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MADRAS RECORD OFFICE.

Government of Madras.

Public Works DEPARTMENT.

G.O. No. 1196	Press
64-65	~~Mis.~~
Dated 3-5-	1865.

Not to be folded or roughly handled

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*Proceedings of the Madras Government, Public Works Department,
3rd May 1865.*

No. 64. Read the following Proceedings of the Madras Government in the
Military Department:—

Communicating letter from the President,
Sanitary Commission, submitting a
detailed Report on the sanitary condi- } (Here enter 26th April 1865, No. 1,550.)
tion of the Barracks and Hospitals oc-
cupied by the Troops at Wellington.

No. 65. ORDER THEREON, 3rd May 1865, No. 1,196.

MILITARY WORKS, No. 8.

Communicated to the Superintending
Engineer, 7th Division.

(True Extract.)

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

To the Superintending Engineer, 7th Division, with one Enclosure.

Exd. S. T. Augustin.

3 ✓
MILITARY DEPARTMENT.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

Read the following letter :—

From the President Sanitary Commission, Madras, 1st April 1865, No. 613 ; to the Secretary to Government, Military Department, Fort Saint George.

With reference to the Government Order, dated 19th July 1864, No. 826, I have the honor to submit a detailed Report on the Sanitary condition of the Barracks and Hospitals occupied by Military Troops at Wellington.

2. In explanation of the length of this Report, I have the honor to enclose a List of the subjects which, in the opinion of the Royal Commissioners for the improvement of Barracks and Hospitals, should invariably be noticed in Reports on Stations by the Indian Sanitary Commissions.

(1.) "That each Station be carefully examined by competent Sanitary and Engineering Officers, and that a careful survey be made and a well-digested scheme for improving the Station be prepared and submitted for sanction. This scheme to include."

(2.) "Levelling, filling up, paving, and otherwise improving the surface, drainage of the Station."

(3.) "Drainage and water supply, including sub-soil drainage, house drainage, filtration, and distribution of water over the Station."

(4.) "Improving existing Barracks and Hospitals, including raised floors, with ventilation beneath, or providing upper floors, for sleeping-rooms, in localities where it may be necessary to do so."

(5.) Ventilation of Barrack Rooms and Hospital Wards, on the principles laid down in our "suggestions." Improvements in lighting Barracks and Hospitals."

(6.) "Fixing by Regulation, the superficial and cubic feet to be allotted per bed in Barracks and Hospitals, the amount being regulated according to the healthiness or otherwise of the locality, on the principles laid down by the Royal Commission. In doing this, rooms or wards unfit or doubtful for occupation should be excluded. And the amount of additional Barrack and Hospital accommodation necessary to admit of the Regulation being complied with, should be stated."

(7.) "Sub-dividing long Barrack Rooms and Sick Wards; so as to have no more than from 20 to 24 beds per room, and providing that each room is completely cut off from the others, and ventilated separately."

(8.) "Improved Latrines, water-closets, and urinals for Barracks and Hospitals."

(9.) "Improved and extended ablution and bath accommodation for Barrack and Hospitals."

(10.) "Improvements in Cook-houses, Hospital Kitchens, and Cooking apparatus."

(11.) "The provision of sufficient accommodation for exercise, re-creation, and instruction in the way of Gymnasia, Workshops, Reading and Day rooms, Soldiers' Gardens, covered Ball Courts, &c."

ORDER, No. 1550, 26th April 1865.

Ordered to be communicated to the Commander-in-Chief and Public Works Department. Government wish to be favored with His Excellency's remarks on the several points brought to notice by the President of the Sanitary Commission, and especially with reference to the subject of the retention of a Regiment at Wellington, adverted to in the Report from paragraphs 137 to 171.

(True Extract.)

Macmillan
Under Secretary to Government.

To the President Sanitary Commission.

- „ Quarter Master General, with an enclosure and 4 Plans,
(To be returned.)
„ Public Works Department. *With 20 space copies*
„ Adjutant General.
„ Principal Inspector General Medical Department,
for information.

Erd. W. Regel.

REPORT

ON

The Sanitary Condition of the Barracks and Hospitals occupied by Military Troops at Wellington.

By

R. S. ELLIS, C. B.

President, Sanitary Commission.

In company with Colonel Spurgin, Commanding Wellington station and the Convalescent Depôt, and Colonel Stoll, Commanding Her Majesty's 105th Regiment and Convalescent Depôt. Dr. FitzGerald, the Surgeon of the Regiment, and the Secretary of the Sanitary Commission, I made on the 7th October a detailed inspection of the Wellington Barracks. On the morning of the 8th, a similar inspection of the Regimental Hospital took place. On this occasion Dr. Stovell, Principal Inspector General, Medical Department, Bombay Army, accompanied us.

The plan of the barracks consists of five blocks, of upper storied buildings. One block is unfinished the lower floor walls alone having been built. One of the finished blocks is occupied by apartments used by the Staff of the Depôt. The remaining four completed blocks are used chiefly as barracks. Each of these buildings contains two barrack rooms 129 x 21 feet. These barrack rooms are in the Royal Commissioners' Report represented as able to contain 42 men in each room with accommodation for a Non-Commissioned Officer at the outer end of each of these rooms.

2. But in this computation cubic contents alone are taken as the standard for numbers. As the wards are 15 feet high the men have really only 64½ square feet superficial area. They should have 75 square feet at least and if this superficial area was afforded only 36 men instead of 42, as estimated by the Royal Commissioners, could be accommodated in each room. There are in all 16 of these rooms and they would, if fully occupied by unmarried soldiers, only accommodate 576 men, rank and file.

3. In the preceding paragraph, I have mentioned a minimum standard of 75 square feet of superficial area for each man, but I am aware that in more recent designs 90 square feet is the space recommended for Indian barracks. At Wellington, however, where the barrack is already completed, where the climate is cold, and where additional breathing air is furnished by the adjoining closed verandah, I consider 75 square feet superficial area of the barrack room sufficient for each man. As in the opinion of this Commission, it is of importance that Government should be aware of the exact capacity of these barracks, and as the calculations submitted to the Royal Commissioners are in many respects erroneous, being based on the supposition that the unfinished block was to be completed, I have had prepared the following return of the exact measurements of all apartments in one block and the results therein shown will, if multiplied by four, give the total accommodation to be afforded by the finished blocks. I think that in any decision as to the future occupation of these barracks the allotment therein shown should be strictly adhered to, and that the over-crowding noticed during my inspection should be discontinued.

4. It is evident from the following statement that the men in Barrack are over-crowded and that a reduction in their numbers is required.

5. The standard of 75 square feet superficial area appears to this Commission a sufficient allowance, and the adoption of any higher standard would necessitate a considerable expenditure to complete additional blocks of barracks. In temperate climates, such as the Hills or Bangalore, the superficial space here proposed would be sufficient. The men would be amply accommodated by 1129 cubic feet of air.

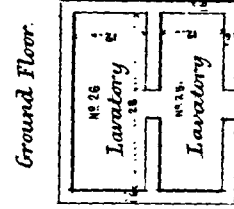
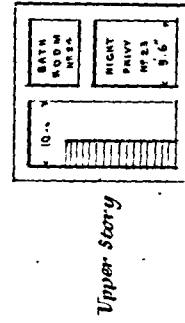
6. Detailed Statement of accommodation in the Wellington Barracks occupied by Her Majesty's 105th Regiment and Convalescent Depot.

Block and Rooms.	How to be occupied.	Dimensions.			Superficial area of each room.	Cubic contents of each room.	Regulation number at 1000 cubic.	Superficial area then afforded.	Number of cots at present in each room.	Number at 15 superficial area.	Cubic contents thus afforded.	Openings.	Win-dows.			Doors.	Opening into adjoining closed verandahs.	Remarks.
		Length.	Breadth.	Height.									Number.	Height.	Width.	Number.	Height.	
Block. 1	Room. 1	129'	21'	15'	2709	40635	40	67½	42	36	1129	...	3	7 5½	9	9	8 4½	Not to be occupied at night.
	Do. (do.)	129'	21'	15'	2709	40635	40	67½	42	36	1129	...	3	7 5½	9	9	8 4½	
	Do. (Upper)	129'	21½'	20'	2773	55470	40	67½	42	36	1129	...	3	7 5½	9	9	8 4½	
	Do. (do.)	129'	21½'	20'	2773	55470	40	67½	42	36	1129	...	3	7 5½	9	9	8 4½	
	Enclosed back verandah (Lower)	260'	12'	15'	3120	46800	...	...	...	...	...	...	9	7 5½	3	3	8 4½	
6	Enclosed back verandah (Upper)	260'	12'	13'	3120	40560	...	...	...	...	...	...	9	7 5½	3	3	8 4½	* One Serjeant married or single.
7 & 8 (Lower).	Dining Room. By Serjeants (In two rooms).	24'	21'	15'	504	7560	1504	1504	1*	1*	...	...	...	...	...	...	...	
9 & 10 (Lower).	By Serjeants (do.).	24'	21'	15'	504	7560	1504	1504	1*	1*	...	...	...	...	...	...	...	
11 & 12 (Upper).	By Serjeants (In two rooms).	24'	21½'	20'	516	10320	...	...	...	...	...	...	...	...	...	...	...	
13 & 14 (Upper).	By Serjeants (do.).	24'	21½'	20'	516	10320	...	...	...	...	...	...	...	...	...	...	...	
15 & 16 (Lower).	Kitchens.	21'	12'	15'	252	3780	...	...	...	...	...	...	...	...	...	...	...	One of these rooms was proposed by Major Farewell to be used as a wash-house. This is not approved by this Commission.
17 & 18 (Lower).	Do.	21½'	12'	20'	258	5160	...	...	...	...	...	...	...	...	...	...	...	
19 (Upper).	Store-room.	21'	8'	15'	168	2520	...	...	...	...	...	...	...	...	...	...	...	
20 (Upper).	Do.	21½'	8'	20'	172	3440	...	...	...	...	...	...	...	...	...	...	...	
21 and 23	Two night privies (each) vide para. 153 of my report.	12'	10'	15'	120	1800	...	...	...	...	...	...	...	...	...	...	...	
22 and 24	Two Bath-rooms (each)	9½'	7½'	15'	71	1088	...	...	...	...	...	...	...	...	...	...	...	Until lately used as Store-rooms (Vide para. 153 of my Report.)

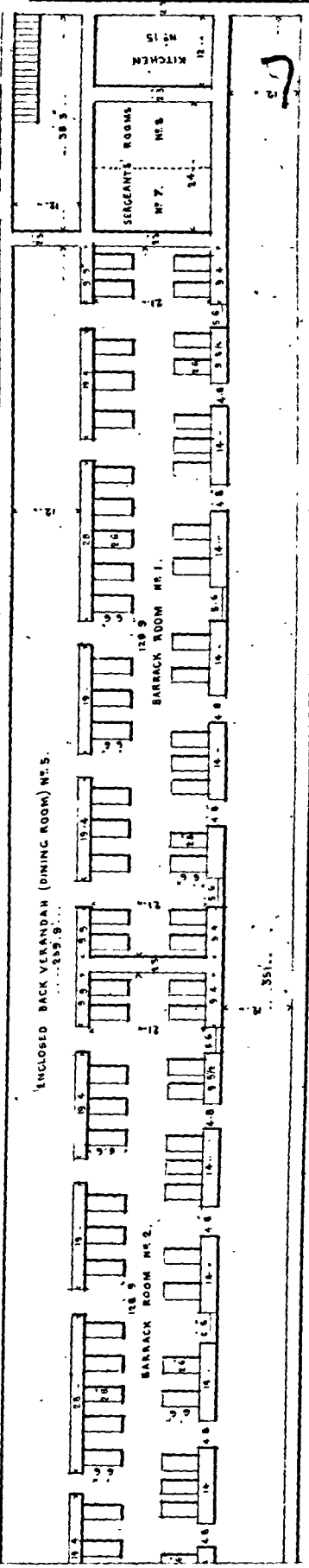
BARRACK ROOM AT WELLINGTON

AND

THE PRESENT MODE OF OCCUPATION OF ALL ROOMS.



Upper Story.



7. At the time of my inspection the barracks were more crowded than they would be if this standard was allowed.

Over-crowding

8. There is an open verandah in the front of each barrack room, and a closed verandah behind it, the latter is used as the dining room for the men of the two adjacent rooms. These rooms, especially in the upper story, are lofty; there is abundant space down their centre,

Barrack rooms.

between the ends of the beds, and, under a better arrangement, there would be sufficient space between the beds; but owing to it being considered necessary to have the arms rack over the beds, and to these racks being placed close together by threes and fours; and, owing to the arrangement of the beds along the wall space between the openings of doors and windows, some of the beds are almost touching each other which is objectionable. An examination of a detailed plan of the barrack rooms will show that 36 beds could be easily placed at suitable intervals, each man's arms rack being over his bed. (*Vide accompanying plan C*).

9. The beds consist of the usual planking and wooden trestles. There were no mattresses in the barrack rooms but only a quilt, a carpet, sheet, and one blanket for each man. Orders have

[Recommendations regarding Beds and Bedding.

since my inspection been issued for the supply of coir mattresses and iron cots in all hospitals, and this order should be extended to barracks, generally; good mattresses should certainly be substituted for the quilts here used which are too thin when placed on the wooden boards and do not protect the men sufficiently from cold.

10. There was no complaint of there being any bugs in the barrack rooms, but in every respect iron cots are preferable to the clumsy wooden planks and trestle stands.

Vermin absent.

11. The ventilation in the lower barrack rooms is imperfect when, as is the case at night, all the doors and windows are closed. The ventilation is not by a perpendicular shaft reaching

Ventilation.

to the eaves of the roof, but by small lateral shafts with very small apertures, the foul air having egress on the one side into the closed verandah which serves as a dining-room, and on the other into the open verandah.

12. In the upper rooms, besides the usual doors and windows, there are a series of attic windows, and also the same primitive ventilation holes in the walls. There are pents over the attic windows but these are ill-constructed and during the rainy season the attic windows must be kept closed to prevent the rain beating in. There might be devised some remedy to this defect by a better contrived pent roof or by the attic window being divided by hinges so that the lower half could be opened outwards when there are both rain and wind.

13. One of the most striking defects of these barrack rooms was that, in some of them, apparently no contrivance for either urinals or closets for use at night had been provided. The

Urinals and night closets.

urine tubs were placed at the foot of a very steep staircase, without bannisters (although I believe these have been sanctioned). The men resorting to these urinals were entirely exposed to the cold and rain.

14. There are only two Regimental privies for this very extensive barrack, and they are 170 yards from some of the barrack rooms. The

Privies too distant from barracks for night use.

consequence is that the men, who are generally careless about putting on their clothes, go out half naked into the night air and often into the rain to relieve their wants. This defect, which admits of an easy remedy, is stated by Dr. FitzGerald to be a fruitful source of diseases affecting the lungs.

15. This exposure of the men is not only prejudicial to their health but is quite unnecessary.

Night privies provided but not used.

For on inquiry I found that closets for urinals and seats to be used at night, had been distinctly provided and had been in existence since the barracks were built. In plan C in this Report, the block plan of one barrack shows on each floor, in the back verandah of the barracks, two

small apartments intended as night privies. 24 They have never been used, however, for this purpose and were chiefly occupied, at the time of my inspection, as workshops and places for stowing gardening implements, &c., &c.

16. I think that these rooms should be at once devoted to their proper use and that six seats and one or two urinals should be placed in the larger of these necessary rooms, and that the smaller ones should be employed as bathing-rooms. Water is laid on to these latter apartments and one or two reclining baths might be placed in them.

Proposals regarding these rooms.

17. These privies should not be used by day and they should be only resorted to after the men had "turned in" at night. They should also be closed early in the morning and prepared for night use by a supply of dry sifted earth. This will entirely prevent these night necessary rooms which are detached from the barrack rooms, proving offensive. During the day men should have recourse to privies to be connected with the barracks by covered ways as has been done in the family quarters. The two privies now in use are detached from the barracks and inconveniently situated as shown above. In lieu of them one privy should be attached to each of the four

Conservancy of night privies.

Present day privies.

18. Since my inspection of these barracks the want of night privies has been brought to the notice of the Major General Commanding the Division, and the Executive Engineer has submitted a plan for converting the present wash-houses situated to the rear of each block into day latrines, and using an apartment, now employed as a cook-room, as a lavatory. I cannot concur in Major Farewell's suggestion.

Proposed improvement of Latrines.
Wash-houses.

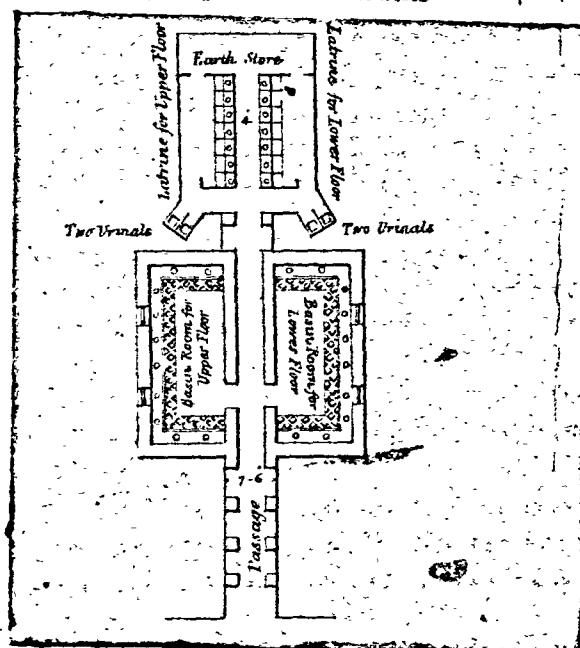
19. Washing accommodation for 144 men will be required for each block (in addition to the baths recommended in paragraph 154); at least 15 per cent. of corrugated iron basins (say 10 for each floor) should be provided in the lavatories and four tubs should also be in readiness for men wishing to wash thoroughly.

Requirements detailed.

20. I think the amount of slopping arising from so large a number of men as 68 having recourse to one bathing room as proposed by Major Farewell would be very great, and that the barrack room and Sergeant's quarters would be injuriously affected by damp and possibly by evil smells if the drainage became defective. Lavatories should always have at least a verandah interposed between them and sleeping rooms or day rooms. Their removal to too great a distance is on other grounds equally objectionable.

21. I would suggest in preference to adopting Major Farewell's plan, that the present wash-house be retained, but that it be put into thorough repair. Both it and the privies should be connected by a covered way to the central point of the back of the block to which they belong, and a passage might be made through the lavatory so as to divide the lavatory into two rooms between which a passage would lead, by an open covered way, to the privy which should be constructed behind, but entirely distinct from the lavatory. The debris of the present privies would be useful in completing the passages and in part in constructing the latrines, and these should be designed for the dry earth system and made to hold 10 seats for 144 men. A separate compartment with two seats could be set aside for Sergeants' use. The arrangement proposed is shown in the margin.

Proposals regarding Lavatories and Latrines



22. The cook-rooms, which will be no longer required for cooking when a Duff's stove is put into the other cooking rooms, might be divided into two bathing rooms for Sergeants and their families for whom at present no provision for bathing is made. By this arrangement one source of great discomfort to Sergeants and their families living in barracks would be avoided.

23. The privies of the Wellington Barracks are at present managed on what is known as the Punjab dry system, and are clean and tolerably free from any offensive odour. They consist of two oblong buildings each containing 23 seats. These are in too close proximity to each other, no attempt at any partition to secure decency has been made and the latrines are in construction and plan very unequal to the lavishly expensive style which characterizes the main buildings of the barracks. If the congregation of great numbers in barracks is now considered on principle undesirable, there is a still more forcible objection to crowding the men in latrines which, constructed as those at Wellington are, entirely prevent the observance of decency.

Conservancy of Barrack Latrines.

24. It is very desirable that the earth system of conservancy should be introduced throughout the Wellington Barracks. All that is required is, that in addition to a well constructed privy, a few iron-roofsheds, should be built behind these privies for storing the dry sifted earth and poudrette. Both the situation and soil of Wellington are favorable for the dry earth system of conservancy. Difficulty may be experienced in obtaining sufficient dry earth during prolonged rain, and on that account there should be a large shed capable of containing at least 10 days' supply of earth and this should be made in immediate connection with each latrine. The experience at Ramandroog (vide Dry Earth Conservancy Pamphlet by this Commission, page 38) points clearly to the necessity of specially providing for such a climate as that of Hill stations.

Dry Earth system recommended.

25. I am informed by the Officer Commanding the 105th that on account of the discontinuance of the allowance for lime, consequent on the use of coal-tar in the privies, no lime except that granted annually for all public buildings is allowed for cleansing the interior of the barracks, guard-room, &c., so that the walls cannot be white-washed except at the stated time; and as the men spit a good deal about the barrack rooms they are becoming much soiled. Some form of white-wash should continue to be allowed for cleansing the barrack room walls occasionally and the white earth so readily found in the neighbourhood (Kaoline) is well suited to this purpose both in barracks, guard-rooms, prison-cells and cook-rooms.

Cleanliness of Barracks and Guard Rooms.

26. The Commissariat Department has given out the scavenging contract of the barracks; but if the dry earth system is introduced I believe that coffee, tea, and chincona planters would be glad to supply earth and remove poudrette gratuitously. The carts now provided are in a disgraceful condition and quite unfitted for the purpose for which they are used.

Scavenging of Barracks.

27. The following were the arrangements for removal of sewage in force at the time of my visits.

The sewage receptacles are morning and evening emptied into wooden tubs which are removed on carts to a distance of 1½ miles from the barracks, and emptied into pits, which when filled, are covered in with clay, and new pits are opened. These pits, however, are close to a public road, and the surrounding ground is rendered damp by an adjacent stream. On the occasion of our inspection the pits gave out a most objectionable smell, and open as they are to rain and sun, they prove a great nuisance to passers by and in certain states of the wind are even a source of discomfort to the barracks.

28. The use of wooden tubs for the carrying of sewage is objectionable; all vessels for sewage should be of sheet iron painted with coal-tar.

Wooden sewage vessels objectionable.

The cess pits are annually emptied by persons who purchase their contents. If the dry earth system was in force, contractors supplying earth should be made to guarantee the removal of manure.

Sale of Manure.

of poudrette to their plantations, any elaborate system of conservancy by which sewage trucks would run from the privies to cess pits, on iron tramways would involve, as estimated by Major Farewell, too great an expense (from 1,20,000 to 1,50,000 Rupees) to justify me in recommending it.

29. In some of the lower rooms set aside for the Serjeant's quarters the floors have been laid with asphalté. The quality of asphalté used appears inferior and it has been badly laid. The consequence is that it breaks, looks unsightly and harbours dirt in the crevices.

30. I believe that this is not a necessary consequence of the use of asphalté in this country. It is much used in Bengal and when prepared and laid by persons who have special knowledge of how this should be done, has proved an excellent material for flooring. But in hill climates where the soldier suffers much at times from cold, I believe that it is desirable that the flooring of barrack and hospital rooms should always be of wood.

31. The arrangements for washing (lavatories) throughout the barracks are most inferior and very unworthy of the barracks of which they are component parts.

The wash-houses for the soldiers present every defect peculiar to the old system of barrack wash-houses. They are four in number. They have been designedly sunk into the ground which has been excavated some three or four feet into pits to receive the building, thereby securing damp and increasing the difficulty of drainage. They are very limited in size and unfurnished with basins, having only two or three tubs in each, so that the same water is used over and over again. The floor is one large puddle, there are no gratings for the men to stand on, no pegs to place their clothes on, and the rooms are so comfortless that the men prefer the use of the plunge bath to using these wash-houses. But the use of the plunge bath is not suited to all constitutions and a reform in the present wash-houses throughout the Wellington Barracks is most urgently required.

32. The present barrack wash-houses have no masonry drains; There are open earth drains, so that the soapy water partly flows through the drains and partly sinks into the earth, thereby generating offensive smells.

33. I have in a previous part of this Report noted the measures which are best calculated to improve the lavatory and latrine accommodation (vide paragraph 159) for the men in barracks.

34. In the Regimental 'Serjeants' quarters, where excellent accommodation has been provided for the Non-Commissioned Officers, no provision whatever has been made, (though there is every facility for doing so,) to lay water on to these quarters or for draining them thoroughly.

35. The consequence is that the families of the Non-Commissioned Officers in the barracks are obliged to store water, and to bathe in tubs which remain standing in the quarters during the greater part of the day and night, until removed in the morning, by the scavengers.

36. This was a subject of much complaint, and it interferes greatly with the comfort of these quarters, and might at no great expense be remedied by the erection of a public cistern at the ends of each barrack block and by the conversion of one of the cook-houses, on each floor of the Barrack blocks, into a lavatory for the families of the Sergeants on that floor. This of course cannot be done until the erection of the Duff's stoves (one for each company) liberates one of the cook-rooms now fitted with Native ranges.

37. The wash-houses in the family quarters, are equally defective, and there is the same entire deficiency of any means of washing within the family quarters or of draining away any water or slops that accrue during the day in these often crowded quarters. This omission to provide so important an element of health and cleanliness is the more remarkable from there being abundant means of supplying the whole of the buildings with water, from the neighbouring stream which flows into a reservoir placed at an elevation considerably above the whole of these buildings. If not attended with too great expense, I would recommend that cisterns

should be erected on both floors of the married quarters, say two to each floor of the several blocks, and that much of the inconvenience now experienced by families who resort to the adjoining wash-houses for water, would be thus avoided. Cisterns on the lower floor should certainly be made.

38. The interruption to bathers occasioned by this habit of drawing water from the Lavatories and the want of abundant water supply close to the several quarters, are both objectionable.

39. There is a point connected with water supply that in these barracks, as in those in Fort Saint George and Saint Thomas' Mount, has attracted notice. I allude to the chatty filters so commonly in use in Barracks and Hospitals.

On inquiry I invariably found that they were reported as likely to get out of order and to get broken: I believe that the Magnetic Oxide Filters now manufactured in England by Spencer and which are said to remove decomposing animal and vegetable matter are worthy of trial. If the reports of the International Exhibition are to be relied on this filter is the most perfect, yet constructed.

40. In all Barracks and Hospitals and married quarters the best procurable filters should be erected and carefully supervised. To bad water is attributable much of the bowel complaint witnessed among soldiers and their families and the purity of the water supplied to sick soldiers is a matter of vital importance.

41. A Member of this Commission is now conducting experiments as to the value of Spencer's filters, and I shall avail myself of an early opportunity of submitting the result to Government.

42. I may here add, however, that to these filters was awarded the only Medal granted for the filtration of water by Class 10 of the Exhibition. In the Report it is stated that,

"The only new material for filtering, and in reality, the only novelty in filtration, is that brought forward by Mr. Spencer," and also:—"This filter of Mr. Spencer's is certainly a very powerful agent of purification, and, it may be added also, is the only discovery made in this century of a new substance of really great importance for the filtration of water; it is also one of the most important discoveries, as tending to elucidate the principles of filtration or purification as distinct from mere straining."

If experiment should prove that these filters are really possessed of the merits here assigned to them, I think it would be well if to each barrack block and each block of married quarters a good sized filter were attached for the due care of which some Non-Commissioned officer could be held responsible.

43. The married quarters were originally contained in 4 blocks, and were calculated to accommodate 120 families—to each family two rooms are given.

They are well built, well situated, and afford ample accommodation to the married soldiers.

44. I have already noticed with regret that the comfort of these families has not been completed, by providing them with means of washing themselves and their children in the quarters themselves, and of getting rid of the water used for domestic purposes.

45. The common wash-houses attached to the married quarters are, if possible, in a worse condition than those attached to the barracks—no basins, no convenience for hanging clothes, a wet floor, and every discouragement in a hill climate to cleanliness. The wash-houses themselves, each of which is calculated for 30 women and their children, are much too small.

46. The privies set apart for the women and children are extremely ill-constructed, and should without delay be reformed.

47. Bannisters to the staircases are much required in the family quarters; and steps fronting the doors of the quarters should be added to the lower verandahs as they are too high from the ground for young children.

48. The open drain at the back of the married quarters is a singular instance of the incompleteness which characterizes some of the details of these barracks. This drain has the side and bottom of stone, while the other side of the drain has no stone facing. Throughout the barrack yard, and wherever in the barrack buildings there are spouts, these have no corresponding drain or gutter, into which the water can be discharged and drained away.

49. The consequence is that, in rainy weather, the front of the lower barrack rooms and of the lower rooms in the family quarters remains muddy, until dried by the sun. This defect might be easily remedied by vertical metal pipes, to convey rain water from the roofs, and these pipes ought to discharge their contents into stone faced water channels. Thus alone can the foundations of the buildings be kept dry.

50. There are, however, some other defects in these quarters which require notice as they should be corrected in future family quarters though they are irremediable in the existing building at Wellington and elsewhere.

I here refer to the disproportion between the heights of the upper and lower rooms; and between the two rooms constituting a family quarter.

The dimensions of a lower floor quarter are:

(a). 1 room $16 \times 14 \times 14$ in height = 224 square feet and 3136 cubic.

(b). 1 " $16 \times 10 \times 14$ " = 160 " and 2240 "

While the upper quarter contains two apartments:

(c). 1 room $16\frac{1}{2} \times 14\frac{1}{2} \times 16\frac{1}{2}$ in height = 234 square feet and 3862 cubic.

(d). 1 " $16\frac{1}{2} \times 10\frac{1}{2} \times 9\frac{1}{2}$ " = 168 " and 1603 "

The result of this disproportion is that the upper and better ventilated sitting-room is somewhat larger, and the bed room very considerably smaller than that given down stairs.

The total superficial allowance is sufficient, however, to meet the rule on this subject laid down by Colonel Crommelin and which has also received the sanction of the Supreme Government. But, a room containing only (as room (d) does) 168 square feet and 1603 cubic contents is certainly not sufficient for a sleeping-room for say a man and his wife and two or three children.

Practically these small back rooms, are mere lumber and bathing-rooms, and are the only places where wood, water, &c. can be kept, and where all bathing and domestic washing has to be done. The plan proposed at Bangalore of detached cottages would probably occupy too much space at Wellington where level ground has generally to be made. But in all new family quarters, to be hereafter built, a small enclosed yard should be allowed to each quarter and should contain a cook-room, privy, and bathing-room.

51. One arrangement now in force should certainly be altered without delay. That is the

Half block of married quarters occupied as a prison.

occupation of half of one family block where 8 upper and 8 lower quarters are used as cells of prisoners and prison guard. By this arrangement 16 families are taken off the 120 for whom provision was intended; and thus if a full Regiment were in barracks and married to the extent of 12 per cent. and if further a Depot is to be maintained, the families would probably be in excess of the 104 quarters now available.

Military prison required.

52. A good Military prison is much needed, and in 1861 one was planned and commenced but afterwards discontinued. I would recommend that it should be now completed and the whole 120 quarters made available for the families of the Regiment and the Depot. The only regularly constructed cells in all this large barrack are five in the Staff Quarters, and they are dark, ill-ventilated and totally unfit for use. (Vide report on Staff buildings.)

Of the other Regimental and Depot quarters I may briefly say that the reading-room is of good size, and, if furnished with comfortable seats, would do very well. There is a Racket Court, Skittle Alley and a good Plunge Bath, which is much used and liked by the men.

Reading and Recreation rooms.

53. One cannot help being struck, in inspecting carefully the whole of these barracks, especially the out buildings, and the necessary adjuncts of wash-houses, cook-rooms, and privies with the fact that there has been, in the first instance, a very liberal expenditure in building the Barrack rooms themselves, and that there has been haste and almost a niggardly expenditure in details, which are of very essential importance to the sanitary condition of soldiers. Thus no stoves for cooking have been furnished to the kitchens, as in other barracks, and the kitchen utensils are defective; the privies are too few in number, over-crowded, and afford no means of observing decency; the wash-houses are small, comfortless, and ill-drained. The whole drainage of the barrack has been neglected. And these defects exist side by side with magnificently constructed barrack rooms!

54. A sum of probably not more than half a lac of Rupees would make the Wellington barracks the most complete in India, and for want of this expenditure these barracks recently constructed, present some of the worst features of barracks built before the preservation of the health of the British soldier had received any thing like scientific attention.

55. I was much struck with the very inconvenient Canteen arrangements in these barracks.

Canteens of Regiment and Depot.

The only Canteen accommodation allowed for a Regiment, at the time 590 strong, and which if at the full strength of an Infantry Regiment, would number 1000 men, consists of a room about 25 feet long by 17½ feet broad.

56. At the time of our visit to the Canteen there were about 60 men crowded into this space, and the hurry, confusion, and difficulty of preventing the men transferring their liquor, can be imagined.

57. It is desirable to reduce as far as possible the consumption of alcoholic drinks by the British soldier. But so long as there is a Regimental Canteen in a barrack, it should be a place conducted in a decent and orderly manner; and this is impossible in the crowded Canteen at Wellington. To a looker on, nothing could be more disagreeable than to see the men jostling each other to reach the counter, where the spirits were served out; and I am disposed to think that a large airy Canteen, where the men could sit and smoke quietly, after taking their allowance of liquor would prevent much drinking of deleterious spirits outside.

58. In the Canteens of the old East India Company's European Regiments, the arrangement recommended above was usual, and did not tend to increase drinking, but rather induced orderly behaviour in the persons resorting to the Canteens.

59. I was informed by Colonel Stoll that the men are not allowed to have their malt liquor with their meals, but take it at the Canteen at a draft, as described above, at the Counter.

60. It would be in every way desirable to let the men take their beer with their food, and I believe that the danger of the sober men transferring their beer to the drunkards could be sufficiently prevented, and thus remove the only objection I have ever heard urged to this most natural arrangement. The Canteen for the Convalescent Depot, numbering on an average 60 men, is precisely the same size as the Canteen for the whole of the 105th Regiment.

61. The two apartments on the lower and those on the upper floor were intended to be used solely as a Regimental Canteen, and when the Depot Canteen was introduced, the necessity of providing for it separate accommodation resulted in the Regiment having insufficient room, and the Depot too large accommodation. These confused arrangements have in part arisen from the 60th Rifles entering the Barracks while still unfinished; and rooms, thus temporarily devoted to

purposes for which they were never intended, have been handed down from Regiment to Regiment.

62. The Dépôt Canteen is clean, and neat, and presents a most striking and pleasant contrast to the Regimental Canteen. The whole of this Canteen Block should be made over to the 105th Regiment, and other provision made for the Convalescent Dépôt and the Canteen Serjeants quarters.

63. The Coffee rooms of the 105th, and of the Convalescent Dépôt, are most uncomfortably furnished. If it is hoped to attract the soldier to these rooms instead of the Canteen within and the illicit grog shops without the barracks, it will be necessary that the Government should exercise liberality in providing the Coffee shops with a few plain, but comfortable seats.

64. In all that relates to the diminution of drunkenness in the Army, I take, as all must who have paid attention to the subject, a warm interest; but I do not think this very desirable object is to be attained by ignoring the habits, character and origin of the British soldier by the total abolition of Canteens, or by making them comfortable.

65. I think that the condition of the soldier is being ameliorated, and that it admits of still further amelioration; that as he becomes by this process more civilized, drunkenness will almost cease, and that if he does not altogether abstain from alcoholic drinks, his use of them will be in the nature of a harmless indulgence and not a vice as at present.

66. In close connection with the foregoing subject, I am inclined to believe that the institution of Workshops and suitable industrial employment and rational amusement would do more to win the soldier from habits of idleness and intoxication than any system of caution, management, or military discipline. On this account I made full inquiry into the system at present in force in the Barracks at Wellington whereby opportunities of useful industrial teaching could be afforded to the soldier. I regret to say that in this respect the arrangements in force are exceedingly defective. The workshops are comprised in two small apartments ill-ventilated, badly lighted, insufficient in size, and not capable of containing a dozen men with any regard to comfort.

67. I would suggest that with great advantage the now unfinished block of barrack buildings might be completed by an iron or zinc roof and that part of it be made into a suitable recreation room, and the remainder into a workshop for carpenters, shoe-makers, &c., for whose workmanship I believe a good demand exists both at Wellington and Ootacamund. This unfinished block was formerly used as places of worship for Protestants and Roman Catholics, but the grass roof then in existence was, I am informed, maliciously burned down. I think that the building is likely to be injured by exposure to the weather and, if not required for completion as Barracks it should be thus utilized and not allowed as at present to become impaired by neglect.

68. Provision might also be made for a Gymnasium; but this Commission is inclined to believe that Gymnastics must be made a portion of Regimental drill. They will not be resorted to continuously by the soldier in India, as a place of amusement.

69. The only other buildings which require notice are those comprising the block called from its mode of occupation "Staff Quarters." The proposed mode of employment of these rooms is fully shewn in the accompanying table of accommodation afforded by them.

Staff Quarters.

The only part of them requiring any comment from me is that devoted to the confinement of prisoners. The cells erected for this purpose are not lighted, are ill-ventilated (or not ventilated at all) and are entirely unsuited for the retention of Europeans. Practically, I believe they are seldom or never used; I think they should be discontinued entirely from their present use and that the Military Prison (or solitary cells,) formerly projected should be completed.

70. Wellington and Bangalore are both of them well suited for the erection of Military Prisons as the climate would allow of rigorous imprisonment without probable risk to the health of prisoners, as owing to the coolness of the climate they might be put to hard labor which so often forms a portion of their sentence, a part, too, which cannot be efficiently carried out in stations in the Plains. It would also, I believe, be found a much more severe punishment if men sentenced to imprisonment were removed entirely from contact with the officers and men of their Regiment, and subject to the severe discipline that can be enforced in a well regulated Military Prison.

71. I have referred to this matter incidentally here, in connection with the cells in the Staff buildings, the dimensions of which, I now proceed to detail.

Detailed Statement of Accommodation in the Staff Block of Wellington Barracks.

Block and Rooms.	How occupied.	Dimensions.			Superficial area of each room.	Cubic contents of each room.	Openings.	Windows.			Doors.			Remarks.					
		Length.	Breadth.					Height.	Number.	Height.	Width.	Number.	Height.		Width.				
			ft.	in.												ft.	in.	ft.	in.
Block. Rooms	Serjeant's Mess...	58	"	21	15	1218	ft.	18270	ft.	3	6	4	10	2	8 4 1/2	Communicating freely by pillared arches 5 in number.			
	Do. Reading-room.	58	"	12	15	696	ft.	10440	ft.	3	6	4	10	1	8 4 1/2				
	Do. Kitchen ...	21	"	10	10 1/2	15	228	3425	ft.	2	6	4	10	2	8 4 1/2				
	Do. Store ...	12	"	10	"	15	120	1800	ft.	1	6	4	10	1	8 4 1/2				
	Do. Pantry...	17	"	6	12	"	15	210	3150	ft.	1	6	4	10	2		8 4 1/2		
	Quarter Master's Store...	51	"	6	21	15	1081	16222	ft.	2	6	4	10	3	8 4 1/2				
	Do. do. Office...	18	"	12	"	15	216	3240	ft.	1	6	4	10	1	8 4 1/2				
	Do. do. Clerk's Office...	33	"	6	12	"	15	402	6030	ft.	3	6	4	10	1		8 4 1/2		
	Regimental Guard-room...	50	"	3	21	"	15	1055	15828	ft.	2	6	4	10	2		8 4 1/2		
	Defaulters Room ...	34	"	10	12	"	15	417	6269	ft.	2	6	4	10	1		8 4 1/2		
	Serjeant of the guard ...	13	"	6	12	"	15	162	2430	ft.	2*	6	4	10	1		8 4 1/2		
	5 Cells each...	12	"	10	"	6	15	76	1154	ft.	...	...	...	...	...		*1 Opening into Guard-room.		
	Paymaster's Office...	16	"	12	"	15	192	2880	ft.	1	6	4	10	1	8 4 1/2				
	Do. Clerk's Office...	16	"	21	"	15	336	5040	ft.	...	...	...	...	...	...				
	Lower floor.	Master Tailor's Room	28	"	3	12	"	15	339	5085	ft.	3†	6	4	10		1	8 4 1/2	†1 Opening into Tailor's Workshop.
Tailor's Workshop ...		28	"	3	21	"	15	593	8898	ft.	1	6	4	10	3	8 4 1/2			
Shoe Maker's Room ...		17	"	21	"	15	357	5355	ft.	...	...	...	...	...	...				
Do. do.		17	"	12	"	15	204	3060	ft.	2	6	4	10	...	...	These apartments are suitable and require no alteration except that latrine accommodation should be provided if families are to occupy them.			
Marker's Room...		11	"	4	12	"	15	238	3570	ft.	2	6	4	10	1		8 4 1/2		
Do. do.		11	"	4	12	"	15	136	2040	ft.	1	6	4	10	1		8 4 1/2		
Upper floor.		Serjeant Major's Room ...	21	"	3	17	"	20	377	7543	ft.	...	...	...	...	...	Do.		
		Do. do.	21	"	3	12	"	20	262	5259	ft.	1	6	4	10	2		8 4 1/2	
		Do. do.	17	"	9	12	"	20	217	4348	ft.	1	6	4	10	3		8 4 1/2	
		Do. do.	12	"	4 1/2	"	3	20	151	3031	ft.	1	6	4	10	1		8 4 1/2	
		Drum do.	21	"	3	16	"	20	355	7119	ft.	1	6	4	10	1		8 4 1/2	
		Do. do.	21	"	3	12	"	20	260	5206	ft.	...	...	...	...	...		Do.	
		Do. do.	16	"	9	12	"	3	205	4103	ft.	1	6	4	10	2			8 4 1/2
		Do. do.	12	"	3	12	"	3	20	150	3001	ft.	1	6	4	10			1

Detailed Statement of accommodation, &c.—(Continued.)

Block and Rooms.	How occupied.	Dimensions.			Superficial area of each room.	Cubic contents of each room.	Openings.	Windows.			Doors.			Remarks.			
		Length.	Breadth.	Height.				Number.	Height.	Width.	Number.	Height.	Width.				
					ft.	in.	ft.								in.	ft.	ft.
Block. Rooms.	Master Tailor's Room ..	21	3	17	6	20	371	7437	...	1	6	6	4	10	2	8 1/2	These apartments are suitable and require no alteration except that latrine accommodation should be provided if families are to occupy them.
	Do. do. ...	21	3	11	"	20	233	4675	...	...	...	...	...	...	3	8 1/2	
	Do. do. ...	17	6	12	3	20	214	4287	...	1	6	6	4	10	1	8 1/2	
	Do. do. ...	12	3	11	"	20	134	2695	...	1	6	6	4	10	1	8 1/2	
	Provost Serjeant's Room..	21	3	14	"	20	297	5950	...	1	6	6	4	10	2	8 1/2	Do.
	Do. do. ...	21	3	11	6	20	244	4887	...	...	...	...	...	...	3	8 1/2	
	Do. do. ...	14	"	12	3	20	171	3430	...	1	6	6	4	10	1	8 1/2	
	Do. do. ...	12	3	11	6	20	140	2817	...	1	6	6	4	10	2	8 1/2	
	Orderly room Clerk's Room.	21	3	14	"	20	297	5950	...	...	...	...	...	...	3	8 1/2	Do.
	Do. do. do.	21	3	11	6	20	244	4887	...	...	...	...	...	...	3	8 1/2	
	Do. do. do.	14	"	12	3	20	171	3430	...	...	...	...	...	...	1	8 1/2	
	Do. do. do.	12	3	11	6	20	140	2817	...	...	...	...	...	...	2	8 1/2	
Officer's Guard Room...	21	3	16	3	20	345	6906	...	...	...	...	...	...	2	8 1/2	Water closet required.	
Do. do. ...	16	3	12	3	20	199	3981	...	...	...	...	...	...	1	8 1/2		
Commanding Officer's Room. ...	35	3	12	3	20	431	8636	...	...	...	...	...	...	2	8 1/2		
Do. do. Orderly Room...	35	3	21	3	20	749	14981	...	...	...	...	...	...	3	8 1/2		
Upper floor.	Staff Office Room. ...	21	3	14	6	20	308	6162	...	...	...	...	...	...	2	8 1/2	These apartments are suitable and require no alteration except that latrine accommodation should be provided if families are to occupy them.
	Do. do. ...	14	6	12	3	20	177	3552	...	...	...	...	...	...	1	8 1/2	
	Paymaster Serjeant's Room.	21	3	16	1 1/2	20	342	6853	...	...	...	...	...	...	2	8 1/2	
	Do. do. ...	21	3	13	3 1/2	20	282	5648	...	...	...	...	...	...	3	8 1/2	
	Do. do. do.	16	1 1/2	12	3	20	197	3950	...	...	...	...	...	...	1	8 1/2	Do.
	Do. do. do.	13	3 1/2	12	3	20	162	3256	...	...	...	...	...	...	1	8 1/2	
	Armourer Serjeant's Room...	21	3	16	6	20	350	7012	...	...	...	...	...	...	2	8 1/2	
	Do. do. do.	21	3	11	3	20	239	4781	...	...	...	...	...	...	3	8 1/2	
	Do. do. do.	16	6	12	3	20	202	4042	...	...	...	...	...	...	1	8 1/2	Do.
	Do. do. do.	12	3	11	3	20	137	2756	...	...	...	...	...	...	1	8 1/2	
	Quarter Master Serjeant's Room	21	3	17	"	20	361	7225	...	...	...	...	...	...	1	8 1/2	
	Do. do. do.	21	3	12	4 1/2	20	260	5216	...	...	...	...	...	...	3	8 1/2	
Do. do. do.	12	4 1/2	12	3	20	150	3007	...	...	...	...	...	...	1	8 1/2	Do.	
Do. do. do.	17	"	12	3	20	208	4165	...	...	...	...	...	...	2	8 1/2		

72. The buildings are in good repair and are well designed and have the advantage of water supply direct to all the rooms.

73. I think however that, for the convenience of Staff Serjeants and their families, latrines for males and females should be erected according to the plan before submitted to Government by me with my letter on Dry Earth Conservancy.

74. I have to bring to notice that a large building formerly used as a privy but long disused for this purpose exists behind and at a lower level than Barrack Blocks Nos. 1 and 3.

Old privy disused.

75. This monster privy contained in two parallel buildings with an intervening yard seats for about 50 or 60 men. It was originally intended that the necessary pits under the seats should be flushed out from two cisterns (still in existence) which were to be fed from the Water Service of the Barracks. The sewage thus flushed out was to be driven down and carried into the Coonoor river near the bridge. To this mode of disposing of sewage objection was taken by residents at Coonoor and eventually this scheme was abandoned and privies were used without flushing or cleansing of any kind. The result was that a most abominable nuisance was created, and the use of the privy abandoned, but not until much discomfort, and I believe, I may add much sickness had been caused by it.

76. It is now, and has been for years totally unemployed, and it was visited with a view to ascertaining if it could in any way be utilized for the soldiers. Owing to its isolated position it would not do for valuable stores unless a guard could be provided. But it might be made useful, I believe, for the more noisy industrial employments, as forge or carpenters' shops; and I would recommend its conversion into places to be thus used. The site of the latrine has been thoroughly cleaned and its use as proposed is not objectionable on account of the purpose to which it was formerly given.

How to be utilized.

77. The ground surrounding this place is very filthy and has much rank vegetation on it. This should be removed and the whole place kept neat and planted. If this were once done the men should be allowed to cultivate it as it is not too close to the Barracks.

Neighbouring ground.

78. A very large and well designed building, originally intended as a School and Library for the Depôt, was for many years used by the officers of one Regiment as a Mess House and Billiard-room, &c., but it has since been devoted partly to its proper use.

Other detached buildings.

79. There is a splendid room, 30 feet high, and from its size and proportions admirably designed as a School-room, it is much spoiled by a number of canvass screens formerly put up by the 60th Rifles when they used this as a Mess Room.

School-room.

80. There are also a good room for use as a School for girls and Schoolmistress' quarters adjoining; these latter are now occupied by the Bandmaster for whom apparently no public quarters are provided. I am not aware whether

Female School.

this officer is entitled to public quarters; but if so, they should be provided in some other place.

81. A very good Reading-room is provided on the ground floor. This is a good arrangement as Reading-rooms and Recreation-rooms should always be separated, and the situation of the Reading-room is good and of easy access to all men in Barracks.

Reading-Room.

82. This apartment, I learnt, is now occupied by the Armourer Serjeant while the Library is used as a Depôt School; I think the Depôt and Regimental Schools should be amalgamated, and this room restored to its proper

Librarian's Room and Library.

use as well as the adjoining Librarian's apartments.

83. Attached to the Barracks are three Privies for use by Native servants and followers; and they were found to be exceedingly filthy. Their entire re-construction is highly desirable and they should be worked on the same system as before recommended for Privies for Europeans.

Privies for Natives.

84. For the same class of followers, attached to the Regiment and the Depôt, a small Native Hospital is provided, but in it are treated also Police Peons, Bearers, Peons, &c. The admission of these persons is objectionable and the Hospital itself is exceedingly small, and only capable of containing 7 cots, which are even then too crowded. One window only is in this building, and it overlooks a marshy swamp. A better Hospital should be provided and the Police should not continue to be treated here.

Native Hospital.

85. A well designed Hospital for 10 or 12 males and 6 or 8 females should be provided, and separate accommodation for Police in, if possible, a detached building.

Suggestions.

86. The Military limits of Wellington are well defined and there is a Magistrate competent to deal with offences under the New Military Cantonment Act, and perhaps in no Cantonment could the provisions of that Act be more easily carried out than at this station.

Cantonment.

87. I would, therefore, be glad to see the Rules submitted to Government by the Inspector General of Mofussil Police and myself brought into force here, feeling assured that they would not fail to produce a sensible diminution in the amount of venereal disease which is exceedingly prevalent at this station.

88. The Sanitary condition of the station is in charge of the Senior Medical Officer who has a Conservancy Serjeant to carry out his orders and to direct his attention to subjects requiring to be noticed. No emolument is attached to this Office. I think a regular Salary ought to be attached to it and that within Military limits the Regimental Medical Officer should be charged with this work as a portion of his duty. Outside Military limits the Medical Officer at Coonoor should supervise the Sanitary condition of the station of Wellington in addition to his own duties. This place was provided for in Appendix A of my "Memorandum on the Constitution of a Public Health Service for the Madras Presidency" forwarded to the Chief Secretary to Government with letter No. 197, dated 18th July 1864.

Sanitary supervision of the station.

89. The Conservancy allowance sanctioned for the Barracks and Cantonment of Wellington is only 80 Rupees per mensem. Two Carts are used in connection with the Hospital and five are employed by the Barracks, including the

Conservancy Establishment.

family quarters. I have already shown that there is reason to hope that under the proposed Earth System of Conservancy these charges may be somewhat reduced, but I would here direct attention to the fact that no Establishment is now sanctioned for the Bazaar. There is, as will be hereafter

seen, great need of some provision of this kind, as parts of the Bazaar are far from clean; and, owing to the want of general society and amusements, it is much frequented by European Soldiers and their families.

90. I was glad to find that Soldiers' Gardens had been encouraged at this Station and that they had proved successful. Some discouragement in this respect had long been presented by the absence of a protecting wall round them

Soldiers' Gardens.

and many thefts occurred. This defect was being remedied at the time of my visit and I was glad to find that 12 per cent. of the men had taken up and utilized gardens of suitable size. The soldiers are allowed to dispose of vegetables but they do not contract with the Commissariat who supply potatoes and vegetables, to the men. The chief products of the Gardens are Cabbages, Peas, Beans, French Beans, Carrots, Onions, Pumpkin, Turnips, Radishes and Cauli-flowers—of all of these very creditable specimens were seen.

91. The Rations at Wellington are generally good; the following are the rates at which they are supplied by contract.

Rations.

Beef.	8	pounds per Rupee.
Mutton.	7	" "
Bread.	6½	" "
Rice.	12½	" "
Salt.	19	" "
Patatoes. ...	40	" "
Vegetables of sorts.	20	" "
Coffee.	3½	" "
Sugar.	6½	" "
Firewood. ...	305	" "
Lamp oil. ..	31	drams "

92. The supply of Arrack and Porter was examined and found exceedingly good. The Arrack (37.50 A. A. and 63.50 water) was, like that recently reported on by this Commission, a very good serviceable spirit and is much liked by the men.

Arrack.

93. The Porter, both in bottle and on draught, was found here as elsewhere exceedingly good. It was formerly bottled at Madras and then sent up here, but it is henceforward to be sent to the Hills in wood and bottled by the Commissariat Officer.

Porter.

94. The prices of Porter and Arrack are:—

3 As. for 1 quart of draught porter (Jenning's).
1½ " 1 pint " "
1 " 3 ounces of Arrack.

95. I understand that on the march a quart of bottled Porter is given for 2½ Annas so as to promote its quick consumption as well as because it is liable to spoil. It is not so much liked by the men and is rarely called for in the Canteen. Possibly this is in part due to the knowledge that the ordinary quart bottle does not contain imperial measure such as is given at the bar of the Canteen.

96. I was glad to find that Serjeants were allowed the advantage of being able to get draught Porter from the Canteen and that the wives of Privates and others could get 1 pint daily on

Canteen available for families.

payment. Considering the hard and laborious life that some of these women lead, I think this concession a wise and humane one.

97. While engaged in examining into certain details regarding food and Canteen supplies at the Commissariat Office, I enquired regarding the quality of the Mattresses supplied by this

Mattresses for Troops.

Department. These did not appear satisfactory, and the workmanship was indifferent. I was informed that the lowest tenders were always preferred and that hence the materials supplied were frequently inferior. I would suggest that sealed patterns of the approved Mattress should be

supplied to each Commissariat Officer, and that strict adherence to this, both as to size, material and workmanship, should be rigidly enforced from contractors under a penalty.

98. I learnt on enquiry that the rents of all grazing land in the Cantonment were paid into the Civil Treasury of the Collector of the District. I think that in the case of a large and

Cantonment Grazing lands.

important station for European Troops, (as Wellington will probably always continue to be) funds arising from such sources should, if required, be made payable to the Military authorities for the purposes of conservancy—and I have before shown that the allowances for this object are at present insufficient.

99. The General Bazaar and station of Wellington were examined in Company with Colonel Young, the Cantonment Magistrate.

General Bazaar.

100. He informed the Commission that drunkenness, both among Soldiers and others, had much decreased since the abolition of all Arrack shops except one. But even under the most careful supervision that can be exercised, bottles of Arrack are removed from these premises and disposed of to Soldiers.

101. I have on another occasion (my letter No. 402B dated 9th December 1864) advocated the encouragement of Malt Liquor as a drink for Soldiers, and I trust that the recommendations then made will not be overlooked. If Soldiers can be induced to use Malt instead of Spirituous drink a great diminution in the number of cases of intoxication may, not unreasonably, be expected and drinking outside the Barracks become less frequent than it now is.

102. There is only one Hospital for the Regiment and Depot and the dimensions of it are shown in the accompanying Table.

Hospital.

103. The general style of construction of this Hospital closely resembles that of the Barrack except that the Hospital has no upper floor. There are an open verandah on one side, and an enclosed verandah on the other side, of the

Style of construction.

buildings which are arranged in two parallel blocks.

Detailed Statement of accommodation in the Convalescent Depot and Regimental Hospital.

Rooms.	How occupied.	Dimensions.			Superficial area of each room.	Cubic contents of each room.	Regulation Number.	Superficial area then afforded.	No. of Cots at present in each room.	No. at 100 superficial area.	Cubic contents thus afforded.	Open-ings.	Windows.		Doors.		Open arches to adjoining Verandahs.	Remarks.
		Length.	Breadth.	Height.									Number.	Height.	Number.	Height.		
1	Male patients...	71	6	22	61501	33783	22	68	68	15	2252	...	18	4	5	5	...	
2	Do.	71	6	21	61501	33783	22	68	68	15	2252	...	16	4	5	5	...	
3	Do.	71	6	21	61501	33783	22	68	68	15	2252	...	16	4	5	5	...	
4	Do.	71	6	21	61501	33783	22	68	68	15	2252	...	16	4	5	5	...	
5	Enclosed Verandah...	143	0	10	01430	15730	...	...	...	...	...	...	...	...	...	...	...	
6	Do.	143	0	10	01430	15730	...	...	...	...	...	...	...	...	...	...	...	
7	Special Ward for Men...	33	0	10	03300	6270	4	82	82	3	2090	...	2	4	5	5	...	
8	Female Ward...	27	6	21	6577	12993	8	72	72	5	2598	...	2	4	5	5	...	
9	Enclosed Verandah...	26	0	10	02600	2860	...	...	...	1*	...	...	1	4	5	5	...	
10 & 11	Nurse's quarters, 2 rooms...	21	0	12	0252	5670	3	84	84	...	...	...	2	4	5	5	...	
12	Enclosed Verandah...	26	0	10	02600	2860	...	...	...	...	...	...	1	4	5	5	...	
13 & 14	Serjeant's quarters, (in 2 rooms each)...	21	0	13	0273	6142	4	68	68	1*	...	...	2	4	5	5	...	
15 & 16	Depôt do. (in 2 rooms each)...	10	0	13	01300	1430	...	...	...	1*	...	...	2	4	5	5	...	
17 & 18	Apothecary's rooms, 2 each...	21	0	12	0252	5670	3	84	84	1	...	...	2	4	5	5	...	
19	Do. do.	10	0	10	01000	1100	...	...	...	1	...	...	2	4	5	5	...	
20	Enclosed Verandah...	26	0	10	02600	2860	...	...	...	...	...	...	1	4	5	5	...	

104. The Chief Wards are made to contain 22 cots although really only sufficiently capacious for 15. In this calculation I suggest that in all Hospitals, even in temperate climates, not less than 100 square feet superficial area should be allowed for each cot. If the same standard be applied to the whole Hospital, it will be found that it is only capable of containing 60 Males and 5 Females in General Wards, and 3 Males in the Special Ward.*

105. This accommodation is barely sufficient for the present force at the station and would be quite inadequate for a full European Regiment.

106. One very commendable arrangement in this Hospital deserves notice, namely that the Hospital Serjeant, Female Nurse and Apothecaries are all resident in the Hospital.

Should additional accommodation be required for sick the rooms occupied by them might be utilized as small Wards and 10 to 12 persons extra be thus accommodated.

If this was done suitable quarters for Serjeant, Nurse and Apothecaries could be erected in the vicinity of the Hospital.

Probably this would be less expensive than making additions to the Hospital buildings.

107. The special Ward was a well proportioned room I was informed—but I was unable to examine the apartment as it was at the time of my visit, and had been for several months previously, occupied by a Lady labouring under

Insanity. I am constrained to direct the attention of Government to this most objectionable arrangement which should not again be allowed. I believe there was extreme difficulty in arranging any other method of providing the security and quiet of this unhappy Lady, but certainly the plan adopted appears open to many and serious objections.

108. The Iron Cots in use in this Hospital are somewhat different in pattern from those in use at the General Hospital, Madras. The head piece is a sheet of iron very insecure and likely to fall upon the pillow or head of the occupant.

The Mattresses were, when of coir, badly stuffed, and the enveloping cloth was coarse and badly stitched. I have alluded to this in noticing the Commissariat supplies and entered on the same subject in detail in my letter, No. 317A, dated 8th October 1864.

109. The Latrines, both for Males and Females, were designed to be flushed out from a Reservoir supplied from the Water Service of the Station. But Dr. FitzGerald had also worked some dozen of Closet seats with Dry

Earth with the most perfect success. The working of all these seats by the Dry Earth Conservancy is quite practicable in these Privies and I would strongly recommend it.

110. The ventilation of the Hospital was good, and the upper Attics allowed during fine weather a free upper circulation of air. As in the Barracks, however, it is found that these Attics are too much exposed; and they allow the morning

and afternoon sun to strike in too strongly upon the sick men's cots. I think that some provi-

* Having in view the climate of Wellington. I consider that in general wards 100 square feet superficial is sufficient in this Hospital although it falls short of the allowance recently laid down for Hospitals in the plains (vide Proceedings of Government 17th January page 23, paragraph 14).—"That all large wards be 26 feet in width and 21 feet in height to wall-plate, and that the wall space per bed in them be 10 feet, thus giving an area of 130 superficial feet per bed; that the wall-space per bed in wards for convalescents be 7½ feet only, which length will give an area of 97½ superficial feet per bed; and that in small wards the area per bed may average from 150 to 180 superficial feet per bed."

But the standard of 100 square feet should now be laid down for Wellington and should be strictly adhered to.

(Signed) B. S. E.

sion should be made to do away with the necessity of the blue linen cloth now fastened over the window panes in these Attics to prevent glare in the morning and evening.

111. There is no Ophthalmic Ward in the Hospital nor are there any detached separate Wards for infectious cases, nor is there any Operation Theatre. The latter apartment is perhaps not required as one of the empty enclosed Verandahs could be used for this purpose. But an Ophthalmic Ward should be provided and separate Wards should be built for six or eight cases in four rooms.

Wants of Hospital.

112. The out buildings are indifferent. The Cook room small, dark and ill-ventilated. The cooking utensils are deficient in number and inferior in quality and no roasting spit is provided.

Out buildings Cook room.

113. A good cooking range with suitable apparatus should be provided and if possible the cooking should be supervised by an European.

Range required.

114. In connection with the Military Hospital is a small building for the reception of public women suffering from venereal disease. Two wards are contained in this building and they are suitable for Native patients. The smaller room however is only used as a room for professional examination of patients. There are 8 beds in the larger ward and there were 7 patients at the date of my inspection.

Lock Hospital.

115. This Hospital under present regulations fails effectually to control the spread of venereal disease. There are no Regulations compelling the periodical examination of prostitutes, and the servants are so ill-paid that they must

Lock Hospital servants.

be exposed to the temptation of bribery. For example, the Peons here get only 5 Rupees a month while those in other Departments get 7. Honesty in the performance of a distasteful and unpopular duty can scarcely be expected from men who do not receive a salary sufficient to maintain them at this expensive station.

116. A much more complete Lock Hospital will be required when a law similar to Act XXII of 1864 is passed with the Rules relative to the control of public prostitutes. At present the Lock Hospital is seldom full and the system of control is so imperfect that I do not feel justified in making any recommendations in favor of a new building.

Present arrangements are insufficient to check the spread of Syphilis.

117. Much of the illness at this station, as at Bangalore and in Madras is due to prostitution. At the time of our visit (8th October) there were present at Wellington 590 of the 105th Regiment, and in the Depot 56 men of other Regiments, and there were 47 men of the 105th Regiment, and 6 men of the Depot in Hospital.

Sick rate at Wellington.

The percentages of sick to strength being nearly 7.9 and 10.7 respectively.

118. I was struck with the prevalence of Syphilitic complaints among these patients; 11 patients* or 23.2 per cent of all sick were cases of Primary Syphilis with one exception, where the disease had passed into the Secondary form, while 2 cases of Rheumatism,† 1 of Bubo, 1 of Orchitis and 1 of Arthritis were complicated with a tainted condition of the system due to

* marked† in accompanying morning Sick Report.

† marked

the same cause originally. If these are taken into account, 34 per cent of sick was due to Syphilis, as will be seen from the following tables.

105TH REGIMENT L. I.

Present state of the above Corps stationed at Wellington, 7th October 1864.

	Colonel.	Lieut. Colonel.	Majors.	Captains.	Lieutenants.	Ensigns.	Staff.	Serjeants.	Buglers.	Acting Buglers.	Corporals.	Privates.	
For duty....	...	1	1	4	5	5	4	25	13	3	24	424	} 555 Serjeants, Corporals Buglers and Privates exclusive of sick and Prisoners.
On duty....	...	...	...	1	...	...	...	2	2	...	2	40	
Sick.....	...	...	...	...	...	1	...	1	...	...	...	46	
Prisoners...	...	...	...	...	...	...	...	...	1	...	1	6	
Total...	...	1	1	5	5	6	4	28	16	3	27	516	

(Signed) W. G. STOLL, Lieut. Colonel,
Commanding 105th Regiment L. I.

Present state of Sick in Hospital at Wellington.

Rank and Names.	Diseases.	No. of days in Hospital.	Rank and Names.	Diseases.	No. of days in Hospital.
Private. H. M.'s 105th Regt.			Private. H. M.'s 105th Regt.		
Private. W. R...*	Bubo.	198	Private. J. M...†	Syph. Sec.	9
do. T. W...*	Rheumatism.	155	do. J. B...†	Syph. Prim.	8
do. J. S...*	Febris Cont.	114	do. J. F...*	Contusio.	8
do. R. C...*	Arthritis.	102	do. R. McC...*	Influenza.	7
do. P. R...†	Syph. Prim.	85	do. S. H...*	do.	6
do. J. G...*	Ulcer.	77	do. G. B...*	Contusio.	6
do. R. S...†	Syph. Prim.	72	do. J. M...*	Colica.	6
Serjeant C. C...*	Fract. Fem.	64	do. H. C...*	Vesie Ped.	5
Private. C. J...*	Ophthalm.	53	do. J. D...*	do.	5
do. J. C...*	Hamorrhoids.	44	do. J. S...*	Influenza.	5
do. C. W...*	Strict. Ureth.	40	do. H. B...†	Syph. Prim.	5
do. J. G...*	Orchitis.	38	do. T. G. P...†	do.	4
do. G. W. W...*	Rheumatism.	34	do. J. E...*	Dysentery.	4
do. J. B...*	Dyscoia.	34	do. J. E...*	Phlegmon.	4
do. D. H...†	Syph. Prim.	27	do. C. F...*	Paralysis.	305
do. J. P...*	Hepatitis.	25	do. T. McD...*	Phthisis Pul.	122
do. J. H...†	Syph. Prim.	22	do. M. L...*	Contusio.	4
do. E. J...*	Contusio.	21	do. G. L...*	Phlegmon.	4
do. J. T...†	Syph. Prim.	21	do. R. F...*	Erythema.	4
do. H. H...*	Tonsillitis.	18	do. A. W...†	Syph. Prim.	3
do. W. F...*	Scrofula.	18	do. J. S...*	Colica.	3
do. M. O...*	Colica.	12	do. J. G...*	Phlegmon.	3
do. J. W...*	Asthenia.	10	do. E. B...†	Syph. Prim.	3
do. R. H...*	Phthisis Pul.	9			

WELLINGTON,
8th October 1864.

(Signed) P. G. FITZGERALD, Surgeon,
in Medical charge H. M.'s 105th Regt.

HER MAJESTY'S CONVALESCENT DEPOT.
Present state of Sick in Hospital.

Rank and Names.		Diseases.	Number of days in Hospital.	
Gunner.....	T. G.....	Rheumatism.....	93	Under orders to the Mount.
Private.....	W. B.....	Hepatitis.....	28	
Gunner.....	T. C.....	Gonorrhœa.....	25	
Do.	J. B.....	Dysentery.....	3	
Private.....	J. B.....	Do.	1	
Corporal.....	J. C.....	Hypert. Cordis.....	18	

WELLINGTON,
8th October 1864.

(Signed) P. G. FITZGERALD,

Surgeon.

Two cases of Consumption, one only just admitted, and the other which had been under treatment for four months, attracted attention.

119. The known tendency of the Hill climate to develop organic disease, more especially chest complaints, would seem to suggest the propriety of retaining in the plains all persons whose physique indicates a marked proclivity to these diseases. One case of Scrofula was seen in a sickly lad a few weeks in Hospital. His delicate appearance, and the strong probability of his falling into Consumption, would appear sufficient grounds for his detention with a Detachment of his Regiment at Trichinopoly.

120. Great care should, I think, be exercised in the selection of men transferred to this Station, and, should it continue to be, as at present, the Head Quarters of a Regiment, all men with tendency to organic complaints should be retained in the plains, in preference to their being allowed to come to a station, the climate of which is inimical to their continued good health.

121. I was struck with the length of time during which some of the patients had been in Hospital: 305, 193, 155 and 122 days are surely unusual periods during which to detain men in European Hospitals, and it would certainly appear that a case of Paralysis or of Bubo (the two longest in Hospital), or of Phthisis and Rheumatism, those next in duration of treatment, might possibly have benefited from change to sea, or to the low country, respectively.

122. A case of continued Fever (No. 3) extending over 114 days is worthy of some note as being very exceptional in point of duration. But on inquiry on this point, I discovered that from continued Fever, the man had passed into a state of general debility, and the necessary transfer from one disease to another had not been made. I need scarcely add that if such omissions were frequently made, the statistics of disease would cease to be reliable.

123. We were informed by Surgeon Fitz Gerald that Fever had been witnessed during the current year rather frequently; and that in several cases it had shown a tendency to assume a low type; that convalescence from it was slow; and that recurrences of the disease, during apparent convalescence, had been occasionally witnessed. It was often, too, seen to be followed by an Asthenic condition, from which recovery was tedious, as in the case above alluded to.

124. That a low type of disease has certainly been occasionally witnessed is, we think, undoubted; and it is less easy at this station, than at Ootacamund, to assign any probable reason for, this tendency, which has, however, been witnessed in certain parts of England, and the European continent, for some years past.

125. That the Hills have been unusually unhealthy during the present year, and more especially for children, is very generally believed.

126. An examination of the tables of strength, and of sick of the 105th and the Depot, show that 7.9 per cent. of the men in the Regiment were under Medical treatment. This amount of sickness, due in great part to the prevalence of Syphilis raised the sick rate very high, in comparison

with most other stations. In fact on the day of our visit, the Regimental sick represented 79 per thousand, which must be regarded as very high in comparison with the annual averages of this and other stations from 1853 to 1863 (vide table para. 270.)

127. As will be shown further on (paragraphs 263 and 270) Wellington usually stands well in this respect, being 4th in point of salubrity, as tested by the number of daily sick constantly in Hospital for the past 5 years.

128. As it is of interest to ascertain, as far as possible, the actual and comparative sick rate at Wellington, I have examined all available records on the point, and I have been compelled to arrive at a conclusion that, except for selected cases, Wellington is unsuited to the health of Regiments who have previously served in the plains. In support of the necessity for selection, I may remark that even in the Depot, 5 out of the 6 cases in Hospital, in fact every case except one, was of a nature likely to be injured by a Hill climate.

129. The two cases of Dysentery seem to have originated on the Hills, or to be renewals of old affections; but the case of Rheumatism, 3 months and 3 days in Hospital, would surely have been better transferred to the Mount, or Bangalore, than retained so long in Hospital at Wellington. It has long been believed that Wellington will usually show a low sick rate, and a high death rate, and the experience of three years from 1853-54 to 1856-57 bore out the correctness of this supposition.

130. The following Table is quoted from the Report* of Dr. Pearse, formerly head of the Medical Department of this Presidency.

* From Parliamentary Reports, Vol. II, p. 601.

TABLE of principal stations occupied by European Troops, arranged according to their order of salubrity, calculated on the average of 10 years, from 1847 to 1856-57 (inclusive.)

Ratio per 1000 of sickness to strength.	Ratio per 1000 of deaths to strength.	Ratio per 1000 of deaths to strength, excluding those from cholera.
1. Wellington (3)..... 1,001	1. Jaulnah..... 10.3	1. Jaulnah..... 9.3
Bangalore..... 1,417	Cannanore..... 17.9	Bellary..... 13.2
Cannanore..... 1,514	Bellary..... 18.0	Bangalore..... 15.4
Tonghoo (5)..... 1,534	Bangalore..... 19.0	Trichinopoly..... 17.4
5. Rangoon (5)..... 1,630	5. Trichinopoly..... 19.7	5. Cannanore..... 17.7
Bellary..... 1,761	Secunderabad..... 24.5	Secunderabad..... 24.0
Saint Thomas' Mount 1,761	Kamptee..... 28.6	Kamptee..... 25.1
Trichinopoly..... 1,814	Madras..... 29.6	Madras..... 27.1
Secunderabad..... 1,825	Wellington (3*)..... 34.1	Wellington (3*)..... 31.2
10. Madras..... 1,834	10. Saint Thomas' Mount 38.6	10. Rangoon (5*)..... 35.1
Kamptee..... 2,015	Tonghoo (5)..... 42.8	Saint Thomas' Mount... 37.3
12. Jaulnah..... 2,368	12. Rangoon (5)..... 48.2	Tonghoo (5*)..... 40.7

But as this period has been for what were considered exceptional reasons, thought not to present a fair statement of the merits of Wellington, it will be well to consider its subsequent history as a location for troops.

131. In order to ascertain, therefore, as accurately as possible what the actual Sick rate at Wellington is, I have drawn up the following Table which exhibits the actual and relative mortality of Europeans at the Chief Military Stations in this Presidency or in countries trooped by the Madras Army. From it, it is apparent that Wellington holds a high place as to daily Sick rate, but out of 15 stations holds only 7th place as regards mortality from all causes except Cholera. A comparison of this Table with that just quoted shows a very startling change in the mortality at Rangoon, which has fallen from 48.2 per 1000 from all causes to only 7.40.

132. Doubtless the enormous mortality apparent at this station from 1852 to 1856 was due to the occurrence of war. But it is satisfactory to learn that what was for a long time considered to be an unhealthy climate has proved a very good one. Inspector General Shaw in his letter, No. 453, dated 17th August, stated the mortality at Rangoon to be 5.72 per thousand, but the

published figures accompanying his Report show that this is a clerical error and that the number should be 7409, or 741. I allude to this error as Rangoon is at the head of both the 2nd and 3rd columns of the following Table.

From 1859 to 1863 inclusive.

Ratio per 1000 daily Sick to Strength.	Ratio per 1000 of Deaths to Strength from all causes.	Exclusive of Cholera.
1. Thyetmyoo..... 44.94	1. Rangoon..... 7.40	1. Rangoon..... 6.56
2. Kamptee..... 50.92	2. Cannanore..... 9.04	2. Cannanore..... 7.38
3. Wellington..... 51.70	3. Bangalore..... 12.10	3. Bangalore..... 7.50
4. Waltair..... 54.59	4. Trichinopoly..... 14.91	4. Trichinopoly..... 11.64
5. Bellary..... 57.09	5. Trimulgherry..... 15.60	5. Bellary..... 13.11
6. Trimulgherry..... 58.47	6. Wellington..... 15.70	6. Kamptee..... 14.00
7. Cannanore..... 60.57	7. Kamptee..... 18.45	7. Trimulgherry..... 14.22
8. Rangoon..... 60.96	8. Tonghoo..... 19.19	8. Tonghoo..... 14.64
9. Tonghoo..... 65.25	9. Bellary..... 19.48	9. Wellington..... 14.73
10. Secunderabad..... 67.46	10. Waltair..... 23.96	10. Thyetmyoo..... 18.19
11. Madras..... 67.62	11. Madras*..... 24.59	11. Madras..... 19.37
12. Bangalore..... 68.73	12. St. Thomas' Mount*..... 25.87	12. Waltair..... 19.97
13. Trichinopoly..... 82.96	13. Secunderabad..... 25.94	13. Secunderabad..... 20.41
14. St. Thomas' Mount..... 88.08	14. Thyetmyoo..... 29.80	14. St. Thomas' Mount..... 24.70
15. Poonamallee..... 136.97	15. Poonamallee*..... 57.79	15. Poonamallee..... 57.00

133. From the foregoing it would appear that while the daily number of sick per 1000 is decidedly low at Wellington, the mortality rate from all causes is high and that from all causes except Cholera still higher.

The importance of this fact should be borne in mind in deciding on the best method of utilizing these splendid Barracks for the use of the Madras Army.

134. It will have been gathered from previous passages in this Report that the drainage of individual buildings and situations was found to be extremely defective. There is in point of fact no system of drainage in force and yet the

Engineering difficulties are not great and there is abundant water supply. It is beyond my province to suggest any scientific and detailed scheme for the purpose of remedying this marked defect, but I strongly advocate the desirability of adopting some system whereby all foul water and bathing water should be conveyed to a distance. If this fluid sewage were conveyed by open channels to a distance from the Barracks it might probably be diverted down some of the numerous gorges in the Hills which would allow of its finding its way to the low lying country, without affecting the sources of supply of drinking water in the neighbourhood.

135. At the same time that I recommend improvements in the Conservancy and Drainage of the Military buildings, I have to direct attention to the great want in these respects which is witnessed in the bazaar. The recommendations made regarding the Bazaar at Ootacamund equally apply to that at Wellington.

136. I have given above the result of my inspection of the Wellington Barracks, with such recommendations for the improvements of the buildings and drainage as seem required on sanitary grounds.

137. I would respectfully submit that it will be well for the Government now to determine finally whether Wellington should for the future be the station of a European Regiment with a small Convalescent Depot, or whether for the future it should be converted into a General Convalescent Depot, for the sick of such of the European Regi-

*NOTE.—The high rate of mortality at Madras, Saint Thomas Mount, and Poonamallee, is owing to these stations having been used as depots for sick Soldiers.

ments of the Madras Army as are stationed within reach of these Hills, or who might be transferred to them.

138. I have had the advantage of reading the letter from the Officiating Principal Inspector General, Medical Department, dated 12th October 1864, No. 344, contained in the Proceedings of Government, dated 24th November 1864; and I have carefully examined the official records bearing upon this question, which has also been fully discussed by the Sanitary Commission.

139. The conclusion at which this Commission has arrived is, in accordance with Dr. Shaw's opinion, that the best mode of utilizing the barrack accommodation at Wellington is by converting it into a General European Military Convalescent Depot for all Regiments and Depôts of European Troops situated at Madras, Trichinopoly, Bangalore, Poonamallee, Saint Thomas' Mount, Palaveram, Cannanore, Mysore and Calicut, to all of which stations Wellington is accessible as a Sanitarium.

As shown in a previous part of this Report the Wellington Barracks only afford accommodation in the four finished blocks for 544 men, at the proper allowance of cubical space and superficial area.

140. The ordinary strength of a European Infantry Regiment is nearly 1000 men, and it is therefore evident that the Barracks cannot accommodate an Infantry Regiment, much less a Regiment and a small Convalescent Depot, so that if Wellington be retained as a station for a European Regiment, the remaining portion of the European Troops of the Presidency will be deprived of the only considerable Hill station available for a Convalescent Depot—and at the same time very considerable additions will be necessary for the accommodation of a Regiment.

141. In determining this point, there are two distinct matters for consideration:—1st whether it is politically wise to denude the stations in the plains of European Troops; and 2nd, whether the climate of this Presidency is such as to render it of great importance to remove the Troops frequently from the plains, and in short as far as possible to locate them on the Hills.

The first question is beyond the province of the Commission, and I do not propose to do more than to repeat arguments which have been used by the highest authorities, Civil and Military.

142. It has been argued that the people of this Presidency are unwarlike, and that they are so intelligent that the knowledge that we have Troops on the Hills available at short notice will restrain them from any out-break.

It may, I think, be more safely affirmed that we know little of the Asiatic character, with reference to possible insurrection, and that the absence of European Troops might allow the out-break of an insurrection, which, although speedily repressed after the arrival of European Troops from a distant Hill station, would never have occurred if Troops had been on the spot. I do not think we can count upon Native intelligence, and their knowledge of our distant material resources, to prevent an outbreak, if any strong national feeling is roused.

Many of the isolated insurrections in 1857-58 cannot be explained by ignorance of our resources. The Native Regiments and some of the country people rose and fought when the chances of ultimate success were hopeless, and when the duration of the outbreak could be measured by the time required to move Troops to the disturbed District. But during that interval there was a scene of anarchy and a destruction of life and property very damaging to the "prestige" of the British Government.

Mortality of Europeans per thousand.		being located in Cantonments in the plains. Our Military Stations are not unhealthy for European Troops, the average mortality under ordinary circumstances from all causes not exceeding at present 17 per thousand, on average of the past four years.
1860	19.17	
1861	14.66	
1862	17.09	
1863	16.52	
Average... 16.56		

This mortality might be greatly reduced under a stricter system of control, as regards intemperance and prostitution at Military Stations.

144. It is also, a well established fact that the European Soldier, if naturally a robust and healthy man, is better able to resist malarious influence during the first five years of his residence in India, than at any subsequent period of limited service. The discipline of European Regiments

suffers rather than gains by their being wholly or in part stationed on the Hills, whence some Companies must be detached, and where the Regiment cannot be brigaded.

145. For these reasons it does not seem necessary that whole Regiments, or portions of Regiments, should be located at Wellington on their first arrival in this Presidency, nor do I think it of advantage that entire Regiments who have served for years in the climate of India, and who have suffered from intertropical disease, should in rotation occupy Wellington.

146. It seems a preferable course to keep Wellington as a Sanitarium for that class of Sick and Convalescent Soldiers of the whole European Force at this Presidency, for whose ailments a Hill climate is favorable. There are certain diseases to which the climate is unsuited, and it would be better to send men suffering from such diseases to the Coast for change of air.

147. The limited accommodation now afforded by the Depot cannot be regarded as adequate provision for the Sick of the stations within reach of the Hills and the extension of the Depot to meet the wants of all the Regiments, at these Military stations, can only be effected by limiting the Barrack accommodation afforded to the Regiment.

148. It should also be remembered that, even assuming that a Regiment in its entirety could be accommodated, and that no other objection existed, there are in every Regiment a large number of men to whom the Hill climate is actually injurious. Men laboring under Syphilis in its secondary or tertiary forms, those who have suffered from, or are threatened with, Hepatic or heart disease, Phthisical Recruits, Convalescents from Dysentery, &c., would all suffer more or less from the cold of Wellington. On the other hand, perhaps not a single Troop or Company of Europeans in India fails to contain many men who will die or be invalided if retained in the plains but whose health might have been re-established by an early transfer to the Depot at Wellington. It would, therefore, appear equally unwise to send to the Hills men likely to suffer from the change, and to deny to others the benefit they might derive from an early transfer to a cool bracing climate. This Commission agree with Dr. Shaw that it would not probably require more than a year to renew the strength of ordinary cases thus transferred; and annually, or each six months, Invaliding Committees, at the places before named, might select cases for transfer to the Hills.

149. A permanent Military and Medical Staff (with such tenure of office as might be approved by His Excellency the Commander-in-Chief) might institute and maintain a systematic plan of utilizing to the State, as far as possible, the services of the Troops at the Depot, and of bringing to bear upon each Invalid's case, the result of experience in this (in India) exceptional climate.

150. The number of Invalids transferred at any one time would probably be small, and less likely to be attacked with epidemic disease in transit from and to the Hills. It cannot be forgotten that large parties of men, as in case of Regiments, rarely reach or arrive from the Hills, without some form of epidemic sickness (*vide Dr. Macbeth's Report*).

151. I am aware that the question of the final occupation of the Wellington Barracks has been frequently under discussion, and I have referred to the Proceedings of Government, as per margin so as to make myself acquainted with all the orders which have been passed on the subject.

With Order, No. 1249, dated 4th April 1862.
" " 4006, " 7th November 1861.
" " 1247, " 4th April 1862.

152. It may perhaps be well to submit to Government a brief resumé of the various proposals and Orders on this matter.

On 18th March 1861, the Assistant Quarter Master General of the Army remarked of Wellington that, "now that the Railway is approaching completion from the Eastern to the Western Coast, Wellington will be more widely available for Invalids from the Presidency or those brought thither by seaboard."

153. On 8th August 1861, the Chief Engineer recommended that Block No. 4 now unfinished should be completed to increase the barrack accommodation. This recommendation, however, was not acceded to as the withdrawal of the Regiment then at Wellington was contemplated.

154. On 16th October of same year, the Quarter Master General submitted to Government certain correspondence relative to the use of Wellington as a Sanitarium, and as to the propriety of compelling officers sick on the Hills to occupy public quarters.

155. In this correspondence, the Bengal rule is alluded to which allows debilitated or delicate men to be sent to the Hill stations nearest them, when it is considered desirable by the authorities competent to decide this question.

156. Dr. Cole, in his letter of 7th September 1861, strongly urges the selection of delicate men to proceed for change of climate to Wellington, and alludes to the large number of those that are to be found in European Regiments. He further suggests that even from Waltair Invalids might be sent to Madras and thence to Wellington. I find that at the station named there are at present one Light Battery of Foot Artillery, and one European Infantry Veteran Company.

157. From a subsequent letter of Dr. Cole's, it will be seen that from the stations named in paragraph 300, and from the Pegu Division "not many less than a thousand men could be selected who would be suitable subjects for a residence at Wellington."

158. Dr. Barclay, whose experience and ability make him a most reliable authority, points out with clearness that, for diseases of an intertropical kind, the Hills are not suitable, and that they could be better utilized in the prevention than in the cure of disease.

159. Dr. Murray (66th Regiment) estimates that there were 18 or 19 per cent. of the men under his charge who might with advantage be sent to the Hills. These men were much debilitated by prolonged residence on the Malabar Coast. Dr. Jephson (King's Dragoon Guards) and Dr. Pringle (1st Madras Fusiliers) whose Regiments were stationed at the time at Bangalore agreed in the remarks quoted above.

160. Deputy Inspector General Davidson strongly urges the propriety of sending "all soldiers, old and young, who are observed to be feeble, or in any way delicate, to the Hills during the long hot season of the plains." From one Regiment alone (105th, late 2nd Europeans) a roll of 100 men was sent in as fit for and requiring a change, although this Regiment during 1861 only averaged some 500 to 600 men then stationed at Trichinopoly.

161. After a review of the foregoing opinions, Dr. Cole thus estimates the probable strength of European troops, and the per centage requiring change to a Hill climate.

"With these data, I proceed to offer an opinion on the subject propounded, which, it is evident, will be approximative only, as the elements of calculation are undefined. The per centage of sick at the given stations we know; but it is only an uncertain and varying proportion, for whom the Hill climate is suitable. Again, the greater number of men, who will be recommended to repair to Wellington, will be old soldiers, debilitated simply by the low country heat, or recruits whose constitutions are immature, and whom it would be desirable to send to a bracing climate, wherein they would be more likely to attain full physical development, than if they commenced Indian residence in the low country. These two elements are uncertain, and liable to much variation; but I consider the following approximations will not be far out:—

"Strength of European Troops in 1859-60.

Stations.	Probable average strength.	Probable per centage requiring change to Hill climate.	
Madras... ..	1,000	10 per cent. or	100 Men.
Mount... ..	600	do.	60 "
Trichinopoly... ..	1,000	15 do.	150 "
Bangalore... ..	1,500	5 do.	75 "
Cannanore... ..	1,000	15 do.	150 "
Pegu Division... ..	2,000	10 do.	200 "
Arcot Depot... ..	200	10 do.	20 "
Waltair... ..	100	5 do.	5 "
			760 "

" Having reported, as desired, on the number of sick for whom accommodation might be required from the stations particularized in the Quarter Master General's letter, I cannot close the Report without adverting to the Pegu Division, as, among the European Troops there stationed, I consider there will always be found some, who would be benefited by a resort to Wellington. Referring to late correspondence, regarding the health of the 69th Regiment, I am of opinion that ten per cent. of strength of the whole European Force stationed in Pegu might be added to the above Table; and I apprehend that on the arrival of the 69th Regiment at Madras, it will be found that many men, perhaps 200, will be in a condition, if not absolutely requiring yet greatly needing, a change to a bracing climate."

162. The following Table which has been prepared in this Office from official records will show the actual number of troops at present likely to come under the operation of the foregoing estimated proportion of sick requiring change to the Hills.

I have included in this list Veteran Companies, among whom many worn-out men are to be found, for whom the Hill climate would be suitable and beneficial.

Stations.	Cavalry Non-Commis- sioned Rank and File.	Artillery. Non-Commis- sioned Rank and File.	Infantry. Non-Commis- sioned Rank and File.	Total.	Probable percentage of Sick for whom a change would be essen- tial or desirable.	
Bangalore....	493	443	893	1829	2 p. c. or 36 men to be transferred.	Of the estimated
Calicut....	...	...	83	83	15 " " 12 do.	585 (say 600 in
Cannanore...	...	142	597	739	15 " " 110 do.	round numbers),
Madras....	...	40	726	766	10 " " 76 do.	probably 15 to 20
Mallapooram...	...	...	123	123	15 " " 18 do.	per cent. would
Palaveram...	...	142	117	259	10 " " 25 do.	be in Hospital,
Poonamallee.	25	27	82	134	15 " " 20 do.	and with this deduc-
St. Thomas' Mount.....	...	550	...	550	10 " " 55 do.	tion allowed for
Trichinopoly.	...	138	139	277	12 " " 33 do.	the actual number at the
Total...	518	1482	2760	4760		Depôt might be at all times cal-
Pegu Division (say).....	...	...	2000	2000	10 " " 200	culated to equal 600, which would
Grand Total...			6760	6760	10 " " 585	probably be amply sufficient for the requirements of the Troops in the plain stations named, and in the Pegu Division.

163. In the foregoing estimate of Sick requiring a change, namely 600, I have adopted pretty nearly the proportion laid down by Dr. Cole, except in the case of Bangalore, from which I do not think that more than two or three per cent. of all Troops would require change, as the climate is a good one.

164. This Commission is decidedly of opinion that weakly recruits, and men debilitated by climate, but not suffering from organic disease, might with great advantage to themselves, and with ultimate benefit to their Regiments, be transferred to the Sanitarium at Wellington. In submitting a question of this importance to Government, it is right, however, to bring to notice the opinion of His Excellency the Commander-in-Chief which had been recorded in opposition to this proposal.

" His Excellency the Commander-in-Chief objects, on the grounds that the system of sending Detachments of weakly men from each Regiment is bad for discipline, and the Battalion thus formed is almost useless for Military purposes, if moved into the Plains."

165. Sir Charles Trevelyan, on the other hand, recorded a very decided opinion *against* the location of a Regiment at Wellington; and although His Excellency Sir Hope Grant quotes Dr. Cole as objecting to the institution of a sick Battalion, yet a careful examination of his letter seems to indicate that he advocated the placing of Regiments on Hill Ranges, rather in deference to a general principle, than in consequence of any objection to sending weakly men to the Hills, which he actually recommended.

166. It may also, and not unfairly, be argued that to revive the failing powers of weakly men, to mature the constitutions of recruits, and to afford to all sick (for whom the change is desirable), the advantage of a cool climate, would be perhaps the best possible means to be adopted to keep the Army efficient for active service.

167. I have also to remark that delicate and sickly men would probably be at once drafted from any Regiment ordered for service in the Plains; and that, therefore, their services in any case would be to some degree unavailable, while it might not be unreasonably hoped that of 500 to 600 men at a Convalescent Depôt, at least half could on emergency be transferred to the low country.

168. As a rule our stations on the Plains are not, except in case of epidemic disease, unhealthy, and in comparing the adjacent stations of Trichinopoly and Wellington, the hottest and coldest stations in the Presidency, the mortality rate of the former is lower than that of Wellington, the rate being for Trichinopoly 14.91, and that for Wellington 15.70, for five years (from 1859 to 1863 inclusive), from all causes. Lest it should be imagined that the Depôt has contributed to swell the mortality of the Wellington Returns, I may add that, contrasting the Head Quarters of the 105th with the Detachment at Trichinopoly, I find the Head Quarters lost by death 16 per 1000, and the Detachment only 11.

169. The admission rate is low at Wellington as a rule, and the death rate has always been high; and though special circumstances have concurred to account for this, yet the grave nature of the diseases, here witnessed as the result of climate, cannot be denied.

170. That Regiments sent to Wellington will always show a high death rate I believe, because there must be a number of men in them for whom the climate is actually prejudicial.

171. This Commission trust that they are not wanting in deference to the views of His Excellency the Commander-in-Chief, or unnecessarily opposing his expressed opinion if they venture to represent that the health of the whole Army will probably be best protected by transferring those sickly and delicate men, for whom the climate is suitable, to the Hills, and retaining Regiments on the Plains.

President, Sanitary Commission.

Postscript.

[Since the foregoing Report was concluded and when it was nearly all printed, I was put in possession of the Resolutions of the Government of India, regarding Barrack accommodation for Troops at Plain and Hill stations.

I find with pleasure the estimate of superficial area adopted by the Government of India is almost identical with that suggested by this Commission and should it be decided to adopt 77 in lieu of 75 square feet as suggested by me it will only make a difference of one person in each large barrack room at Wellington. In certain points of detail, as for example in regard to the height of barrack rooms, &c., the Wellington Barracks must continue to be at variance with proposals started and approved so many years after their construction. But the Supreme Government has expressed so strong an opinion on the subject of superficial area, &c., that I trust the suggestions contained in this Report will meet with the favorable consideration of Government.]

(Signed) R. S. E.

Accompaniments of the foregoing Report.

1. Plan, C Block plan of Barrack-room at Wellington.
2. " Section, and Elevation of Staff quarters for the Regiment of European Infantry at Jackatallah (Wellington.)
3. Block plan of Barracks at Jackatallah (Wellington.)
4. Ground plan, Section and Elevation of one Barrack Block. showing 44 cots in each Barrack-room (8 in excess of the number approved.)
5. Block plan showing relative position of all buildings at Wellington.

To be returned.

San Jose
H. B. McIntosh
 Secretary, Sanitary Commission

Pro 1450/65
From 3^d May B.M. 64.

M.D. no 1776 of 1865

Pro. 1550. 26th April 1864.

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27 26 } J. H. H. H.
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Communicating
letter from the President
Secretary & Commission
submitting a detailed
report on the Secretary
condition of the Board
of the Secretary
by the Secretary at
Washington.

1865-65

with an order

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Military works

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Communicated to the
Army Engineer's Division -

Sp. & H. George }
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To the Secretary
of the Division
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