Crommelin. I think these proportions

better than those suggested in his recommendations—because they give a wider space between adjoining beds.

17. As this Commission recommend one-storied buildings, they would prefer to see them with tiled roofs and ridge ventilated—the height of the Wards to wall-plate should be 15 feet and to ridge 22 feet. thus each patient would have 1,628 cubic feet of breathing room, with abundant ventilation by the ridge and attics. The doors of the Wards, I think, should be provided with panes of glass for their upper third, and one or two of these in each door might be fitted with hinges so as to open if required.

18. The verandah may, with a view to economy, be made by continuing the roof down at the same incline as over the Wards. If, however, the verandah is 8 feet wide, the roof would then be only 11 feet high at outside and no swing attics could be introduced with good effect. This Commission would prefer that the verandah should be made flat-roofed and level with the Ward walls, with swing ventilators under the verandah-roof and over each door and window. The verandahs need not be more than 8 feet deep.

19. In illustration of the foregoing and subsequent remarks of this Commission, I forward block sketch of an Hospital with all necessary out-offices and subsidiary buildings—this plan shows the size and arrangement of the different rooms in sufficient detail.

20. Colonel Crommelin's "recapitulation" contemplates single-storied buildings only. In this, this Commission concurs with him.

21. Colonel Crommelin considers that a single building will be sufficient for the whole Hospital. This Commission is somewhat inclined to question the propriety of this rule. We are of opinion that apartments for Executive offices, Apothecary's Quarters and separate Wards for contagious cases should be detached more or less from Wards to be occupied exclusively by sick persons, and the relative position of these latter rooms could, in our opinion, be better arranged.

22. The internal organization of a Native Infantry Regiment is doubtless somewhat different in Bengal from that prevailing in this Presidency, and this must be borne in mind in considering the "component parts" of which a Native Infantry Regimental Hospital should consist.

23. Provision should be made for (say 36) sick in General Wards, 3 in number to contain 20, 10 and 6 patients respectively. Two small Wards each for 2 "special cases" should also be provided in the same block but cut off from the other Wards.

24. There should also be one or two "Separate" Wards for contagious cases entirely apart from the main building, each to contain two beds.

25. Connected with the main building there should be a Surgery easily accessible to all Wards, but not necessarily under the same roof. Pavilion construction would meet this view, and we would recommend that this mode of building be adopted, and that next to the Surgery there should be a "Receiving Room" for men to be seen in when reporting sick or for the examination of convalescents attending daily during the Surgeon's visit.

26. As this room would be only required for an hour or so daily and chiefly during the Surgeon's visit or on the occurrence of accident or sudden illness, at both which times the Medical subordinates would be professionally engaged, this Commission is of opinion that the "Receiving Room" could be made to answer as a Day-room for the Apothecary, or Dresser, or Pupils on duty.

27. The usual allotment of Medical subordinates to a Native Infantry Regiment in the Madras Presidency is one Assistant Apothecary and one Dresser. These persons are, as a rule,

manned, and we think that suitable residences for them should be provided near to, but not forming an integral portion of, the Hospital.

28 I proceed to remark on the situations proposed by Colonel Crommelin for the subsidiary buildings required as Privies, Lavatories, Cook-rooms, Servants' apartments, &c

29 It is proposed in the papers under report to have two sets of privies. The necessity for this is very questionable. Assuming that 40 men are in Hospital, not more than 12 privy seats can possibly be required, and this is greatly in excess of the usual allotment to Hospitals; but we intentionally allow six compartments to be attached to each wing of the proposed Hospital. These compartments should be made as separate as possible from the adjoining ones and should be sufficiently removed from the Wards and not open directly into the verandahs as shown in Colonel Crommelin's plan.

30 These apartments should be to the rear of the two wings of the Hospital occupied by the ordinary sick and should be approached by covered ways. The privies should be worked on the "Dry Earth" system.

31. At either side of the passage leading from the Hospital verandah to the privy, and opening from the Hospital verandah, should be two Bathing rooms, one of them with fixed baths and one for ordinary bathing, and a small scullery should be placed at the side of the passage connecting the Executive rooms with the sick Wards and a small store for Hospital clothing.

32. The accompanying plan will show the dimensions of all these buildings and their relative position.

33. A Cook-room might be provided, although this Commission somewhat questions the necessity for it. All cooking for men in Hospital in this Presidency is done by the families in the Lines and the food is brought to the men. But a Cook-room might prove useful for the preparation of soups and other articles of extra diet and for keeping the Surgery supplied with hot water, &c.

34 A Guard room should be built in front of the Hospital in some central position overlooking the main building, and this with a surrounding dwarf wall with railing would prevent men leaving the Hospital at night or receiving supplies of food or liquor surreptitiously.

35 A Dead house is an essential element of Hospital construction that has been too often overlooked. Although, as a result of native prejudice, *post mortem* examinations are rarely held, yet it is exceedingly desirable that dead bodies should not be allowed to remain in Wards occupied by sick patients.

36. The servants of all Native Infantry Hospitals should be provided with quarters, as their absence at their houses for meals, &c., interferes very considerably with the efficient performance of their duties.

37 I have before recommended that the dry earth system of conservancy should be adopted, and this would necessitate the provision of two soil carts to each Hospital. The one in use should be kept in the Cart shed shown in the design for the lavatories and privy.

Hospitals for European Troops.

38. I intentionally defer to another opportunity entering upon the question of the desirability or otherwise of instituting General Hospitals at large stations for European troops, and for the reasons assigned by Colonel Crommelin confine my remarks to

the opinion of this Commission regarding the proposed plans submitted for, and the principles to be adopted in designing, Regimental and Detachment Hospitals for Europeans.

39. This Commission agrees generally in Colonel Crommelin's calculation that accommodation at the rate of 12 per cent. will suffice for the sick of European Troops at ordinary stations. An examination of the Returns contained in the Proceedings of Government, dated 26th August 1864, with Order No. 2,972, and those dated 13th September 1864 with Order No. 3,226, gives the following results as regards European sick for the last five years.

		Ratio per 1,000 daily sick to strength			
1	Thyettinyoo	44 94	9	Tonghoo	65 25
2	Kamptee	50 92	10	Secunderabad	67 46
3	Wellington	51 70	11	Madras	67 62
4	Waltair	54 59	12	Bangalore	68 73
5	Bellary	57 09	13	Trichinopoly	82 96
6	Trimulgherry	58 47	14	Saint Thomas' Mount	88 08
7	Canunore	60 57	15	Poonamallee	136 97
8	Rangoon	60 96			

But it must be remembered that during epidemics a greatly increased number of sick would require to be provided for. On these grounds and Colonel Crommelin's estimate in accordance with practical experience, I think that the Commission should be accepted as the rule.

40. This Commission concurs in the proposal that sick should be treated in upstairs rooms, and the only argument against it is the cost of providing such accommodation. But if the sanction of the Supreme Government is accorded to this arrangement, it will then be only necessary to utilize to the greatest possible extent the lower or ground floor.

41 This Commission is, however, strongly opposed to third or fourth stories, as we believe that they would be found practically exceedingly inconvenient. Proper supervision of patients would be almost impossible without entailing extreme fatigue upon Medical subordinates, Orderlies, and attendants, and the transport to upper Wards of food, water, clothing and medicine, would be difficult.

42. In the case of General Hospitals, contemplated by Colonel Crommelin as possibly requiring these additional upper stories, an increased number of pavilions connected by arcades would, with much greater convenience, meet the required end, namely, increased accommodation.

43. It should also be remembered that, if the principle of fixing a limit to the number of sick to be aggregated under one roof be admitted, and if sick Wards are to be supplied with all necessary apartments shown in Colonel Crommelin's Plan II, the lower floor would not provide sufficient space for "day" "orderly" and "dining" rooms for three stories.

44. The Commission for the improvement of Barracks and Hospitals recommends that in warm climates not more than 60 sick persons should be placed under one roof, and 2 Wards of 24 sick would, with a very few convalescents and special cases fully reach that number on the upper floor alone.

45. Colonel Crommelin's argument in favor of the non-necessity of minute segregation of Military sick possesses considerable weight, but this Commission desires to point out that in many of the Hospitals in this Presidency, not only is the space per cot afforded to the sick below the standard of accommodation now recommended, but the cots are so few in number as to be almost constantly occupied. Colonel Crommelin's views, therefore, can only be upheld if all Military sick are treated in upstairs rooms and if cots are provided at the rate of 12 per cent.

46 As regards the number of Wards to be provided for the sick of a Regiment, or other branch of the Service, this Commission is of opinion that Wards containing 24 patients each

should not be unnecessarily multiplied, and on this point would remark that Colonel Crommelin has selected the maximum number allowed by the Commissioners who reported on Barrack and Hospital improvement. The small Wards in his plan also only allow special accommodation for 4 persons out of a Regiment 920 strong

47. This arrangement seems open to improvement. There should, if possible, in every European Hospital be rooms sufficiently capacious for from 6 to 12 patients laboring under skin disease or other contagious affections not of a malignant character, and who might exceed in number the accommodation provided in distinctly separate and detached Wards

48. Cases of eye disease (non-contagious) might also require separate accommodation in apartments more airy than ordinary special Wards, and, above all things, it is desirable that one or two middle-sized Wards should be provided, into which the remaining patients of a large Ward could be shifted if, after continuous occupation, it required to be cleansed.

49. For these reasons this Commission would be glad to see some alterations in the allotment of patients to the several Wards, and would therefore suggest that each European Infantry Hospital should contain,

2	at	24	Cots =	48	Cots (General Wards)
2	"	16	" =	32	" (Middle-sized "
2	"	6	" =	12	" (Small "
4	"	2	" =	8	" (Special "
1	"	12	" =	12	" (Convalescent "

112

50. Similarly for a Cavalry Regiment we would recommend —

European Cavalry	1	Ward at	24	=	24	Cots (General Ward)
	1	"	16	=	16	" (Middle sized "
	2	"	9	=	18	" (Small "
	2	"	2	=	4	" (Special "

62

51. For a Light Field Battery we would assign the same allotment as that recommended by Colonel Crommelin.

52. For an Infantry Female Hospital we would allot,

Infantry Female	1	Ward at	10	=	10	(General Ward)
	1	"	6	=	6	(Small "
	2	"	2	=	4	(Special "

20

53. For a Cavalry Female Hospital we would fix the following numbers —

Cavalry Female	2	Wards at	6	=	12	(Small Wards)
	1	"	2	=	2	(Special "

14

54. There is one element of Hospital construction somewhat hastily passed over by Colonel Crommelin and before alluded to in this Report. I here refer to the desirability of affording small Wards to be used if required as Ophthalmic Wards. Another point requiring attention is the provision of distinctly separate and detached Wards for cases of epidemic disease.

55. This latter precaution should be invariably adopted, and in the Plan No 2. submitted with this Report, I have shown the relative position they should occupy with reference to an Hospital chiefly in two pavilions and supposed to face the prevailing wind.

56. This Commission cannot concur in Colonel Crommelin's argument as to the necessary expense attendant upon the erection of these separate Wards, for beyond very limited Latrine and Bath-room accommodation, nothing but Wards would be required.

57. These Wards would, as a rule, be sparingly occupied, and often, it is to be hoped, closed altogether, and the patients in them would not usually need Day rooms, Dining rooms, or Attendants' rooms to be built. They would be attended by the general staff of servants, and would probably during their detention here be confined to their beds. Cholera patients, those suffering under small-pox, &c, should not be introduced within the buildings occupied by ordinary sick. If they are, disease originally sporadic may become epidemic and the most serious results ensue

58. These separate Wards need not be numerous nor need they be calculated to hold very many patients; indeed, in them, minor sub-division is urgently required, so that the permanent cleansing of them after occupation can be rapidly effected at small cost. They should at all times be kept thoroughly clean and prepared for occupation on the shortest notice.

59. As to the questions raised by Colonel Crommelin regarding the necessity of these separate Wards in small Hospitals, this Commission would observe that if the necessity of them is admitted, and we entertain no doubt of it, they must be an essential part of all Hospitals large or small, and herein consists one of the manifest advantages of "General" over "Regimental" Hospitals.

60. The erection of several sets of these Wards is avoided, and thus considerable expenditure is rendered unnecessary, while the attention of the Medical Staff is directed to the existence of infectious disease against which they can adopt the proper precautions.

61. Colonel Crommelin's argument against too great sub-division of Wards is based on two considerations, the difficulty of ventilation and the increased cost of supervision and nursing.

62. On the first point I may observe that if a building consist simply of single rooms with verandahs front and rear, no difficulty can be experienced if sufficient doors and windows be provided and if tubular shaft ventilation be insisted on. As to the second point, it yet remains to be seen how far the introduction of trained Nurses is practicable, and according to what system it is to be carried out before it is possible to calculate upon the effect of the slight sub-division of Hospital, recommended in the Remarks

63. The plan proposed by Colonel Crommelin of placing cots *along* instead of *across* the Wards appears to be a good one, and the provisions for altering the plan architecturally to meet this intention seem well calculated to allow of this

64. For the reasons before stated, this Commission would prefer Wards only 24 feet wide.

65. 120 square feet is fully sufficient superficial area per bed in convalescent Wards. In large well-ventilated General Wards 126 feet would probably be sufficient—130 in medium Wards, and about 150 in special Wards

66. The proposals regarding Ward Lavatories are identical with those long advocated by this Commission, and it is observed the recommendation submitted by us with reference to the General Hospital at Madras is here repeated, namely, that fixed tubs and basins

should be provided, and that a urinal should be erected in these rooms. And when required a supply of hot and cold water should also be available.

67. I would recommend that Privies on the dry earth system should be provided, but not situated as shown in Colonel Crommelin's design, but placed directly behind each pavilion both on the upper and lower floors.

68. This Commission does not believe that Water closets are desirable in India. Even in a temperate climate they are often a source of nuisance, and with the known careless habits of Soldiers they are almost certain to prove so in India. Besides at many stations water may not be easily laid on, and the dry earth system has proved so successful and is so easily managed, that I would prefer the introduction of it to that of Water closets, which are almost certain to get out of order.

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87. In compliance with your wish I submit this Report in printed form and beg that it may be laid before Government with as little delay as possible with a view to its being considered and forwarded to the Supreme Government.

I have the honor to be,

Sir,
Your most obedient Servant,

P. W. Ellis

President, Sanitary Commission.

No. 130 B

112

OFFICE OF PRINCIPAL INSPECTOR GENERAL, MEDICAL DEPARTMENT,

Fort Saint George, 13th April 1865.

From Robert Cole Esq^r
Principal Inspector General, Medical Department,
Fort Saint George,

To The Secretary to Government, Public Works Dept.,
Fort Saint George

Sir, I have the honor to submit herewith the following memo. on the proposed plans of Hospital construction by Colonel Cromie in obedience to Proceedings of Government and order thereon calling on me for report dated 17th January 1865.

I have the honor to be Sir

Your most obed^t servant

[Signature]
Principal Inspector Genl.
Med. Department

[Signature]

Re-17th January/65 P. 325-326
No. 24. March 1865

From
The President, Sanitary Commission
Madras

To
The Secretary to Government
Public Works Department
Fort Saint George

Dated 3rd March/65
Recd 6 April
B B

18605 A

Submits with reference to Pro-
ceedings of Government P. M. 325-326
sanctions of the Madras Sanitary
Commission on to build Government
Plans for Hospitals for European
and Native troops in India.

Re-17th January/65 P. 325-326

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ms 1296: 84-97-126thru 1865

1891

Englishmen mean;
from the proposed schools
of Hospital instruction
by colored Americans.

61-130B

22

Dated 13th April

To the Secy to Government
-
Palacio Nacional, Depas^{to} de

With Love George

Miss De Vere

1865
J. J. Johnson & Co.
No. 107 Broadway
New York

1865

letter send back to the Gov of India saying
that we can generally in the over captured
by the sanitary Commi. 1st

Yrs. I do not know.

of the Laundry Commission.
 Mr. I do not know ~~any~~ - think the sick should be kept in the
 - 1st room only - in case report p 40. It is very ~~good~~ for

højeste af alle

The Principal Inspector General
Medical Department

No 1375, dated 13th April 1865.

Submits Mem^o on the
proposed plans of Hospital con-
struction by Colonel Grommelin.

Circulated for the
Orders of Government.

Amelia A. M.

The President
Sanitary Commission

No 1190 dated 31st March 1865.

Submits observations of the
 Madras Sanitary Commission on Colonel
 Crommelin's Plan for Hospitals for
 European & Native Troops in India.

13.

12. Quelques-uns des

Military Work Public Works Dept

No 1296

Proceedings of the Madras Government
Under date the 12th May 1865
Read the following

From the President Sanitary
Commission

Submits observations of the
Madras Sanitary Commission
in Colonel Commelin's Plans
for Hospitals for Europeans and
native Troops in India.

From the Principal Inspector
General Medical Dept

Submits Mem^o on the proposed
plans of Hospital construction
by Colonel Commelin.

Here enter 31st March 1865
No 605 A

Here enter 13th April 1865
No 130 B

The foregoing papers
will be communicated
to the Government of
India with an intima-
tion that their
Government is engaged
generally in the views
of the Sanitary Commission
but that they are
of opinion that the
restriction of the
treatment of Europeans

M
W

With reference to the
Circular of the Govern-
ment of India No
84 dated 25th November
1864 forwarding Memo-
randa by Lt. Colonel
Comminis upon some
of the principles which
should be attended
to in designing Hospitals.

From the Society's Champion

N^o 605 A d/3, illand/65-

- J. Principal Hosp. General
Medical Department

To the Supt. of Ins. / ^{Medical Expenses} / Copy of Rpt. 12-13 in B. 4/13th April/65
From the Secretary, Commissioner of Labor

" July Sept 12. ^{from the Hospital} Americanos & 8 pages
" President Sanitary Commission. Feb 3 Plans. & 2 copies of Report.

" President Sanitary Commission.

Principal Inspector Genl. Medical Dept. W. H. 3 Plans & 2 Copies of Report.

Robert S. G. Nathan
Gen'l Mgr. of W. Office.
London, England.

Accepted May

8-6-10

(16)
for European and Native
Troops in India, I am
directed to transmit
copies of the communica-
tions noted in the
margin, and to observe
that this Government
concur generally in
the views of the Sanitary
Commission, but are of
opinion that the
restriction of the treat-
ment of European
sick to upper rooms
only does not seem
necessary, at least, in
this Presidency, and
that an absolute ad-
herence to the principle
will involve an un-
necessary expenditure
in providing Hospital
accommodation

Franklin George }
12th May 1865 }

Sept. 13th May - Hahn & Plave v. G.D. No. 7291-

[Handwritten signature]

J. W. 1865 Department
Proc of Govt for May

Apr 29 69/1297

Proc of the Madras Govt

of 12th May 1865

Proc of 699/66

Reports of the Madras
Sanitary Commission and
the Inspector General of
Depths on Colonel Crom-
melius Plans for Hospi-
tals for European and
Native Troops in India
with orders thereon

Feb 10 204