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Saturday, 13th July 1861.

PRESENT :

THE RIGHT HON. LORD STANLEY, M.P., IN THE CHAIR.

Sir PROBY CAUTLEY, K.C.B.
Sir RANALD MARTIN, C.B., F.R.S.
J. B. GIBSON, Esq., C.B., M.D., D.G.A.M.D.

WILLIAM FARR, Esq., M.D., F.R.S., D.C.L.
JOHN SUTHERLAND, Esq., M.D.

Sir ALEXANDER MURRAY TULLOCH, K.C.B., examined.

Sir
A. M. Tulloch,
K.C.B.
13 July 1861.

5534. (*Chairman.*) We understand that you have made considerable inquiries into the vital and sanitary statistics of the army?—Yes; it has been my duty to do so for a number of years.

5535. Have you prepared a collection of those statistics which appears in the form of parliamentary papers, and is founded on the experience of some 17 or 18 years?—Yes, it is founded in some cases on the experience of 30 years.

5536. Not only with regard to home service, but with reference to the colonies?—Yes; but at home it is not founded upon more than about 17 years' experience; with respect to the colonies, the experience has been much longer. The information at home is not so complete as it is abroad, owing to the number of changes that are continually taking place among the troops from one town to another.

5537. Do you include India in the statistics which you have collected?—India was not included at the time the statistics of the troops in the colonies were published, as the home authorities had then no means of bringing about any changes they might consider necessary; that rested with the East India Company.

5538. When was that inquiry set on foot?—I commenced it in the year 1835, and it embraces the years from 1816 or 1817 down to 1836; but the results were not published until 1838. A continuation was subsequently prepared by me, bringing the results, so far as regards the United Kingdom, Mediterranean, and American stations, down to 1846.

5539. Have you examined into the causes of disease among troops resident in tropical climates?—Yes, so far as the medical returns have afforded me an opportunity.

5540. Do you find that the excess of the mortality in tropical climates has been considerable over the mortality in the same class and at corresponding ages in temperate climates?—Very much so, indeed.

5541. I believe it was so especially in the West Indies?—Particularly so, the mortality there being about 8 per cent., and about 13 per cent. in Jamaica, instead of $1\frac{1}{2}$, which is supposed to be the ordinary rate among troops in this country.

5542. Is it within your knowledge that a very considerable reduction in that mortality has been effected?—A very considerable reduction indeed; in the West Indies it has been from 8 to 6 per cent., and in Jamaica from 13 to about 7 per cent. on the average of the 24 years subsequent to 1836.

5543. Are you cognizant of the causes which have led to that great diminution in the mortality?—The chief causes I believe to have been the improvements after the year 1836, when the attention of the Government was first called to the enormous loss at these stations. Certain changes were then effected, which you will find detailed in the Report upon the West Indies presented to Parliament in 1838. These consisted of a larger issue of fresh in lieu of salt provisions; an increase in the barrack accommodation; in the frequency of the reliefs; in the attention paid to the comfort of the troops, and to their recreation and amusements. In Jamaica a change also took place by removing the troops to the high lands, where they were beyond the reach, or supposed to be beyond the reach, of malaria.

5544. With regard to two of the remedies which you have mentioned, the issue of fresh instead of salt provisions, and providing better barrack accommodation, I apprehend that those are now carried out throughout the British empire?—Yes, the use of salt provisions are now restricted to one or two days in the week, being only as much as will secure the consumption of the salt provisions required to be kept in store in most of our garrisons.

5545. Speaking from the experience which you have acquired in these investigations, what should you say are the principal causes, at the present time, of disease and mortality in the army, especially in tropical climates?—One of them is, that the cubic space allotted to each soldier is not sufficient. I am aware that great improvements are being made; but looking to what is now the rule, that is to say, 450 cubic feet for each soldier, I do not think that sufficient in a tropical climate.

5546. How many cubic feet would you allow to each man?—About 600 in a temperate climate, and something more in a tropical one.

5547. Would you allow 1,000 cubic feet?—That is more, I suspect, than could be given; a great deal depends upon the means of ventilation, which might render a smaller space sufficient, but I think it should not be under 800 cubic feet in a tropical climate, and as much more as can be spared.

5548. Is it essential that that space should be given, not merely vertically, but also in breadth?—The cubic contents of the rooms should be calculated, and a certain proportion allotted to each, exclusive of the part above the ceiling. The Commissioners are no doubt aware that the heat in the upper part of a building in a tropical climate becomes very great indeed, unless there is an outer covering in addition to that of the barracks.

Another source of disease, I apprehend, may arise from the want of sufficient variety in the soldiers' food by cooking it in different ways. Until very lately they had no change; something between a soup and a stew was the only mode of dressing their meat.

5549. Do you think that the erection of barracks upon high situations, instead of low, is an important element in sanitary reform?—I think it a very important element; but I am aware that it cannot always be accomplished. For instance, in most of the West India islands, where white troops are chiefly employed, there is no elevated land above from 1,200 to 1,300 feet, and therefore you cannot attain a height sufficient to carry the men beyond the reach of malaria.

5550. In Granada there is no elevation, unless you go into the interior?—There is no elevation at all in some places—as in Demerara, for instance—and therefore your power of diminishing the mortality by increasing the altitude is limited chiefly to such islands as Dominica, St. Lucia, and Trinidad; and there, in order to get to a very considerable elevation, it is necessary to go a distance from the port, which is objectionable upon principles of defence.

5551. Even in the West Indies, where everything is on so much smaller a scale than in India, it is found that if you put the troops in the best sanitary position they are sometimes in a place where they are quite distant and not immediately available for the

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purposes for which they are likely to be required?—Certainly.

With reference to other sources of disease within the tropics, I am much disposed to regard idleness as one of them, and that our troops might be more healthy if they worked more there; time hangs too heavily upon their hands. I do not mean that they should work in the middle of the day; but I think that the practice of requiring them to labour in the morning and in the evening might be adopted with benefit to their health, as a variety from the ordinary routine of drill. It has been found both in Martinique and Guadeloupe by the French Government that troops employed on fortifications during proper hours were more healthy than others. Of course, however, this requires to be done with great discretion, and under the strict superintendence of medical officers.

5552. Do you think with the present facilities for constructing light, extensive, and covered buildings, that there would be any difficulty in providing the men with workshops?—In tropical colonies there would be no difficulty whatever, because generally speaking the bamboo, from which you can form the posts, grows extensively there; it will also supply a very light framework for the roofs, which being covered with leaves, you may at a very small expense get any shelter you require merely for the purpose of exercise, or for workshops. Slight erections of this description are often made in the East Indies, for the purpose of furnishing temporary accommodation to the married people, and I think the same practice might be adopted with great advantage in the West Indies: Among other improvements, nothing appears more likely to be beneficial to the men than to have regimental gardens; the spaces around the hospitals also are often covered with jungle, which might be converted into gardens for the use of the patients. Nothing of that kind has yet been done on any general scale; but there are some places in the West Indies where it has been attempted.

5553. Is there not a difficulty in carrying that out, on account of the frequent removal of the troops from stations?—Yes; that has prevented the system from being adopted to the extent that it might be in the West Indies. The objection was, that as “the men do not know when they will be removed, they will not labour for the purpose of obtaining a crop that may be of no use to them.” That objection was taken in the case of regimental gardens, but it might easily be obviated by arranging that a small fund should be appropriated to pay the men for their work, by selling to the different messes the vegetables raised, and which they would otherwise have to purchase at a higher price in the market.

5554. In other words, you would say that the gardens should belong to the station, and not to the regiment that happened to be quartered there at the time?—Exactly. I think that the men generally are fond of gardening, and a very great proportion of them, after they are pensioned, become cultivators, and very successful ones, too.

5555. With regard to the age at which recruits enlist, do you think that there is anything to be amended in that respect; do they join the army at too young an age?—Certainly they join the army too young if you have to take them on a campaign immediately. If recruits be merely wanted for the ordinary purposes of drill, as in this country, I think that 18 is not a bad age to take them at, more especially when you consider that at the age of 21 they are often burthened with wives, and have acquired settled habits which do not tend to induce them to enter the army.

5556. Do you think, then, it is desirable that they should enlist at the age of 18, but that they should have two or three years' training in a temperate climate before they are exposed to a tropical climate, or to the fatigues of a campaign?—Certainly.

5557. I suppose that the preliminary training which is given to them is better given at home than in India?

—It can be best given at home, and is given there. I wish much, as part of that training, that it should be made obligatory upon all recruits to learn to read and to write before being discharged from drill. It was so ordered at one time, but there were doubts whether it could be legally enforced; but if it could be so arranged I am confident that it would be a vast advantage to the army; there is no use in supplying books to those who cannot read.

5558. Do you think that the personal habits of the soldier have improved with regard to temperance and the state of health in which he keeps himself?—I think they are very much improved. I have seen a very great change, both in the soldiers who are in the army, and in pensioners after they leave the army; there has been a very great improvement indeed of late years.

5559. Does it not appear to you that, as compared with the ordinary class of labouring men, the same class as that from which the soldier is taken, there is a want of power to endure fatigue about the soldier when not hardened by actual service, such as you would not expect to find in him; for example, take the number of cases of men who suffer and sometimes die from going through a day's work, which would not appear to trained men very severe?—Certainly; I think it a great evil that the soldier is not sufficiently trained to fatigue. I do not call it any great fatigue to shoulder a musket or march with a knapsack. The description of fatigue which he requires to be trained to is that which could readily be found for him in building fortifications or in erecting public works.

5560. Setting apart the question of occupation, the actual daily labour of the soldier is not sufficient to keep him in good physical training?—That is my impression, at least in most regiments, but there is a much greater degree of labour in some than in others; I think, too, that the drill of the recruits is made more severe to them than is necessary, considering that they have all their life to learn such details.

5561. Do you mean that they are sometimes over-worked and disgusted at first?—Yes; and the success of the volunteers shows that there is no necessity for this, and that a knowledge of the mere military duties of a soldier can be acquired in a comparatively short space of time without such over-work.

5562. Do you think that to any considerable extent the health of the soldier is undermined by venereal disease?—I have very little doubt that it is; but from all I can learn, I doubt whether venereal disease is much more common in the army than in civil life; for instance, the ordinary proportion of venereal disease is somewhere about 120 cases among 1,000 men annually, at least it was so previously to the present year; out of these many arise from want of cleanliness; not more, probably than 100 are really attributable to venereal disease, which is only equivalent to each man being under treatment once every 10 years; and I do not think you will find among unmarried persons in civil life that a man goes through 10 years with only one attack of the disease. I may state as a further example, that I have made careful inquiries into the relative proportion of diseases of that description among officers and men, and I do not find any marked exemption in favour of the former, particularly after taking into account that some of them cure slight attacks without undergoing medical treatment, and others put themselves under civil practitioners, by whom no report is made as to the cause of their illness. Taking everything into account, I doubt very much whether venereal disease is much more common among the military than civilians; but civil practitioners could give a more correct idea upon the subject.

5563. Have you examined into the actual percentage of mortality in India?—Yes, and I submit the following summary on that head, extracted from p. 180 of the minutes of my evidence before the Indian Organization Committee.

TABLE showing the Mortality in each of the Presidencies for a period of 39 years, extracted from the War Office Returns.

Year.	BENGAL.		MADRAS.		BOMBAY.	
	Strength.	Deaths.	Strength.	Deaths.	Strength.	Deaths.
1817	7,384	622	9,092	546	2,607	143
1818	6,203	384	9,306	903	3,645	352
1819	6,219	483	7,656	637	3,417	270
1820	6,156	439	7,043	411	3,076	404
1821	5,732	399	6,989	396	2,907	262
1822	5,899	365	6,949	491	3,164	318
1823	6,584	496	6,838	386	3,082	224
1824	6,894	937	7,388	1,068	2,562	147
1825	6,669	1,086	6,919	1,187	3,178	357
1826	7,877	1,312	6,405	1,081	2,936	344
1827	8,035	583	7,061	656	3,063	171
1828	8,284	633	7,602	434	3,222	309
1829	8,555	618	7,680	290	3,978	117
1830	8,325	406	7,408	219	3,914	160
1831	8,347	431	6,976	268	3,845	94
1832	8,031	346	6,773	418	3,723	79
1833	7,569	403	6,241	571	3,583	129
1834	7,340	394	6,086	444	3,426	134
1835	7,655	272	5,881	215	3,415	102
1836	7,541	369	6,646	254	3,465	139
1837	6,878	365	6,078	362	3,226	148
1838	5,401	327	5,493	269	3,319	141
1839	7,645	499	5,792	405	3,422	380
1840	8,581	1,268	6,255	265	4,402	296
1841	9,438	1,020	5,411	223	5,418	601
1842	12,593	1,698	6,101	292	6,106	668
1843	11,003	1,028	7,699	427	6,066	468
1844	11,280	984	7,850	276	6,323	824
1845	11,108	2,213	7,535	351	4,710	337
1846	11,007	1,103	5,772	264	7,197	681
1847	12,349	781	6,040	227	5,556	139
1848	11,502	1,190	5,321	125	6,208	179
1849	14,703	1,306	5,014	159	6,619	310
1850	17,307	911	4,838	110	5,872	165
1851	17,071	849	4,162	88	5,774	194
1852	16,659	1,196	4,548	304	5,688	194
1853	16,190	950	4,598	215	5,306	102
1854	17,087	782	4,357	143	4,104	90
1855	14,980	532	3,209	80	4,423	80
Totals	377,980	29,970	249,012	15,462	165,947	10,152

SUMMARY of the above.

	Strength.	Deaths.	Ratio per 1,000.
Bengal	377,980	29,970	79.2
Madras	249,012	15,462	62.9
Bombay	165,947	10,152	61.1
	792,939	55,584	70.0

These losses include some 200 or 300 men killed or dead of their wounds during the Mahratta, Pindaree, and other campaigns prior to 1824; also 3,750 who perished in the first, and about 1,000 in the second Burmese war, chiefly from sickness; also nearly a whole regiment lost at Cabul; likewise the casualties during the campaigns of Sind, of the Sutlej, and the Punjab, about 2,000 in all, and nearly 1,200 who died in the first Chinese war, all from sickness, with very few exceptions. The loss arising from the climate of stations now usually occupied on the continent of India may therefore be reduced by about 3,000 or 9,000 men, or to an average of 60 per thousand annually, though the total loss from all causes has been at least 70 per thousand. Since the mutiny, I have ascertained that the mortality, exclusive of casualties in the field, has been little more than half the above average.

5564. Have you any means of explaining to the Commission that remarkable decrease?—The only way in which I can explain it, is by the following summary, which I had framed in order to show whether there was any material difference between the loss sustained by troops who had been for some time in India and those newly arrived in the country.

"Mortality among regiments which were in India prior to the mutiny in 1857-8—

	Strength.	Deaths.
" In 1858	21,307	1,706
" In 1859	17,466	521
" Add broken periods of seven regiments, which left India during the year	2,071	84
" In 1860	11,543	244
" Add broken periods of six regiments, which left India within the year	1,250	67
	53,637	2,622
" Deduct killed in action, died of wounds, &c. in the year 1858	190	
" Died of sunstroke and apoplexy	142	332
	332	2,290

" Upon a total strength of 53,637 men the mortality by disease appears to have been $4\frac{3}{10}$ per cent.

" In addition to the loss then recorded, the 13 regiments which returned home must have carried with them many men of broken constitutions, whose deaths would have affected the Indian mortality, had they remained.

" Mortality among regiments sent out to India in 1857-8—

	Strength.	Deaths.
" 1st year after landing	36,948	3,499
" 2nd " "	42,843	1,915
" 3rd " "	40,568	1,431
		6,845

" Deduct 396 who were killed in action and died of wounds, and 650 who died from sunstroke, making

Strength - 119,999 - 5,799

" Being $4\frac{3}{10}$ per cent. in that class of young men newly sent out to India, many of whom, I am sorry to say, were very inferior recruits; but the Government were glad to take any men at that time. Among the old and acclimatized men the loss, as above stated, was $4\frac{3}{10}$ per cent., exclusive of invalids returning with their regiments, so that the mortality does not seem materially to affect one class more than the other when serving under similar circumstances.

" In order as far as possible to show what the loss would be had the men in neither case gone into action, or been exposed to the hardships of a campaign; I have taken out separately the strength and deaths among those corps which, so far as I can ascertain, did not take the field, and find them to be—

" Of 20 regiments which went out to India in 1857-8 on account of the mutiny and were not in action—

	Strength.	Deaths.
" 1858	16,688	622
" 1859	19,739	676
" 1860	18,209	598
" Add broken periods for 44th regiment sent to China in 1860	369	3
	55,005	1,899

" Being three and four-tenths per cent.

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"Of eight regiments which were in India at the time of the mutiny and were not in action, the strength and deaths were in—

	Strength.	Deaths.
" 1858 - - - - -	7,032	317
" 1859 - - - - -	6,841	160
" Broken periods of one regiment sent from India, viz., the 29th regiment in this year - - - - -	412	18
" 1860 - - - - -	4,765	56
" Broken periods of two regiments sent from India, viz., 12 Drs. and 87th regiment in this year - - - - -	408	25
	19,458	576

" Being three per cent.

"The two classes approximate so nearly in the results that there seems no good reason why you should not send out to India young men between the ages of 18 and 21, but if you take the field with them, a considerable proportion must be expected to perish from sunstroke, apoplexy, and the consequences of being too young for the fatigues of a campaign."

5565. (Dr. Farr.) You have, for various purposes, made extensive researches into the mortality in the army in India in the different presidencies and the different stations?—Yes; and the following are the results on that head as submitted to the Commission on the Organization of the Indian Army.

ABSTRACT showing the Sickness and Mortality of the Troops of the Line at the under-mentioned Stations of the Indian Presidencies, as nearly as can be ascertained from the Returns forwarded to the Medical Board from 1817 to 1836 inclusive.

Stations.	Period of Observation.	Strength.	Admissions into Hospital.	Deaths.	Ratio per 1,000 of	
					Admissions.	Deaths.

BENGAL.

Stations.	Yrs.	Strength.	Admissions into Hospital.	Deaths.	Admissions.	Deaths.
Fort William	17	12,856	23,967	885	1,863	68.82
Chinsurah	7	4,165	6,030	234	1,667	53.91
Dhnapore	9	6,845	14,251	484	2,081	70.70
Ghazepore	14	10,936	16,888	449	1,554	51.05
Cawnpore	19	25,701	46,471	1,495	1,808	58.16
Agra	4	2,701	3,671	49	1,359	18.14
Berhampore	14	13,342	26,404	853	1,985	63.93
Meerut	19	27,328	35,049	802	1,315	31.54
Kurnool	6	5,314	5,252	137	988	25.78
Hazareebaugh	2	1,308	2,308	78	1,687	57.01
Boglipore	4	2,604	4,338	224	1,631	87.36

MADRAS.

Stations.	Yrs.	Strength.	Admissions into Hospital.	Deaths.	Admissions.	Deaths.
Fort St. George	18	13,606	26,009	671	1,911	41.96
Cannanore	18	12,809	18,402	420	1,436	32.90
Trichinopoly	19	15,317	27,394	681	1,788	44.46
Secunderabad	18	13,939	35,565	854	2,555	61.26
Bangalore	21	21,870	34,538	672	1,579	30.73
Quilon	6	4,946	6,676	146	1,357	30.71
Wallajahbad	5	2,308	4,480	212	1,868	100.99
Bellary	10	7,504	14,011	335	1,987	47.8
Arnee	5	3,130	4,518	140	1,440	44.8

BOMBAY.

Stations.	Yrs.	Strength.	Admissions into Hospital.	Deaths.	Admissions.	Deaths.
Colaba and Bombay.	16	11,907	22,105	703	1,864	64.08
Poona	16	10,074	36,140	495	1,319	24.78
Belgaum	10	6,332	10,814	175	1,707	27.63
Deesa	4	2,032	2,879	144	1,073	58.69
Kirkee	10	6,207	9,447	163	1,521	26.09
Karay	8	4,059	10,108	500	2,490	123.18

ABSTRACT showing the Sickness and Mortality of the Troops of the Line at the under-mentioned Stations of the Indian Presidencies, as nearly as can be ascertained from the Annual Sanitary Reports forwarded to the War Office from 1838 to 1856 inclusive.

Stations.	Period of Observation.	Strength.	Admissions into Hospital.	Deaths.	Ratio per 1,000 of	
					Admissions.	Deaths.

BENGAL.

Stations.	Yrs.	Strength.	Admissions into Hospital.	Deaths.	Admissions.	Deaths.
Fort William	7	4,683	7,735	272	1,652	68.08
Chinsurah	2	859	2,235	60	2,601	69.96
Dinapore	13	10,915	20,158	903	1,847	82.73
Ghazepore	5	3,002	5,638	276	1,878	91.84
Cawnpore	10	8,985	20,473	799	2,278	88.90
Agra	8	5,847	13,833	355	2,365	60.71
Meerut	14	14,513	24,522	639	1,690	44.03
Kurnool	5	3,134	8,051	208	2,344	75.04
Hazareebaugh	2	1,054	1,710	36	1,623	34.15
Allahabad	2	938	2,325	108	2,479	115.14
Loodiana	2	1,251	2,826	159	2,259	127.10
Umballa	10	13,773	20,627	850	1,497	61.71
Kussowlie	7	5,040	6,160	247	1,223	49.01
Ferozepore	5	4,445	7,817	245	1,759	65.12
Jullundur	5	4,273	7,380	160	1,727	37.44
Lahore	7	5,232	14,901	473	2,848	90.40
Rawul Pindi	4	3,359	6,276	146	1,868	43.46
Peshawur	5	8,162	26,384	588	3,225	71.86
Wuzerabad	4	6,889	11,436	408	1,600	59.22
Dughshai	3	2,618	3,726	69	1,483	26.36
Subathoo	3	935	1,524	29	1,630	31.03

MADRAS.

Stations.	Yrs.	Strength.	Admissions into Hospital.	Deaths.	Admissions.	Deaths.
Fort St. George	16	11,853	20,804	343	1,734	28.03
Cannanore	17	15,416	24,831	489	1,611	31.65
Trichinopoly	11	7,628	14,599	237	1,013	31.07
Secunderabad	8	7,133	12,243	403	1,716	56.78
Bangalore	17	17,133	24,016	413	1,402	24.39
Kamptee	7	6,014	12,440	287	2,068	47.73
Tennasserim Provinces.	9	9,165	16,218	302	1,770	33.00
Bellary	7	5,290	10,259	257	1,939	48.6

BOMBAY.

Stations.	Yrs.	Strength.	Admissions into Hospital.	Deaths.	Admissions.	Deaths.
Colaba and Bombay.	7	3,606	7,806	219	2,165	60.73
Poona	13	13,663	26,541	461	2,089	33.01
Belgaum	10	7,244	11,909	209	1,644	41.27
Deesa	7	7,473	12,262	230	1,641	33.45
Kirkee	14	9,131	17,218	234	1,896	25.63
Kurnachce	12	19,410	23,662	835	1,907	47.14
Ahmednugger	3	1,154	2,765	66	2,396	57.19
Hyderabad	4	1,744	4,352	74	2,405	42.43
Aden	8	3,983	4,934	138	1,230	34.64

SUMMARY OF THE TWO PRECEDING PERIODS.

Stations.	Period of Observation.	Strength.	Admissions into Hospital.	Deaths.	Ratio per 1,000 of	
					Admissions.	Deaths.

BENGAL.

Stations.	Yrs.	Strength.	Admissions into Hospital.	Deaths.	Admissions.	Deaths.
Fort William:						
First period	17	12,856	23,967	885	1,863	68.82
Second period	7	4,683	7,735	272	1,652	58.08
Total	24	17,539	31,702	1,157	1,807	65.92
Chinsurah:						
First period	7	4,165	6,030	234	1,667	53.91
Second period	2	859	2,235	60	2,601	69.96
Total	9	5,014	8,165	294	1,827	56.64
Dinapore:						
First period	9	6,845	14,251	484	2,081	70.70
Second period	13	10,915	20,158	903	1,847	82.73
Total	22	17,760	34,409	1,387	1,937	78.09
Ghazepore:						
First period	14	10,936	16,888	449	1,554	41.05
Second period	5	3,002	5,638	276	1,878	91.84
Total	19	13,938	22,526	725	1,616	52.01

Summary of the two preceding Periods—continued.

Stations.	Period of Observation.	Strength.	Admissions into Hospital.	Deaths.	Ratio per 1,000 of	
					Admissions.	Deaths.
BENGAL—continued.						
Cawnpore:						
First period	19	25,701	44,471	1,495	1,808	58.16
Second period	10	8,985	20,473	799	2,278	88.90
Total	29	34,686	64,944	2,294	4,086	66.13
Arra:						
First period	4	2,701	5,671	40	1,359	18.14
Second period	8	5,847	13,838	365	2,365	60.71
Total	12	8,548	19,509	405	3,724	47.28
Meerut:						
First period	19	27,328	35,040	863	1,315	31.54
Second period	14	14,513	24,522	639	1,090	44.08
Total	33	41,841	59,562	1,502	2,405	35.87
Kurnool:						
First period	6	5,314	8,252	137	983	25.78
Second period	5	3,434	8,051	268	2,344	78.04
Total	11	8,748	16,303	405	3,327	46.30
Hazareebaugh:						
First period	2	1,368	2,308	78	1,087	57.01
Second period	2	1,054	1,710	36	1,023	34.15
Total	4	2,422	4,018	114	2,110	47.07
MADRAS.						
Port St. George:						
First period	18	13,606	26,009	671	1,911	41.96
Second period	16	11,856	20,804	343	1,754	28.93
Total	34	25,462	46,813	1,014	3,665	39.82
Cannanore:						
First period	18	12,809	18,402	420	1,436	32.80
Second period	17	15,410	24,533	488	1,611	31.65
Total	35	28,219	42,935	908	3,047	32.17
Trichinopoly:						
First period	19	15,317	27,304	681	1,788	44.46
Second period	11	7,628	14,599	237	1,913	31.07
Total	30	22,945	41,903	918	3,701	40.00
Secunderabad:						
First period	18	13,939	25,555	854	2,555	61.26
Second period	8	7,133	12,243	405	1,716	50.78
Total	26	21,072	37,798	1,259	4,271	59.74
Bangalore:						
First period	31	21,870	34,538	672	1,579	30.73
Second period	17	17,133	24,916	418	1,403	24.39
Total	48	38,003	59,454	1,090	2,982	27.94
Bellary:						
First period	10	7,504	14,911	355	1,987	47.3
Second period	7	5,290	10,259	237	1,939	48.6
Total	17	12,794	25,170	592	3,926	47.8
BOMBAY.						
Colaba and Bombay:						
First period	16	11,907	22,195	763	1,864	64.08
Second period	7	3,606	7,806	319	2,165	60.73
Total	23	15,513	30,001	1,082	4,029	63.30
Poona:						
First period	16	10,974	38,140	495	1,819	24.78
Second period	13	13,663	28,541	451	2,089	33.01
Total	29	24,637	66,681	946	3,908	28.12
Belgaum:						
First period	10	6,338	10,314	175	1,707	27.63
Second period	10	7,244	11,909	299	1,644	41.27
Total	20	13,582	22,223	474	3,351	34.91
Deesa:						
First period	4	2,693	2,879	144	1,073	53.69
Second period	7	7,473	12,202	250	1,941	33.45
Total	11	10,166	15,081	394	3,014	38.90
Kirkee:						
First period	10	6,207	9,447	162	1,521	20.09
Second period	14	9,131	17,218	284	1,886	20.63
Total	24	15,338	26,665	446	3,407	23.82

These results do not exhibit the loss at all the Indian stations during the 39 years included in the

first table, but at those only where regiments have been stationed for the whole or the greater part of a year; they are also exclusive of the loss on long marches, which is often very heavy; but it has been considered more advisable thus to found the results on incomplete data, than to incur the risk of adopting what might prove to be incorrect.

5566. What number of men do you think it would be necessary to send out in order to make good the excessive loss occasioned by death?—Suppose the army to consist of 80,000 men, upon that 80,000 men the loss would be 60 per thousand, therefore you would have to raise 4,800 men to supply that loss.

5567. In addition to the mortality at home incurred among the same men?—No, not in addition; you will always lose at least 2 per cent. in India. You can never expect to have as small a loss there as at home.

5568. (Chairman.) But supposing the Indian army to be only 70,000 men, the loss, according to your calculation, upon that number would be 4,200?—Yes.

5569. (Dr. Farr.) To what extent are you of opinion that that loss could be reduced?—It might, perhaps, be reduced to about 1,400 men annually, but that is upon the supposition that you selected only healthy stations, and kept the troops there; I am aware, however, that this cannot be done. You must always occupy some unhealthy stations, and abide by the loss, which might be as much as 4 or 5 per cent., even with the best arrangements. But there is no necessity for the whole of the force in India, of 70,000 men, to be so exposed; for example, suppose you kept 20,000 in unhealthy positions, the remaining 50,000 might be quartered in stations on the hills, or in localities known to be healthy. The loss there would be only about 2 per cent., or 1,000 annually; the loss on the remaining 20,000 exposed, at, say even 5 per cent., would be another 1,000; making a total loss of only 2,000 men a year, instead of 4,200; This country could, from what I know of recruiting, be able to supply that number, and also to fill up the vacancies by invaliding, and the time expiring for which men had entered the service. But I question very much whether, during an active war, you could keep up 70,000 men in India, exposed to the mortality which has been usual during the last 40 years.

5570-1. Will you be good enough to state the full extent of our loss in India? I suppose you would not imagine that we should always be able to govern India without employing troops in the field, or without incurring losses as heavy as have already been incurred. Is it not, therefore, right to assume that the mortality would be represented rather by 70 per thousand than by 60 per thousand?—I do not think that you will ever have the same loss that you have incurred in your campaigns as heretofore. I believe for instance, that in the first Burmese campaign 12 men at least died from disease or mismanagement for one that fell by the sword, which I hope is never likely to occur again.

5572. The ordinary mortality among men of the same age as those serving in the army in England is not more than 10 per thousand; I mean taking the civil population?—That is correct, and I should be glad indeed to see the mortality of the army reduced to one per cent. I think it quite possible to do it.

5573. If proper care be taken of the army, you do not think that it will naturally experience a higher rate of mortality than the general population of the country?—I think it ought to be reduced to nearly the same, but there are advantages which the civil population enjoy over the military, which require to be taken into account. Among the men in our army in England, for instance, you have a vast number who have been serving in foreign climates, and perhaps one-half have there contracted disease which often occasions mortality in this country, whereas it is not so with the civil population.

5574. Cannot you eliminate that by taking, as an example, the Guards?—Yes.

5575. Who experience really a higher rate of mor-

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tality than the troops of the line?—Yes; but that is owing to causes connected with their residence in the metropolis, and which do not extend over the whole force in the kingdom.

5576. At any rate, the heavy rate of mortality in India is a matter that you must consider of the greatest importance?—Yes; and too much attention cannot be paid to it, not merely on the score of humanity, but because if you ever have a European war there is likely to be the greatest difficulty in supplying the casualties which must occur in India among so large a body of men.

5577. Besides the loss by death, there is a great loss, is there not, by invaliding?—Not nearly so great as is supposed; the proportion by invaliding is not very much.

5578. What does it amount to in 1,000 men?—I think only about 15 or 20 annually.

5579. That would make the 60 or 70 per 1,000, how much?—Before adding them you must take into account that the medical officers have been in the habit of including as invalids men who have served their time.

5580. But cannot you separate them?—No. Having completed 21 years' service, which is the ordinary period in the army, they are discharged as worn out without any disease being specified. You will find, in the different tables, that this class constitutes a large number, who, instead of being men likely to die, are, in many instances, very healthy indeed.

5581. What is the annual loss out of 1,000 men by death, invaliding, or disability?—I should say about 75 per 1,000, excluding casualties in the field.

5582. Do you consider that this mortality is necessarily connected with tropical climates?—To a certain extent; for instance, I think you will always be liable to it in the West Indies; because there, you cannot carry the men up to a sufficient elevation to avoid it.

5583. Have you any returns showing the mortality among the officers in the East Indies?—Yes, so far as regards the Bengal presidency, where out of 1,184 deaths among officers, the proportion occurring annually in each rank and at each age was as under:—

	Colonels, average Age 61.	Lieut.- Colonels, average Age 61.	Majors, average Age 40.	Captains, average Age 31.	Lieut.- tenants, average Age 18 to 33.	Cornets and Ensigns, average Age 18 to 33.	General Average of all Ages.
Died annually per thousand of each rank	69·4	46·4	41·0	34·5	27·5	23·4	31·2

5584. What age would represent the ordinary age of the soldiers in India?—I think you might call the average age about 27.

5585. Assuming the mortality to be 60 per thousand, omitting loss in war, what is the mortality among the officers at a corresponding age; should you add anything on account of the officers coming home?—The mortality among the officers would, according to the returns, be about one-half of that which takes place among the troops at corresponding ages, but it is probably reduced at least one-third by the facility of coming home, and it would be a great advantage if arrangements were made by which soldiers who had frequently suffered from tropical disease in the East Indies, could be removed to regiments serving in colonies where that kind of disease did not exist, precisely in the same way as an officer who finds that the climate of India does not suit his constitution, exchanges into a regiment serving at the Cape of Good Hope, Australia, or America.

5586. Do you think that that could be practically carried out?—I think so; and a suggestion was made with that view by the Committee on Recruiting, of which I was a member.*

5587. Can you furnish the Commission with any information about the mortality amongst civilians in the East Indies?—Yes, I can. The civil service

	Above 50 years of age and 30 of service.	Age 45 to 50, service 25 to 30.	Age 40 to 45, service 20 to 25.	Age 35 to 40, service 15 to 20.	Age 30 to 35, service 10 to 15.	Age 25 to 30, service 5 to 10.	Age 20 to 25, service 1 to 5.
Died annually per thousand of each class	48·6	36·4	35·4	23·4	18·6	20·8	19·9

has a much lower rate of mortality than the military.

5588. That is shown, I believe, by the fund accounts?—Yes. For a period of 46 years, from 1790 to 1836, they supply the following results on this head:—

Between 10 to 15 years' service is the period when leave to Europe is most generally obtained, which may affect these results.

5589. Do you think that any addition should be made, as a correction, to that rate of mortality?—Certainly.

5590. I mean by the removal of persons who would die if they remained in India?—Yes; but it is not that which causes the difference in the mortality between military and civilians so much as the nature of the duty which an officer has to perform in the native force in the East Indies, to which these returns refer, by having to go upon detached parties, and to march through the country sometimes for months together, escorting stores or treasure from one part to another; the shifting of quarters also entails the necessity for an officer, whether of the native or European force, going through many unhealthy places; and I have no doubt that the difference between the mortality of officers and the mortality of civilians may be sufficiently accounted for by these circumstances.

5591. The civilians are generally stationed at one place?—Generally in one place; at least they do not move about to the same extent as the military.

5592. In Calcutta?—No, in different stations.

5593. All over the country?—Yes; their stations may in some instances be unhealthy; but, of course, they try to make them as healthy as they possibly can, and in selecting a place for head-quarters, they endeavour to select the healthiest spots they can find.

5594. That is an element which may partly account for the low rate of mortality among them?—Yes.

5595. Then it would not appear so unreasonable to assume that the mortality of Europeans in India need not be much greater than you have mentioned?—No; I should say it need not exceed 2 per cent., if you selected healthy stations and found employment for the men in various ways, and if you had any means of increasing the proportion of European marriages.

5596. Are you of opinion that marriage would reduce the mortality?—Yes, I think so; but I am not an advocate for it upon military grounds.

5597. You have mentioned several circumstances which you think might lead to a reduction of the mortality in the army. The greatest result, I believe, was obtained in Jamaica from removing the troops up to the high grounds?—Yes.

5598. What was the elevation of that station?—It is about 3,500 feet at Newcastle.

5599. Until your researches, the troops had been kept upon one of the unhealthiest parts of the island?—Yes, in several parts which were notoriously so.

5600. No attention had been apparently paid by the authorities to the immense mortality that took place there?—The fact had been before them that at Maroon town, which is upon high ground, although not so high as Newcastle, the mortality was considerably lower than in the plains, from yellow fever rarely prevailing there; but no return had been prepared showing the exact difference in the mortality from official sources.

* See page xvii of Report on Recruiting Commission.

5601. It had not made much impression upon the Government?—No.

5602. Is not the same thing likely to be the case in India. We have been told that we must keep a large force at Allahabad, where the mortality, according to your table, is at the rate of 115 per 1,000?—Yes, I have no doubt of it. Allahabad is notoriously unhealthy; it is situated at the confluence of two rivers, where immense masses of mud are exposed, besides decayed vegetation; and I am afraid that you cannot well avoid having a certain number of troops there; but there is no reason why they should not be changed more frequently.

5603. Do you think it has generally been known that the mortality has been so high at Allahabad?—Yes, it has been long known. In Bengal I am sorry to say that I can mention very few that are healthy, except hill stations. Meerut has been usually a healthy station; the mortality, upon an average of 40 years having been only about 35 per 1,000, which is not high for Bengal. Madras shows the most favourable results with regard to health. At Fort St. George, with all the inconveniences of being the capital of the presidency, the mortality upon an average of 34 years, has been only about 40 per 1,000; at Cannanore it has only been, upon an average of 35 years, 32 per 1,000; Trichinopoly, where it is very hot, 40 per 1,000; and at Bangalore it has only been, upon an average of 38 years, about 28 per 1,000; that is a station at which you might keep a very large proportion of troops in reserve at a very small cost of life.

5604. You would advocate the policy of keeping a large proportion of the troops at healthy stations, such as Bangalore?—Yes; and to relieve the men at the unhealthy stations from them occasionally, so as to give the soldier a prospect, if he is at an unhealthy station, that he will in a short time get out of it. At Bangalore the supplies are abundant, and there is every facility for keeping a great number of troops. Poona, in the Bombay Presidency, is also healthy; there, upon an average of 29 years, the loss has been only 28 per 1,000; it also affords great facilities for cantoning a large body of men; as likewise Kirkee, where, upon an average of 24 years, the loss has been only about 25 per 1,000.

5605. Then there is the station at Kayra, at which the mortality seems to have been enormous?—It was, on the average of several years, 123 per 1,000 annually, till it had to be abandoned from its unhealthiness; but there is no doubt that you can find among all those stations some at which a large proportion of troops might be quartered without the great loss of life which takes place at present.

5606. Both on sanitary and on political grounds you think it of the utmost importance to save the lives of the soldiers?—Yes.

5607. Do you, on military grounds, see any reason why a concentration of troops in healthy places should not be maintained?—No, now that you are getting railroads laid down; the difficulty before was that in the event of any sudden disturbance it would cost so much time to bring troops where they were wanted; but now, with the facilities afforded by railroads both in Bombay and Madras, there will shortly be little difficulty in doing so. Although in Bengal no stations in the low grounds or near rivers are healthy, there are a number on the hills, where the mortality is usually not above 2 or 3 per cent. From these the men could be brought down with great facility to the plains, and when brought down, every one would, from their superior efficiency, be worth two of those that you had formerly in the plains.

5608. Our army in India has been scattered all over the country in small detachments?—There has not been much concentration at any particular part, and perhaps it could not, well have been otherwise considering the circumstances of the mutiny; but now is the time, to change all that, and the military authorities, I think, might fairly be called upon to

state what is the number of men that they must keep at the unhealthy stations indicated by the preceding tables, and then all beyond those might be quartered in the healthy ones, subject to removal when wanted for relief or any great military or political object; but it does happen that when the locating of a large force is left entirely to the authorities on the spot, a regiment may be brought to a particular place without due consideration as to whether it is healthy or not.

5609. Are the results as shown in these tables generally known in India?—I do not think that they are, unless they have been published since my examination before the Organization Committee; there is no summary that I am aware of that has ever gone out to India.

5610. Practically you think that those results have not been much taken into account in selecting stations?—Very probably not, but I do not think that the authorities have been in a position to do so up to this time; however the country seems now so far settled that any great sanitary arrangements might be worked out with ease. Most of the high lands too have advantages for the location of troops in addition to health; for example, the cost of feeding them at these elevated stations would be materially diminished, for the meat is usually very bad in the unhealthy parts of the country, and comparatively dear; whereas in the healthy places there is usually plenty of grass, and wheat is abundant, so that you get bread cheaper. At such stations too the labour of the men might be made available in reducing much of the cost at present incurred for accommodation. It affords a further and very important consideration in this question that unless some measures be introduced to lessen the mortality among the troops, the cost of transport to keep up the European army which it is contemplated to maintain in India will be enormous.

5611. What number of men should you have to send out every year to maintain an army of 70,000 men?—The calculation I submitted to the Organization Committee on that head was, that if each regiment had to be relieved once in 10 years, there would be 8,000 men required for relieving the regiments alone every year.

5612. That is for 80,000 men?—Yes; 8,000 men would be required to relieve the regiments every 10 years, and 8,000 men would come home with their regiments, making 16,000 passages to be provided besides those for 5,600 recruits who would be required to replace the men who died, calculating the deaths in 80,000 men at 70 per thousand. There would also be about 4,000 invalids and time-expired men, who had completed 10 years service, to be brought home; and about 4,000 recruits to go out to replace them.

5613. (Chairman.) You are assuming the army in India to be maintained at 80,000 men?—Yes.

5614. But do you think that that will be the number maintained?—Yes, when 60,000 men were named as the probable number of the army the Indian Government had a large European army of their own besides. Now that is to be amalgamated with our Line army, and therefore I think there will not be fewer than 80,000 men, or between that and 70,000, altogether in future.

5615. (Dr. Farr.) What is the average time occupied in the passage to India?—About three months and a half now.

5616. So that about 7,500 men would be constantly on the sea?—Yes.

5617. Have you made any calculation as to the expense?—The expense amounts to a very large sum indeed; so large that it would be between 250,000*l.* and 350,000*l.* annually, unless some means be adopted of selecting healthy stations, and so reducing the mortality; if you did so, a great part of these men to be relieved would like India, and would remain at those healthy stations, and not wish to come home at all; they would volunteer into other regiments, and in that way you would save the cost of transport.

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There would not be the same number of invalids, and probably a great part of the time-expired men would re-engage.

5618. Do these men who die serve, on the average, the full term of 10 years?—No.

5619. So that you have more frequent changes than if the men enjoyed better health?—Yes.

5620. This economy in the transport of men, you think, might be fairly taken into account in considering the expense?—Yes; and now that railroads are becoming general throughout India, there would be no difficulty in making the reliefs, which has been one great objection hitherto.

5621. (Sir R. Martin.) Of all the causes which reduce our armies through sickness and mortality, fever, I presume, you find to be the greatest cause in all tropical climates?—In some places; but it is dysentery in others.

5622. In Bengal it forms, does it not, by far the greater item?—I have no doubt of it.

5623. Next in order of frequency, would stand dysentery, diarrhoea, and liver disease?—Yes. I think there is no doubt that those three diseases and fever will embrace nearly the whole of the mortality.

5624. None of those strictly tropical diseases are found to prevail in the mountain ranges of tropical climates?—Dysentery prevails; but it may be doubtful whether it originated there.

5625. It has been assumed that it has been generally carried thither from the plains, either directly in the instances of men suffering from bowel complaint, or by men in reduced health going from the plains to the colder regions, where they are seized with bowel disorders, but not tropical dysentery?—I am not aware of the distinction; I believe, however, that several regiments which have gone to the hill stations suffered from dysentery and diarrhoea; but in most cases their health had been affected before, and therefore it is a question whether the disease originated there, or if they brought with them a predisposition to it.

5626. If the latter, it would rather go to establish the fact that the mountain ranges are better calculated for the preservation of health than the cure of disease?—I believe those in Bengal are found to be so, but there is a considerable difference between that part and the Neilgherries, the country about Bangalore, and about Poona, in so far as those are extensive table lands, whereas in Bengal the stations I allude to are principally on mountains of very considerable elevation, with deep valleys intervening, where there are sources of malaria.

5627. Is not syphilis also a very powerful cause, directly and indirectly, both of sickness, mortality, and invaliding?—There can be no doubt of it; but, as I have already stated, I do not think that venereal is so general as to account for any considerable proportion of the mortality.

5628. It would act more in an indirect way, by reducing the general health through the disease and through the remedies necessary for its cure?—Yes.

5629. That is your opinion?—Yes; and it also adds very materially to the amount of invaliding?—I know this by the number of men who are pensioned on account of disease which had obviously originated in syphilis.

5630. (Dr. Farr.) In the proportion of the whole number constantly sick in the army, does not syphilis constitute a large part of the actual sickness of the army?—Yes; in all the returns that I have framed, you will see what a number have been under treatment for that disease.

5631. Does not that form a very large proportion of the sickness in the army?—Yes.

5632. What is the total amount of the sickness in the army?—Usually five per cent. at home; I have no exact statement of the numbers constantly sick from syphilis, but only of the number of cases occurring annually, many of them I am aware are very lingering.

5633. So that it forms really a very essential part of the sickness of the army?—Yes, no doubt of it; but in India, you have no greater proportion of venereal disease, with a very large proportion of other sickness.

5634. Out of 120,000 men, for instance, in England and in India, how many are labouring under syphilis?—The proportion of cases in England, taken on the average of 10 years, would be about 60 per thousand annually. I cannot get the information for India without analysing the returns of venereal from that country, which would involve great labour.

5635. (Sir R. Martin.) Speaking of the stations on the plains generally throughout India, does it not happen, even at the healthiest of them, that in the course of a residence there the constitution of the European soldier becomes deteriorated?—Certainly, and, what is worse, their spirits break down, and I have very little doubt that, in many instances, they resort to dissipation from no other cause than the apparent hopelessness of getting out of an unhealthy station.

5636. It has been repeatedly stated before this Commission that the men sink in their frames, and especially in the chest?—I cannot say that I have observed that; but I have observed among a great number of the men belonging to the East India Company, who have recently been discharged, a great deficiency of chest; whether it arises from that cause or not I cannot say, but as compared with the men of other regiments, they are generally small-chested men.

5637. Another evil attending a residence on the plains of India is, that owing to the heat the men cannot take that amount of exercise which is necessary to preserve them in good muscular condition and in health?—There can be no doubt of it; they cannot take that degree of exercise which is necessary.

5638. I believe you have made extensive observations on the question of acclimatization in hot climates?—Yes.

5639. Will you be good enough to state the results of your observation on that subject?—My views were expressed as far back as 24 years ago, in the report upon the West Indies, when I had to go very fully into the question, before the military authorities would consent to bring about a change, then strongly advocated by me, and by which, instead of the troops being kept for 10, or sometimes for 12 years,—in the West Indies, they could be relieved every three years. This was objected to, not merely by military, but by medical men, on the ground that the oftener reliefs were effected the greater would be the tendency or the supposed tendency to sickness and mortality, owing to the want of acclimatization. I went over the returns for about 40 years, for the purpose of getting at all the facts on the subject of acclimatization, and the result is published in my report on the West Indies. It extends over two or three pages, and is supported by a calculation deduced from the returns of every regiment that had been in the West Indies for a period of 40 years, and which clearly showed that it was erroneous to suppose that any great mortality necessarily arose from the circumstance of the men being new to the climate. Upon that a great change was introduced, under which the troops were, in the first instance, sent to the Mediterranean to serve for three years, then to the West Indies to serve for three years, and then to America to serve for the remainder of the period, usually about four years. There were some financial advantages attending this arrangement as well as those connected with health. For instance, it had been found that when troops were sent direct to the West Indies, comparatively little service was got out of them before they died or were invalided; that when they were sent direct to America they deserted, sometimes as many as 200 or 300 in a year, and little service was got out of them either, as it was almost always the young soldiers who deserted. But by this

new arrangement the soldiers who were sent out to the Mediterranean had usually served for about two years in England, this, with three years in the Mediterranean, made five years' service, and when they were sent to the West Indies to serve for three years more, of course those who died there had given a greater proportion of service than if they had been sent direct. By the time that the regiment reached North America most of them had thus given, as a minimum, about 11 years' service, after which, if a man deserted, he would, by sacrificing his prospect of pension, be rather a gain than a loss to the Government. That principle was adopted for reliefs, and I looked upon it with great apprehension for a long time, lest any evil consequences might arise, although I had done everything I could to ascertain that my premises were correct. But I am glad to say, after an experience of 24 years, it is found that the mortality since this change has been only 6 per cent. in the West Indies instead of 8 per cent., as formerly; therefore I hold that point, as to acclimatization, to be clearly settled, more especially as in the West Indies there has been no very great change, by moving the troops to elevated localities, as in Jamaica, which could account for such reduced mortality.

5640. An opinion is generally entertained by the medical officers of the army that, when placed under more favourable sanitary conditions, the soldier residing in a warm climate has the functions of his body brought, as it were, to a balance which is favourable to his condition, and that men so circumstanced have been more capable of encountering the great fatigues of long marches, and have been less subject to disease than new-comers. Do you believe in the doctrine so far as that goes?—I do not think, so far as I can ascertain, that there is much difference between the two, or that the circumstance of a soldier's constitution being deteriorated by repeated attacks of disease during long residence, is likely to produce the result you speak of.

5641. You would say that a residence in an unhealthy climate must necessarily produce injury for every year's residence?—Yes, and that is strongly borne out by the very returns I have already quoted to you regarding the officers of the Indian army, showing that the mortality usually increases with age and rank, but as the colonels, the lieutenant-colonels, and majors have, as a general rule, lived longer in India than the rest, if length of residence would have saved them from the ordinary run of mortality, they ought to have sustained a lower rate than their juniors instead of a higher.

5642. The result of your investigations would lead you to reject the doctrine of acclimatization *in toto*?—Yes; I would certainly not attempt to found any sanitary measures upon it.

5643. (*Dr. Gibson.*) Has not the mortality among the troops in England been reduced below that of the civil population of the same ages at our large stations, such as Aldershot?—I understand that it has been so, from some calculations that have been made by Dr. Balfour. I have not had the returns, but I have every confidence in his calculations, and I am happy to find that there is so great a change in the mortality of soldiers in this country, where great sanitary improvements have taken place.

5644. (*Dr. Farr.*) Are you aware of anything to account for that?—The great difference, as compared with former years, is that more attention is paid to the space that a man should have in barracks. I look upon that as the greatest of all the changes that have been effected. One can easily imagine this from the fact that the lower classes of our population who live in towns, or in the more confined parts of them, die at very nearly the same rate as the military have hitherto died; but those who live in healthier situations, and have a cottage to themselves, with the wind perhaps blowing through every portion of it, are healthy, notwithstanding all they undergo; they are also exposed to all descriptions of

weather during agricultural operations, but it seems to do them no harm.

5645. To that you attribute the great decrease in the mortality, and the greatly improved health where people live so much in the open air?—Yes; I think also a very great advantage is likely to be obtained by having separate buildings for a limited number of men, instead of their all being in one barrack. It has often surprised me that so much expense should be incurred, amounting, I believe, to about 80*l.* or 90*l.* a man,* in order to obtain enormous barracks, when soldiers would be much more likely to be healthy if in smaller buildings that would hold only 10 men each. This would avoid much of the disturbance at night; for if there happens to be one drunken man in a barrack room, he is continually making a noise; and if two or three come in wet, it is very inconvenient to all by creating damp in the room. It is also a very serious matter in a sanitary point of view, that if one man be seized with contagious disease, it may extend over a very large number, therefore I think that all our exertions should be not to build enormous barracks, but to have small and inexpensive ones, in the erection of which, owing to their simplicity, the services of the soldiers might perhaps be made useful.

5646. (*Chairman.*) But that is totally contrary to the present practice?—Yes, and I cannot understand how it happens that we pay more for the accommodation of the soldier in the present day than would build separate cottages with a room to himself; that this is the case, you will find if you refer to the cost of barracks.

5647. (*Sir P. Cautley.*) Does not it stand to reason that four small barracks for 100 men would cost more than one large barrack for 100 men?—So you would suppose, but I only look at the result; it depends entirely upon the mode of building. It is true that you have more walls in four barracks, but you have thicker walls for the 100 in a large barrack; you have only one roof, but you must have stairs, and all those additions come to be very expensive.

5648. (*Chairman.*) All that you desire with respect to quiet, and preventing the spread of contagion, would be sufficiently secured by dividing a large and extensive barrack by strong partition walls?—Yes, but you must carry them all the way up, which is very expensive.

5649. (*Dr. Gibson.*) Do you think that a building divided in that way would be as healthy as small detached buildings?—No, and you will find that a small cottage containing four rooms could be built for somewhere about 150*l.* If you were to put two men into each of those rooms, you would have accommodation for eight men for a sum which at 5 per cent. would be only 7*l.* 10*s.* a year. I have returns as to barracks which show the expense to be nearly five times that sum in this country, and I have some from India which make it ten times as much.

5650. And the saving would be greater in India, or in any country where the Government had an unlimited command of men?—Yes; in India, I think that the greater part of the buildings could be erected by the men. When I was inquiring into the mortality in the West Indies, I pointed out the great advantage that it would be if the men could be removed to Maroon town,† and an objection on the score of expense was raised. It was said that on the low grounds there were plenty of barracks which had been erected at an enormous cost, and it was a great pity that they should not be occupied. In order to get over the difficulty with regard to the expense, it was suggested that the troops at Maroon town should be employed in building huts for themselves,

* A summary recently prepared of the average cost of 10 barracks makes the rate 86*l.* 15*s.* for each man and officer quartered in them.

† See p. 103 of Report on Sickness, Mortality, &c. of Troops in the West Indies and Jamaica.

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K.C.B.

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K.C.B.
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which was done. The 68th regiment was employed to build them, which they were very glad to do, that they might not remain in an unhealthy locality. Though only of wood, they lasted for about seven years, and cost about 30s. a hut. The men got nothing but a pair of shoes each for the tear and wear incident to such work, and the nails and iron work were furnished to them. This shows what soldiers can do for themselves. In Burmah we were obliged to build our own barracks. I grumbled much about it at the time, but I have often thanked the general officer who forced me to this expedient. In India you have an abundance of wood, and everything to enable you to build cheaply in those healthy stations, and the men could assist in the mornings and evenings.*

There is another advantage which I think might be attained by the men being located in the higher stations. It may be possible for them to be supplied with beer manufactured there, and I am afraid that if they are not so supplied, the enormous expense which is at present incurred in sending beer out to them from this country will ultimately have to be discontinued. I understand, from some returns that I have before me, that the East Indian Government are paying now very nearly 200,000*l.* a year for the cost of supplying beer to the troops; there is no difficulty, so far as I am aware, in brewing beer in India. Good hops and barley can be raised in the country, and a low equable temperature, such as is required for brewing, can be found at Bangalore, the Neigherries, and various other places.

5651. (*Sir P. Cautley.*) Are you aware that it has been tried in Bengal and also at Mussourie?—Yes; and that is the very reason why I advert to it.

5652. (*Chairman.*) You are probably aware that there is no difficulty in making beer in India, but the difficulty is to get the men to drink it?—Yes; because the beer you refer to was not made by professional brewers, but by an officer who knew little about it, though anxious to do his best in so important a matter as the introduction of beer at a moderate rate.

* At page 46 of the Appendix to the Indian Organization Report, Colonel Baker states the cost of barracks for a regiment of the line at 15,000*l.* a year, being at the rate of about 12*l.* per man annually.

The witness withdrew.

Mr. DANIEL SIEBE, C.E., examined.

5659. (*Chairman.*) You are, I believe, the manufacturer of J. Harrison's patent ice-making machines?—Yes.

5660. What quantity of ice can be made with this machine?—A machine requiring a 10-horse power engine to work it (consumption of coals about one ton in 24 hours) will produce four tons of ice in that time.

5661. What is the cost of manufacturing this ice in London?—It is estimated by Mr. Harrison to be less than 10s. per ton, including interest upon capital; such, I believe, would be the case upon a large scale, with a machine capable of producing from 10 to 20 tons per diem; my experience with a four-ton machine has led me to estimate it at about 15s. per ton.

5662. Is it proposed to cool the air of rooms by this means?—Yes, by circulating cold water through pipes upon the same principle as rooms are warmed; the pipes being placed close to the ceiling to allow the cold air to descend, or by passing the air through the tubes of the refrigerator, and cooling it direct.

5663. (*Sir P. Cautley.*) What is the cost of the machine, including steam engine, and for what will it be delivered in Calcutta, Madras, or Bombay?—The cost of a four-ton machine and steam engine, boiler, &c., is 1,650*l.* The cost of a one-ton machine, steam engine, &c., is 650*l.* I am unacquainted with

5653. (*Sir P. Cautley.*) At Mussourie the beer was brewed by a professional man, and his beer was very well liked by the officers, but the men did not approve of it?—But they would have approved of it if they could have got no other.

5654. It will not bear carrying?—But if you had men upon the high lands you would not require to send it to them, you would brew it on the spot; if, for instance, you had 10,000 at Bangalore, you would brew the beer to be used by the men on the spot.

5655. The hops are all imported, and I was informed by Mr. Bowley, the person who brewed beer, that he had great difficulty, in certain parts of the process, in keeping up an equable temperature; the hops he obtained from England. They have been within the last few years pressed into a very small compass, and there has been no great difficulty with regard to them?—Hops, I believe, will grow in India.

5656. But they do not flower perfectly?—In that case they could be got from Europe; any alternative seems better than the present costly system. I find, for instance, that in 1859, in Bengal alone, the quantity consumed amounted in one year to 73,000 hogsheads, and the sum it cost the Government was 2,608,510 rupees, which is such an enormous expenditure that I am very much afraid it can not be continued.

5657. It was with reference to that point that I put the question when you mentioned that there would be great advantage by locating European troops on the hills on account of the cheapness of feeding them. When you come to consider that the beer has to be transported on men's backs, particularly up the Himalayan mountains, and that there is not the facility of obtaining meat there which you imagine, in all that line of country, so far as economy goes, these circumstances would seem to be rather against it?—My argument was that the beer could at hill stations be brewed on the spot, consequently there would be no expense in carriage, and sheep are usually cheap and good in all mountainous countries where the temperature is low as in the Himalayan ranges.

5658. Most of the sheep that are served out in barracks are brought from below. They may be fattened up as well as they can?—The sheep at Bangalore are very fine, and at Poona they can be had at a very moderate rate.

the cost of shipment to India, having always delivered the machines to the merchants here in England, who attended the shipment.

5664. What materials are used or employed in the manufacture?—Ether, chloride of sodium (ordinary table salt), and water.

5665. What amount of ether is expended during a day in the manufacture of four or five tons?—About two lbs. of ether are lost per day, depending entirely upon the soundness of the machine.

5666. What description of ether is necessary; and what is the price of ether?—Sulphuric ether is preferable, which costs 1s. 8*d.* per lb.

5667. What amount of salt is expended in the manufacture of four or five tons of ice; and at what cost?—It appeared so small, that I have not paid particular attention to it, but as far as I am able to judge, 56 lbs. would be amply sufficient. The price of salt is, I believe, 2s. per cwt.

5668. Can you explain shortly how a room would be cooled, and how kept cool by the use of the machine, say to 60° Fahrenheit?—The machine could be placed in the basement of the building, or in an outhouse, and connected with the apartments by means of tubes; in the apartments rows of copper tubes could be attached to the ceiling, or what would perhaps be preferable, a false ceiling of sheet-copper could be employed, a pump attached to the machine,

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causing the cold water to circulate in either case. In cooling the air before entering the apartment, a blowing fan would be requisite to force it through the tubes of the refrigerator, then conducted by means of wood or earthenware pipes to the apartments, and means taken to diffuse it generally without causing a draft.

5669. It is understood that only portions of the machine offer difficulty in repair; are valves with spiral springs attached or connected with it; from what cause are they likely to get out of order; is it merely from wear, or from accident?—The only portions which are somewhat difficult to repair are the four valves, two inlet and two outlet; an ordinary mechanic, however, with the use of a small lathe, &c., could repair them. Ordinary wear and tear is the cause of their getting out of order, or the breaking of a spiral spring.

The witness withdrew.

ADDENDUM.

EXTRACT from Supplement to the CALCUTTA GAZETTE, Saturday, 22 June 1861.

From the Military Finance Department, to the Secretary to the Government of India, Military Department,—(dated Calcutta, the 23rd May 1861.)

SIR,—We have the honour to submit, for the consideration of Government, a Report on the introduction of a new machine for making ice, of which we have been favoured with an inspection and demonstration of its capabilities, and the result appears to us to be so satisfactory, that we should not be doing our duty faithfully to the Government did we not at least bring this prominently under notice.

2. Our attention has been directed to this matter in consequence of our being aware of the largely increased consumption of ice in hospitals and barracks in the various military stations in India, and the great difficulty and expense with which this necessary is at times procurable; and also in certain districts and seasons of the uncertainty of supply. And as we have noted with earnest attention the desire of Government not only to provide for its soldiers and others every necessary, but to provide such necessaries at the most reasonable cost, we introduce this subject as one well worthy of attention, as the Government has now become a large and certain consumer for the necessary to which this paper immediately relates, both with regard to its sanitary as well as its financial bearing.

3. By the courtesy of Mr. Calder, of the Firm of Messrs. D. Wilson and Co., we have been enabled to test the properties of this machine, and the advantages which it affords of giving a steady and certain supply of ice throughout the year, no matter in what situation;—and we are of opinion that much benefit would be derivable from the establishment of an ice factory at most of the cantonments, if the Government would take the initiative in proposing the measure, and offering its support on certain conditions; and if the residents in cantonments will also take their part in its establishment and management, a course which we have but little doubt they would be glad to adopt, on being made aware of the opinion of the Government in reference hereto.

4. We would therefore suggest that inquiries should be set on foot with a view to ascertain, in the first instance, what private means would be available towards the establishment of these ice machines; information being at the same time given as to what might be the expected product and return to be derived therefrom, as illustrated in the following paragraphs.

5. It will be seen from the accompanying copy of letter from Mr. Calder, that on an outlay of Rupees 7,500, as per margin, for a No. 3 size machine, and an engine and other apparatus for working the same, and with an additional daily expense of rupees 14-4, detailed in the margin for production of ice, 1000 lbs. of ice can be available every day; and calculating upon the data set forth, the cost of ice thus obtained is less than one

Machine No. 3 size	Rupees.	5,000
Engine for ditto		1,500
Cost for freight and other necessaries at starting		1,000
Total Rupees		7,500
Cost of Ether	Rupees.	1 0
Ditto Coal		3 8
Ditto Salt, 4 seers		0 8
Ditto Oil, 2 pints		0 4
3 Men's wages for Ice Machine		0 8
2 ditto ditto Engine		0 8
Engineer's pay per day		5 0
Wear and tear of Machine and Engine per day		2 0
Interest of money per day		1 0
Total Rupees		14 4

5670. Supposing that a machine is erected at a place distant from the means of repair, what portions ought to be supplied in duplicate?—A spare set of the above-mentioned valves and springs, and spare brasses for the bearings, screws, bolts, &c.

5671. What is the cost of these duplicates?—About 50*l*.

5672. What establishment is requisite for the maintenance of the machine?—One skilled mechanic and three or four labourers.

5673. (Chairman.) Is there anything else you would like to add in explanation?—No; except that before applying the machine for cooling rooms in India, I should advise experiments to be tried in England, in order to ascertain the best means of applying the cooling-power. With regard to making ice, that has been thoroughly tested, and would, therefore, not require any preliminary trials.

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piece (three pie) per lb., whereas ice procured from a private firm costs not less than one anna for the same quantity in Calcutta; therefore, comparatively, the cost of ice obtained by such a machine is to the cost of ice purchased from a private firm as 1 is to 4-4, or in other words greater than four times the cost of the former, and irrespective of the charge for conveyance.

6. Although these data may be subject to variations according to locality, some of the items above mentioned in the margin may, by the circumstances of the country, be in excess of the price set against it; and, vice versa, others might be reduced. But on the whole they serve as a good basis for calculating the probable expense that will be incurred for a pound of ice thus produced in any part of the country; and perhaps it may not be too wide an assumption if we assert that the rate per lb., as above stated, is susceptible of diminution. The item of allowance for the engineer being the only one capable of altering the case to any considerable degree, we would therefore beg to bring to the notice of Government the fact that almost every regiment could furnish a man capable of working such a machine, and suggest that advantage may be taken of this—should our suggestions be entertained—as it will afford the twofold benefit of causing a reduction of outlay and provide means of useful employment to the men.

7. In further explanation on this point, viz., the cost at which ice can be produced by the ice machine, we have the honour to append, for the perusal of Government, a detailed statement drawn up by our colleague, Lieutenant-Colonel Simpson, who, in company with Assistant Commissary General Captain R. C. Wroughton, inspected the working of the machine, which, by Mr. Calder's kindness, they were made thoroughly acquainted with, and have been enabled to report upon accordingly. We would here observe, that the result has as to cost and quantity of ice produced daily may be considerably modified by the use of a No. 1 engine, which is capable of producing a larger quantity, and so as to be in an inverse ratio of the two items of cost and produce; and that this, in our opinion, would be a strong argument in favour of employing the larger description of machine.

8. In suggesting the establishment of ice-making machines, either directly by the Government or subsidized by it, we believe that we are bringing under notice not only a most useful but an economical measure. We consider that they would soon repay any advance made or cost incurred, in the great difference in price at which the ice would be supplied; and that they would afterwards be self-supporting, and even to a certain degree profitable, we have no doubt. On the whole, we believe that we are introducing a matter to the notice of Government which is well worthy of its serious consideration, and we beg leave to recommend it accordingly. At the same time we would wish to record our sense of the great courtesy exhibited by Mr. Calder in first pointing our attention to this matter, and afterwards in allowing so free access to and giving so full information respecting the machine.

P.S.—Since writing the foregoing letter, we have obtained from the Examiner, Commissariat Accounts, certain data showing approximately the cost of ice supplied for hospitals in the Bengal Presidency during the season of 1860, which we append hereto, and to which we beg reference. The quantity actually delivered and the time of delivery are not clearly stated, but the figures indicate that ice has been supplied at a much higher cost than that at which it might be expected to be obtained by the machine; and as

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it is stated also that in many instances the quantities furnished have been so delivered, only when procurable, it is but fair to suppose that a much larger quantity would have been used could it have been obtained.

APPENDIX.

STATEMENT of Cost of Ice supplied for Hospital use, during the Season of 1860-61.

Station.	Daily Supply.	Period.	Cost.	Remarks.
Agra	23½ Seers.	Season	500 0 0	Average daily supply.
Allahabad	106 "	Do.	1,272 0 0	
Bareilly	13½ "	Do.	144 14 4	
Benares	Unknown	Season	788 0 0	For 12 Shares.
Barrackpore	None	None	None	
Cawnpore	Unknown.	Unknown	288 0 0	
Dacca	None	None	None	
Dinapore	None	None	do.	
Darjeling	None	None	do.	
Ferozepore	18 Seers	Season	144 0 0	When procurable.
Fyzabad	24 "	1 month	182 12 9	
Jullundur	17 "	Season	211 13 9	Ditto.
Kussowlie	None	None	0 0 0	
Lahore	32 Seers	Season	280 14 0	Average daily supply.
Lucknow	Unknown	Unknown	925 0 0	
Meerut	63	Season	504 0 0	
Mooltan	14	Do.	129 8 0	
Peshawur	16	Do.	367 0 0	Ditto.
Presidency	Unknown	Do.	472 8 0	Per 3,780 Seers.
Rawul Pindi	11	1 month.	300 0 0	Per 9 Shares at 40 Rs. per Share.
Saugor	None	None	0 0 0	
Sealkote	Unknown	Season	174 5 3	Per 27 Shares.
Umballa	22 Seers	Unknown	68 0 0	11 Shares, at 6 Rs. per Share.
Total Cost -			6,610 13 1	

(Signed) G. BALFOUR, Colonel,
President, Military Finance Department.

From A. CALDER, Esq. to Colonel G. BALFOUR, President, Military Finance Department.—(Dated Calcutta, the 9th April 1861.)

I HAVE now the pleasure to send you sufficient data in respect to cost of ice machine, engine, &c., also the cost of a pound of ice produced by such a machine.

The cost of the No. 3 machine is - - - Rs. 5,000
Add cost of engine for ditto - - - " 1,500
Ditto of freight and other necessaries at starting - - - " 1,000
Rs. 7,500

Such a machine is capable of producing at least 1,000 lbs. of ice per day.

The cost of such production per day is as follows:—

Ether	-	-	-	-	Rs. 1 0
Coal	-	-	-	-	" 3 8
Salt, 4 seers	-	-	-	-	" 0 8
Oil, 2 pints	-	-	-	-	" 0 4
Two men's wages for ice machine	-	-	-	-	" 0 8
Two ditto ditto for engine	-	-	-	-	" 0 8
Engineer's wages per day	-	-	-	-	" 5 0
Wear and tear per day of machine and engine	-	-	-	-	" 2 0
Interest of money per day	-	-	-	-	" 1 0
1,000 lbs. of ice cost					" 14 4

which is less than one pice per lb. (please examine). The ether is imported in drum cases with gun-metal screw caps, quite safe, and no waste.

Our catalogue herewith, page 8, will give you a sketch of machine. Bear in mind, that it is essential to have a supply of good water.

STATEMENT drawn up by Lieutenant-Colonel Simpson.

The statement of the patent Ice-making Machine furnished by Mr. Calder, of the firm of Messrs. D. Wilson and Co., where the machine is now in daily operation, is satisfactory. On its receipt, I, in company with the Deputy Commissary General, Captain Wroughton, inspected the machine when working on the 10th April 1861.

1. I availed myself gladly of Captain Wroughton's experience and talents as a machinist, and also because that officer had in 1859, when in London, thoroughly investigated the patent then just licensed. His opinion was at the time so favourable, that he had at one time determined to bring one out to India, but as his position then was uncertain, he was deterred by the risk he ran of not being able to superintend its erection and working.

2. I may premise that the machine we inspected was found to be working under many disadvantages, the room containing it being adjacent to the hotel kitchen, and the engine in close proximity; moreover, the heat was streaming through an exposed roof, and while the condensation worked was of very high temperature, the wooden refrigerator was not jacketted, thus causing the ether to enter the evaporator at a high temperature, and the entrance of caloric into the refrigerator to be excessive.

3. Notwithstanding all these disadvantages and drawbacks, the production of ice was steady and complete.

4. It is considered there are few positions or climates in India where the powers of the machine could be more severely tested, as there are in all places means of modifying intense heat, none of which were in the present instance applied, but, on the contrary, the heat of the climate was aggravated by the artificial heat generated by the engine and the kitchen fires.

5. Having satisfied ourselves completely on this point, we assumed the production of ice under circumstances in any of the stations of India to be equal to that now realized by Messrs. Wilson and Co., and therefore Mr. Calder's calculation serves as a base on which to frame a financial statement.

6. The excess on expenditure over Mr. Calder's working estimate in distant up-country stations may be on the following items:—

Ether—cost of transit up-country - - - 25 per cent.
Coal or wood - - - - - 50 "

The other items may be considered as constant or capable of diminution.

7. There is only one of any moment worthy of notice, viz., the engineer.

8. Most European regiments would furnish more than one man capable of attending to the machine, which is indeed very simple, consisting principally of a double cylinder and pistons working two induction and two discharge valves, and occasionally an air pump, to maintain the vacuum complete. All therefore that is required is a steady man accustomed to engineering, and who will keep every part scrupulously clean.

9. We may, however, arrive at very large deductions in cost of production, rated by Mr. Calder at less than one pice per lb., or say 35 seers per rupee.

10. This is by adopting No. 1 size machine, the out-turn being four-fold that of the one under review.

11. As the same (10-horse power) engine would work No. 1 size we have no extra expenditure in coal.

12. The next charge is ether,—the leakage is but slightly increased by size, indeed, size is favourable to correctness of fit; but allowing

50 per cent. increase, we have Rupees	-	1 12 0
Salt, say 100 per cent.	"	0 8 0
Oil, 50 per cent.	"	0 2 0
Two men extra for ice	"	1 8 0
Wear and tear	"	6 0 0
Interest of money	"	3 0 0

Total increase of No. 1 on No. 3 size	-	11 14 0
Add Mr. Calder's estimate for No. 3 size	"	14 4 0

Cost of 4,000 lbs. of ice	"	26 2 0
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produced daily by 12 hours' working, being at the rate of 130 lbs. per rupee, or more than 1½ maunds.

13. When therefore it is considered that this out-turn is a certainty, can be doubled by working night and day, and gives block ice of double value from its extra keeping properties to the pan-ice now made at stations in the north-west, the certainty of its superseding can only be effected by the relative price at which the two methods can be worked.

14. Now an eight seer share of ice generally costs 60 rupees per season in Northern India, and is supposed to secure to the fortunate holder a supply for six months in each season; but what with total and partial failures through unfavourable weather in December and January, on an average, less than half this period may be held to represent the usual benefit derived from the shares; but admitting the full six months' supply to be always forthcoming, the shareholder will receive in lieu of his rupees 60, seers 1,456, being at the rate of 24 seers per rupee; but the same quantity produced by a 1st size engine would cost but rupees 22'8, besides lasting double the time in the ice basket. A small engine such as was inspected would give a similar quantity for rupees 45.

15. The buildings, &c. must, however, be estimated for, and they are few and simple: a small two-roomed building with thick roof and enclosed verandahs is all that is re-

quired,—no pits, nor platters, nor beaters or collectors, &c. &c.

16. This would be, say, rupees 2,000, and could easily be paid out of the ice made by putting on a trifling per-centage on the charge.

17. Government has already become a large and certain customer through hospital consumption, and has showed so much interest in there being a regular supply of ice for the sick soldiers, as in some instances to order money to be advanced from the public Treasury for the purpose of erecting the buildings and pits of ice concerns in the old system.

18. It is believed that this paper holds out no false or inflated hopes, but if what it states is true, ere long the patent ice machine will be in many stations; for if a Saxon community has heretofore always struggled through the uncertainty of climate, and the scarcity of labour for ice lifting to success, it will not fail to accept a plan which is perfect

in its action, equal in its delivery, and economical in its cost.

19. What is now sought to be urged is, that in the present unsettledness of things, and the late large expenses of the community, Government should come forward and advance freely for the purchase of engines, and repay itself from the issues of ice to hospitals.

20. There will be no risk, for the ice machine is destined to become "an institution," and to be felt as one of the first wants to be relieved by any Indian community; and as the manufacture of soda water, an article standing far below ice as a luxury, has already fallen in many instances into the hands of the natives, so likewise it is believed that ere long no city of any note will be without its ice engines (ice being an article most highly prized and relished by every native who can afford to purchase it), and the scenes of a Cabul bazaar to be re-acted in India by there being ice sold in every bazaar.

Mr. D. Siebe,
C.E.

13 July 1861.

Thursday, 17th October 1861.

PRESENT :

THE RIGHT HON. LORD STANLEY, M.P., IN THE CHAIR.

Sir RANALD MARTIN, C.B., F.R.S.

J. B. GIBSON, Esq., C.B., M.D., D.G.A.M.D.

WILLIAM FARR, Esq., M.D., F.R.S., D.C.L.

Dr. FREDERIC JOHN MOUAT, Surgeon Major, Bengal Army, examined.

5674. (*Chairman.*) You have served, I believe, about 21 years in India?—I have.

5675. Has your service been chiefly in the presidency of Bengal?—My service has been in the presidency of Bengal; but I have been on duty as high up the country as Lahore. I was then engaged on inspection duty.

5676. Have you served with native or European troops, or in what capacity have you served?—I have served very little with troops. I first served with European troops in Fort William. I was then with the 21st Fusiliers. I was subsequently in medical charge of the 47th native infantry, and was afterwards attached to the artillery at Dumdum. I was then transferred to the civil department, in which I have remained ever since.

5677. You have published a report, I believe, on the state of the jails in India?—I have published several reports on that subject.

5678. Have you served long enough with native troops to have acquired some practical knowledge of the manner in which they are housed, and the sanitary conditions under which they live at their stations?—Quite so. I have seen them in almost every station, from Calcutta to Lahore, and in the Eastern Provinces.

5679. The native troops, hut themselves, do they not, receiving some assistance to enable them to do so from the Government?—That is generally the case; in fact, it is almost universally so. The attempts which have been made to house them in barracks have been very unfavourably received by the native troops.

5680. For what reason?—Partly on account of their caste prejudices; for example, men of different castes and religions do not like to be associated together in the same room; in some cases from having their families—their women and children—with them; but in almost all cases, on account of the preference which the natives have for isolation and privacy—a home of their own.

5681. Is it the general custom for them to take their families along with them?—Not in the old Bengal army; it is so in the Madras army, and in some local regiments, but in the regiments of the Line, the old Sepoy regiments, they very seldom had their families with them.

5682. (*Sir R. Martin.*) Especially the high caste Hindoos?—Scarcely ever. My regiment contained an unusual proportion of Brahmans, and I do not think any of them had their families with them, unless they had sufficient means to house them comfortably, and to isolate them in the way that they liked.

5683. The 47th regiment was a general service corps, was it not?—It was.

5684. And, therefore, there were fewer high caste men amongst them?—Not so; for, curiously enough, in consequence of the great popularity of its commanding officer, it had, when I belonged to it, a larger proportion of high caste men than any other general service corps. Colonel Pogson was a man who was well known in Oude, and very popular with natives. As a rule in the general service corps, there are comparatively few high caste men, in consequence of their objection to cross the seas.

5685. (*Dr. Gibson.*) You have referred to barracks which have been built for native regiments?—Yes, at Akyab, in Arracan, barracks were built for the local battalion, but the men would not live in them, although they would have been much more comfortable in every way than in their huts; they still preferred pigging after their own fashion in the huts. There is another place besides that which I have mentioned. At Dorunda they have built barracks, and the men have inhabited them; there they have not raised any very great objection to doing so that I heard of; that was on the south-east frontier.

5686. (*Sir R. Martin.*) In that case, caste was the sole obstruction, I presume?—No, not with them; for they were almost all Mughls and Burmese; but the objection was equally strong amongst them.

5687. It has been found in many instances, that the low caste men give as much trouble about caste as men of a higher caste?—The lower castes give a great deal more trouble, as they are more tenacious of such privileges as pertain to their respective castes; it is the case also in prisons.

5688. (*Chairman.*) In the huts are the men together, or are the huts generally small?—They are small, and they are generally occupied in this way; each man has his own hut, and if there are any members of his own immediate family with him they live with him, but not otherwise.

5689. The men do not club together?—No.

5690. A native objects to go into a barrack because he prefers a home of his own, however small or uncomfortable it may be?—Yes, and he likes it to be as similar to the one he has left behind him in his native village, as possible.

5691. You are probably of opinion that the feeling in favour of that mode of living is not likely to alter?—I should say certainly not, with the present feelings of the natives as to caste, for they are probably more tenacious on that score now even than they were before the mutiny and the issue of the Queen's Proclamation.

5692. Then you look upon it as a necessity, that where native troops are employed they must be allowed to hut themselves in their own way?—At present I am afraid it is so.

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5693. Of what material are the huts in general built?—They are generally built of mud: mud walls with grass roofs, or roofs covered with palm leaves.

5694. A thatch of palm leaves?—The thatch is unusually of grass; those built by Government are tiled where tiles are procurable, from their incombustibility.

5695. To what extent, as a general rule, does the Government or any authority interfere in the building of those huts, in order to see that the conditions are such as they ought to be?—There is very little interference; in fact, the natives would not tolerate much interference. In the matter of interference that of the officers appears to be confined to causing the huts to be built in regular lines, leaving a space between each, and the means of digging a trench for the purposes of drainage; but with regard to the interior of the hut, there is no supervision of any kind exercised; in fact, none would be submitted to by the great majority of the Sepoys; they will not allow you to approach within their bounds, or to come within their doors.

5696. (Dr. Farr.) Do the huts consist of single rooms?—Yes; except in the case of native officers, who have two, rarely more; they build a Zenana compound, which is a small space outside, in which the women can carry on their different occupations without being seen.

5697. Is there any attempt made to drain the ground round about the huts?—Only by digging trenches.

5698. What becomes of all the dirt that accumulates round about a station?—They are very dirty places, but people are employed by the cantonment officers to clean these places and remove all the filth, but at the best of times the native lines are dirty; and if left to themselves they never would clean them; they would accumulate every possible species of filth there.

5699. There is no objection, I suppose, to the enforcement of external cleanliness, provided the interior of the houses is not interfered with?—Not the least objection.

5700. Is there any interference on the part of the Government for the purpose of seeing that there is a proper amount of space given to a hut?—Not in the interior. The commanding officer generally possesses influence enough to see that they are built with tolerable uniformity and regularity, but beyond that no interference is exercised; certainly there was not in my regiment, although the commanding officer was so popular that he could have done whatever he wished, yet he refrained.

5701. (Sir R. Martin.) Are there any other cases besides the question of hutting in which caste interferes with the sanitary arrangements in a native cantonment?—Yes, there is with regard to their personal habits of ablution, and what they term their *burri fudger* and their defecations generally. In all such matters it is very difficult to deal with the habits of these people.

5702. As regards their personal habits, they are generally cleanly, their ablutions are regular, are they not?—With the Hindoo Sepoy particularly so; cleanliness is one of the injunctions of his religion; but it is not so much so with the Mahomedan Sepoy, and still less so with the Madras Sepoy, and the Mugh is probably the dirtiest of all in his lines. On parade and on duty great personal cleanliness is enforced.

5703. How is the water supplied to the native lines?—Invariably from tanks in the lower provinces; in some of the up-country stations it is procured from deep wells, but almost always from tanks and wells combined, where there is good well water.

5704. The tank is used for bathing, is it not?—There is generally a special tank set apart for that purpose; but there is in every cantonment one large drinking tank which is popular among them, and contains purer water, and a guard is placed over that in order to prevent bathing, and to prevent dogs and animals being washed in it.

5705. Then there is some attention paid to the purity of the water?—Yes, as far as such means as they have in cantonments go, the greatest possible attention is paid to it.

5706. Generally speaking, is the supply of water abundant?—In Lower Bengal it is very abundant always; the water is so near the surface that there the tanks are very rarely dry; in the upper provinces at the driest season of the year the water is usually impure, and contains salts from the soil.

5707. (Sir R. Martin.) But it is all conveyed, is it not, by hand labour?—For domestic use entirely by that means; they carry it themselves; amongst the Mahomedans it is carried by *bheesties* or water carriers, who carry it in goat skins.

5708. (Dr. Farr.) How does the water get into the tanks?—It is generally from the rain-fall during the rainy season, and partly from the drainage of the adjoining soil, surface drainage; more rarely from springs in the soil.

5709. Does not the surface water which thus drains into these tanks often convey many impurities into them?—No doubt of it; after a heavy fall of rain the water is very muddy and dirty, and it takes 24 or 48 hours to subside and become clear.

5710. A tank in India is like a horse pond, is it not?—Yes, except that it is more uniformly deep, and the banks and sides are kept clean.

5711. (Chairman.) It is often lined with stone, is it not?—The old tanks, which were constructed by the Mahomedans, were so, but not those of the present day; they are simply excavated. In some places they are puddled with clay to prevent leakage, and there are generally brick steps constructed, ghauts as they are called, leading down to them, to enable the men to bathe and take water at all times.

5712. (Sir R. Martin.) Are not the tanks frequently filled also from neighbouring rivers?—In Calcutta they are, but I do not think there are any means of doing it in any other place that I have seen, except during high inundations in stations situated on the banks of great rivers. At Calcutta the *Lal Diggie* is periodically filled at high tide, and many other tanks in that city are filled from the aqueducts.

5713. (Dr. Farr.) The natives themselves attach importance to pure water, do they not?—Yes.

5714. And they ascribe many diseases to impurities in the water?—Yes, at every station which is unpopular among them the diseases are ascribed first to the impure water, and next to bad air.

5715. Do you think that that opinion is well founded?—Yes, I do.

5716. What diseases do you think may be more particularly referred to impure water?—It is difficult to say what specific diseases are traceable to it alone, but worms and bowel affections are probably those most frequently so caused.

5717. Have you observed any instances in which disease could to your satisfaction be referred to impure water?—In a marshy district I have no doubt that impure water has a tendency to produce diarrhoea, especially when, in a very dry season, the wells, and even the tank water, are more or less loaded with salts, diarrhoea is very rife in those cases, and the same thing occurs from water that is drunk from tidal rivers; for even in the hot season when the tides are very low, the water is to a certain extent brackish.

5718. (Sir R. Martin.) That description of water must necessarily disturb the bowels?—I think so; it certainly has that effect upon Europeans. I accompanied a detachment of sailors to Assam during the mutiny, and the water was all taken in alongside from the river: a most frightful outbreak of cholera occurred within 24 hours after our embarkation, and the men attributed it to the water.

5719. On the score of caste do you think that the natives would object to the conveyance of the water in iron pipes?—They would at first, for they are very suspicious in all matters of this kind. I do not think that any permanent objection would arise to it.

5720. (Chairman.) That would be very much a

matter of tact and management, would it not?—Yes, quite so; there are no people who are more amenable to tact and management than the natives of India; you can do almost anything with them by quietly explaining matters to them, and not enforcing anything violently.

5721. Do you think that in practice there is any considerable mortality, or any considerable amount of disease among the native troops which is to be ascribed either to the uncleanness of their stations, to impure water, or to a deficient supply of water?—The chief diseases which the natives are liable to are endemic and epidemic diseases in the various parts of the country in which they serve, and no doubt those would be very much influenced by the quality of the water, and bad conscrvancy.

5722. What are the prevailing diseases among the native troops; do they suffer as much from cholera as the English do?—Yes, in the epidemic outbreaks they suffer frightfully from cholera, fever, and dysentery, and whenever they are serving out of their own native localities, they appear to be just as liable to the devastating ravages of epidemic disease as Europeans are; indeed I have never known so many men belonging to a European regiment to be in hospital at one time in such circumstances, as occurred in a native corps. I think that in one instance 900 men were sick out of a battalion a little more than 1,000 strong. This occurred at Dacca, shortly before the abandonment of the native lives in that place.

5723. (*Sir R. Martin.*) The native army of Bengal, when quartered in the upper provinces, has always suffered much more than when serving in Bengal Proper, has it not?—There are no natives of Bengal Proper in the regiments of the line. Up country Sepoys invariably after the second year's residence in Lower Bengal became sickly. They appear to be pretty healthy during the first year, they decline in the second year, and in the third they become very unhealthy.

5724. The diet has a good deal to do with it, has it not; as they take to eating rice, which is strange to them?—Yes, but I do not think they take so much to that, as is generally supposed. Lord Ellenborough's order has enabled them to buy atta at very much the same price as they could obtain it for in the bazaars of the upper provinces. At the same time the native soldier is usually very penurious, and if he remits a large proportion of his pay to his family, he takes to the cheapest diet himself, rice, and that disagrees with those who have been accustomed to eat wheaten flour.

5725. A change from wheaten bread to rice has almost always been found prejudicial, has it not?—Yes, invariably so; up country men certainly suffer, and so do prisoners from the same provinces.

5726. (*Chairman.*) The diet of the Sepoy is entirely of his own choice, is it not?—Entirely so; no influence is exercised over him in that matter, but the Government try to procure for him the largest quantity and best quality of the food to which he has been accustomed. Great trouble is taken in the regimental bazaars by the commanding officers of regiments, for upon that the contentment and happiness of their men very greatly depend. In Arracan and Burmah I think the native troops suffered almost more than the European soldiery from endemic sources of disease, and in the eastern districts of Bengal regiments have been more than decimated by fever, dysentery, and cholera. The dietary doubtless had much to say to this.

5727. Regarding as inevitable the present objection of the natives to live in the barracks provided for them, and assuming that the hutting system must continue, is there any general regulation which you could suggest as calculated to diminish the mortality among the native troops?—If the huts were properly ventilated, built with greater regularity, with a sufficient amount of space, and if subsoil drainage were insisted upon as a practice, which it is not now, in addition to surface drainage, and the huts were made water-tight, their health and condition would be improved.

5728. Those things could be done in the first instance, when the hut was being erected, could they not, without any objection on the score of interference?—The objection of the Sepoy would be to the expense entirely; if he had to pay more for it he would object very forcibly, but if it were to be done at the same cost, he would not care about it.

5729. (*Sir R. Martin.*) In lower Bengal would it not be a very great advantage if the huts were raised off the ground?—Yes, every native does that with his hut, but when he does it he makes a hole at the door, from which he procures the earth used in raising the floor, and this becomes the receptacle of all the refuse from his hut, so that any advantage that might result from raising the hut off the ground is counteracted by the filth which is deposited at its very door. The stench and effluvia are very great in native villages from this cause.

5730. They would not object, I suppose, to so much interference on the part of sanitary police in the cantonments as should clear and level the ground?—I should say not at all, especially if the matter were simply explained to them, and that what was done was on purely sanitary grounds, and upon no other grounds.

5731. (*Chairman.*) What they would object to would be interference with a hut after it was built and occupied, and not while it was in course of erection?—They generally build it themselves, and I think they might raise some objection, although I do not know that they would do so now, since more mixed castes are enlisted; any objection on their part would not be very strong if the Sepoy knew that as a condition of his service he must submit to these regulations, and if they were explained to him beforehand.

5732. I presume that under the present system the amount of space occupied by native lines is enormous?—It is very large.

5733. Does that lead to much practical inconvenience, or do you think that improved healthiness is secured by the dispersion of the men over a larger area?—I think that improved healthiness is secured, and as ground in most cantonments is very cheap, the Government can procure any quantity they please at a comparatively small cost for the construction of native lines.

5734. (*Sir R. Martin.*) In point of fact too much has been heretofore conceded to the Sepoy on the score of caste, and which it is now found could be dispensed with?—Yes, a very great deal too much, and many pleas of caste were admitted which were entirely erroneous.

5735. For example it has been found in China and within the garrison of Lucknow that the highest caste men would perform the most menial offices for their officers, and families without appearing to think that they were infringing upon the rules of their caste?—I do not say without infringing upon the rules of their caste, but they do not object to do them, and in China they volunteered to perform services which no Hindoo was ever known to perform before that time.

5736. But on their return to India no objection was made, I believe, to those men by their families on the score of caste?—We can scarcely follow them into their villages; I rather think that they kept their own secret. The highest caste Brahmins have always told me that they had no objection themselves to do such things, but that their objection was on account of the treatment they received when these things became known in their own homes, and, in fact, on service they will do anything, because they are all in the same boat and no one dares to tell against the other; the secret is kept, but the bond of caste is altogether loosened.

5737. They will go very far to serve their officers, and are very attentive to their wants?—They will do anything for an officer who treats them kindly.

5738. (*Chairman.*) What is the mode of life among the native troops in the different stations; their military duties, I presume, do not occupy any large part

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of their time?—The chief part of their time is occupied in lying on their backs upon their charpoys at the doors of their huts, smoking and sleeping; they are fond of gossiping, and have no great occupation.

5739. In point of temperance and sobriety there is nothing to complain of?—In the Bengal army there is nothing to complain of; but the Mughls and the Sikhs are very fond of drink, quite as fond of drink as the Europeans, and the low caste Hindoos are also rather fond of it. The so-called Christian drummers were scandalous in that respect; they were usually low Portuguese.

5740. I presume that if more occupation were found for the native troops they would not be very unwilling to do what was required?—A Sepoy would not be unwilling, if he knew that it must be done as a condition of his service.

5741. (Sir R. Martin.) They are fond of athletic exercises, are they not?—Yes, they are, and once or twice in a week they wrestle and play among themselves; they have a kind of native gymnasium in the lines of nearly every regiment.

5742. (Chairman.) Is that practice encouraged by the officers?—It used to be so; and the old class of officers used not only to encourage it but they gave the men money towards it, and would, on festivals and holidays, be present to witness the exercises and games, and that had the effect of attaching the men very much to their officers. Some of the officers used to enter the lists and wrestle with the men, and sometimes beat their own best wrestlers, and they became very popular with them in consequence.

5743. (Dr. Farr.) You are aware that the mortality amongst the native troops, as it appears in the returns, is not high?—It is about 1·60 per cent., I believe.

5744. That rate of mortality is much lower, is it not, than the mortality among the European troops?—It is very much lower.

5745. Sir Alexander Tulloch has stated before this Commission that about 70 Europeans in 1,000 died; but according to the returns, only 16 in 1,000 natives die?—Yes.

5746. Is that, in your opinion, a correct statement of the mortality among the native troops?—No, I do not think it is.

5747. What is the fallacy that you perceive, if any, in that statement?—There are several. The chief one is, that a man who has not served a sufficient length of time for a pension, if very sick, and if the sickness be of such a kind to make it practicable to grant him leave, applies for leave to go home, and he goes home, where he dies from the effects of disease which he had contracted with his regiment; such a case is not brought into the mortality register.

5748. Do you feel certain that such a case as that is not reported?—Quite certain; three or four cases of the kind occurred in my own regiment. I waited upon the superintending surgeon, and asked him if I was to introduce those cases into my mortality register, when I heard of their deaths, and he directed me not to do so, as those men died away from the regiment, and not in hospital: they were ultimately struck off the rolls of the regiment from overstaying their leave.

5749. (Sir R. Martin.) A record of that kind is merely kept for military purposes?—Yes; it is not a record of deaths. It became accidentally known to me that these men died. One man died within five or six miles of the station. I rode out to see him, and tried to persuade him to come in again, but he would not; he preferred dying on the spot.

5750. When these men join a regiment, do they undergo any examination?—Yes; they are very carefully examined. The supply of recruits was unlimited, consequently all physical blemishes and defects were carefully examined into, and most of the commanding officers endeavoured to select the finest, the strongest, the healthiest, and the handsomest fellows they could get; the supply was practically unlimited.

5751. Are they always examined by a surgeon?—They are invariably most strictly examined by a surgeon.

5752. Are the Sepoys fine healthy-looking men when they join a regiment?—No; they are at first rather lean and hungry-looking; but the improvement in the physical condition of a Sepoy when he once gets upon pay is remarkable.

5753. What length of time have they to serve before they become entitled to a pension?—I am not aware of what it is at present; they used to enlist for a short time, seven years, I think; a part of the army enlisted in order to become acquainted with their duties, and then to enter the service of neighbouring princes.

5754. Is there any limit to the time within which they are not entitled to a pension?—Undoubtedly. I have not the regulations at hand to refer to, and I do not know exactly the period of service that is necessary, but it is a very long period.

5755. The wife becomes entitled to a pension, does she not?—Under some circumstances she does. For example, if a man is killed in battle, or he has served the full length of time to entitle him to a pension; but if he should die from natural causes within the limit of time for which he would become entitled to a pension, she would get nothing.

5756. Practically, do the men remain long in the service?—The old class of Sepoys used to remain a considerable length of time in the service; it had become almost a hereditary profession with them, and the facility of replacing them was so great that very few inquiries were made after deserters; and if they became discontented with a regiment, they left it.

5757. If they become ill, are they discharged?—Not necessarily. There are regular medical committees held; the commanding officer cannot discharge them. There are special invaliding committees before which they appear, and the proceedings are conducted with great care and attention.

5758. For what diseases chiefly are the men invalided?—Rheumatism is one; and among the Sikhs I suspect that syphilis is the most prevailing cause; they are eaten up with it, worse even than the European soldiers. Among the Hindoo Sepoys it does not prevail to the same extent. The Mahomedans also suffer from it; but rheumatism, the sequelæ of fevers, the effects of dysentery, and various internal organic affections, are the diseases which usually cause invaliding.

5759. Is consumption a common disease among them?—There are so few *post mortem* examinations made that the fact is not generally ascertained; but I believe that consumption is more rife amongst them than has been established by actual examination of the bodies after death.

5760. In the cases where the men go home and die, and do not appear in the returns, what kind of diseases do they chiefly suffer from?—Chiefly from the sequelæ of fevers, and a curious kind of atrophy, or wasting away of all the tissues. Without any actual apparent tangible or specific disease, they waste away, and become the most extraordinary living skeletons. I never saw human beings with so great a tenacity of life, and so little flesh upon their bones; they were ultimately nothing but skin and bone.

5761. Cholera and fevers either kill them immediately or they recover from them, I presume?—Yes.

5762. But chronic diseases of that character would last so long that a man would be sent home, and probably die, and not appear in the returns?—The fact is that very many of the men do die at home, and all Hindoos prefer dying, if practicable, at some holy place, or on the banks of any of the sacred rivers.

5763. What allowance, in your opinion, is it necessary to make for that; how much, for example, would you add to the 16 per 1,000?—I think it would more than double that number. I believe that when they are serving in foreign countries the mortality among native troops is quite as great as among Europeans.

5764. That mortality would appear, I suppose, in the returns?—Yes.

5765. And does appear?—Yes; but a great part of the mortality that occurs under other circum-

stances, so far as I know, never finds its way into the returns, or at least it used not to do so; it may more recently have done so.

5766. After proper allowance has been made for that, still the mortality among those men would be much lower than the mortality among the Europeans?—Not so much so if they remained as the Europeans in India do until they die, or are eliminated by invaliding.

5767. If you raise the mortality from 16 to 30 per 1,000 that would not be half so high as the mortality among the Europeans?—But then you should add to that the number discharged by invaliding as unfit for service, and who die from the effects of diseases acquired while they are doing duty as soldiers.

5768. Upon the whole therefore you would say that they do not suffer to the same extent from disease as European soldiers do?—In ordinary circumstances, they do not.

5769. To what circumstance do you attribute that?—That they are serving in a tropical climate, which is their own native climate; that they bear exposure to heat better; that, as a body, they are certainly more sober; and that they suffer very much less from accidents, injuries, and acute inflammations of any kind; inflammation runs a very mild course with them.

5770. In some respects they are not so favourably circumstanced; for example, I suppose they are not so well fed?—According to our notions they are never so well fed as the European soldier is.

5771. What is their pay as compared with the pay of the European soldier?—I think it is about one-third of the pay of the European soldier.

5772. But the native does not get meat, does he?—He can buy it.

5773. But he does not?—If a Hindoo, he generally does not. The Mahomedan buys meat; the lower classes certainly live upon meat. The Mughs and Burmese invariably do, and upon fish.

5774. In the upper provinces they get flour, do they not?—Yes, and vegetables, milk, ghee, spices of various kinds, and sugar.

5775. Is the diet of the native soldiers well regulated?—Yes, amongst those who have not expensive families to support; many of them are in capital physical condition.

5776. Have they sufficient means to support themselves and their families?—In the Madras army they appear to have sufficient; they have an allowance there both for women and children.

5777. Would not some advantage be gained if they lived separately in huts, so that when epidemic diseases prevailed they should not be spread through large rooms or wards?—As a sanitary measure possibly it might be so; but as a measure of discipline it entirely prevents the European officers from getting at a knowledge of anything that is occurring, for they can concoct anything under the sun, under the very noses of their officers, who may otherwise be looking very strictly after them; the native lines are a perfect *Alsatia*.

5778. If the huts were put in a good sanitary condition, and the dirt removed, would it not be an advantage that the men should live in separate huts rather than in large barrack rooms?—I do not see that in a sanitary point of view. If they had sufficient space, and the barracks were properly constructed, and were well ventilated, I should prefer placing the single men in barracks, both on the ground of discipline and on the ground of health. I do not think that they would suffer, as they are exposed to very few contagious diseases.

5779. At the present time the cubic space in a hut per man is very small, is it not?—That depends upon the penuriousness of the man; it may be a place just capable of containing him, while another man may have comparatively a magnificent hut.

5780. (*Dr. Farr.*) What proportion of the men are married?—We know very little about their domestic economy; in India generally you may safely assume that every native is married.

5781. Does syphilis prevail to a large extent?—

Among the Sikhs to an enormous extent; they do not carry their families with them; they are just as gregarious in their amours as the British soldier, and in that way one woman who is popular among them, may affect a whole company.

5782. Is there any communication between the native lines and the European troops?—None whatever.

5783. Or in the field?—There they are not in lines, they are in tents; but they do not mix much together. The best known example of the contrary occurred at Jellahabad, where the men of the 13th light infantry and 35th native infantry fraternized entirely together.

5784. I suppose they would obtain their water from the same sources?—The water is always brought to the European soldier.

5785. But they would have it from the same source as the natives?—Yes.

5786. And if the water were infected by one class of troops it might injure the other?—Yes.

5787. (*Dr. Gibson.*) Do the natives use latrines and urinals?—None whatever; they are like the Israelites of old, they go and deposit their excretæ on the plain; but they do not bury it as the Israelites did.

5788. And that gets washed into the tanks, does it not, when the rain falls?—Yes; a heavy shower of rain washes down all soluble matters through the natural percolation of the soil, and it must find its way to the tanks.

5789. (*Chairman.*) Is the evil you have described a remediable one in your opinion?—No; I do not think that any compulsion would, in ordinary circumstances, make them go to a latrine. I know of no instance, except in Fort William, and there they did it; but the latrine was placed over the fort ditch, and it became a source of the utmost abomination. I was appointed a member of a committee to examine into the sanitary state of that fort, and the ditch was most filthy; it was a reeking and abominable sewer for the deposit of all the faecal matter of the garrison, and this ditch surrounded Fort William in every direction; but there they were obliged to go to the latrines, because the police would apprehend them, and they were punished if they went on to the plain. They likewise defecate when they go to bathe in the river, and pollute the water, although there is a strict rule among themselves that they are not to do so in the tanks in which they bathe.

5790. (*Dr. Farr.*) You have made some reports upon the diseases and mortality among the prisoners in India?—Several.

5791. What is the rate of mortality among the prisoners who are admitted in a healthy state?—Those who are admitted in a good state of health enjoy fair average health; but they are, generally speaking, a very dissipated class, and extremely sickly.

5792. What is the rate of mortality among the prisoners who are in confinement now?—Last year I am afraid it has averaged 12 per cent. upon the average number who were in custody in Bengal.

5793. Can you furnish the Commission with any information about the rate of mortality among the native populations in the villages?—There is very little known that is reliable.

5794. Is the rate of mortality among them higher than it is in Europe?—In some districts it undoubtedly is.

5795. (*Sir R. Martin.*) In damp malarious districts, for instance?—There the population is sickly and unhealthy; you cannot go through such a district without noticing the anæmic and emaciated appearance of the people.

5796. It differs very much, does it not, in different parts of the country?—It does.

5797. Are not the most elevated districts the healthiest?—Certainly; in the Punjab, in Oude, and in Rohilcund is a very fine population. In some parts of Lower Bengal also the people are in good case.

5798. (*Dr. Gibson.*) The natives deteriorate, do they not, when they are transported from one dis-

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strict to another?—They deteriorate very much indeed.

5799. If they go, for example, from a hot climate to a cold one?—Yes; in that case a native soldier is useless; he becomes half torpid in a state of cold; he wraps up his head to protect himself from the cold, and, as a sentry, is then utterly worthless.

5800. What diseases are produced by exposure to the cold?—On the retreat from Cabul a large number of the natives of India lost the use of their hands and feet from the cold, and they were much more subject to frost bites than the other men, and also to internal congestions. They are accustomed to oil the surface of the body, which they could not do under such circumstances, and local congestions were caused, chiefly of the lungs; they also suffered from abdominal diseases; rheumatism was also very frequent amongst them in such cases.

5801. You stated that a barrack had been constructed in which the native troops were quartered without any objection on their part?—Yes; I did not hear of their raising any great objection to it. That was at Dorundah, one of the stations at which the local battalion which had been there had mutinied, and these men were placed in barracks which were built in a healthy part of the station, but they were not, in my opinion, properly constructed.

5802. Were they built in the same way as European barracks are built?—Yes; very much like those that are built at Hazareebagh now, with pent tiled roofs, and tiled floors, to which the natives have a great objection, for they prefer mud and clay floors, and for them those floors are more healthy, I believe, than tiled, or brick, or stone floors, especially where the natives sleep on the ground.

5803. Were the barracks to which you refer occupied by one regiment or by more?—They were occupied, I think, by three regiments in succession which went to that station.

5804. What was the result in that case?—There was no unusual sickness or mortality among them that I heard of. I was at the station at the time that the Inspector-General of Hospitals made his visit, and I went round with him; the men seem to be healthy.

5805. Did they appear to be more healthy than if they were in their own lines?—Not more so, but I should say very much the same; there was a good average standard of health among them.

5806. (*Chairman.*) Is there anything which it occurs to you to suggest in addition to what you have already told us with respect to the native troops?—I do not know exactly in what way you could improve their present condition; they are well paid and well clothed, and, for their own purposes, well-fed,

The witness withdrew.

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Dr. GEORGE CHARLES WALLICH, Bengal Army, retired, examined.

5812. (*Chairman.*) You have served, I believe, for 16 or 17 years in Bengal?—I have served for nearly 17 years.

5813. Has your service been chiefly with native troops?—Yes.

5814. At what stations have you been?—I have been at a great number of stations; the chief ones were Barrackpore, Berhampore, Ferozepore, Loodiana, Kurnool, and Meerut; I have been both in Lower Bengal and in the Upper provinces.

5815. You have served over the greater part of the Bengal presidency including the north-west?—Yes, and at one station in Central India.

5816. Have you had, during your service, ample opportunities of observing the sanitary condition of the native troops generally?—Yes.

5817. For example, with regard to the manner in which they are quartered at the permanent stations?—Yes.

5818. The Commission have been informed that the natives build their own huts, receiving some assistance from the Government for that purpose, but that there is no great interference on the part of

and when discipline is strict, they are undoubtedly well-behaved. I do not think it is possible to improve the condition of the Sepoy; I know that it was Lord Dalhousie's opinion that they had every possible advantage given to them in the shape of pay and pension, and indulgencies of every sort, and this I also believe. They are better paid and better off than the same classes of the civil population. I certainly think it is necessary that their officers should be acquainted with their language, and with their manners and customs, and that they should be men who would be content to serve with natives, and take an interest in them, for unless they manage to make themselves personally liked by them, the bond of obedience is slight, and in that case any relaxation of discipline would be accompanied by an absence of cleanliness, and of all those conditions which are essential to a high standard of health.

5807. (*Sir R. Martin.*) The native soldier always looks to the individual officer, and never to a Department?—Yes, he always did so in the old regiments before all power was concentrated in the Adjutant General's office; the colonel then was the father of the regiment, and every one of the officers more or less associated with the men, and remained with them, and there was nothing on service that those men would not do for their officers.

5808. (*Dr. Gibson.*) What are the feelings of the natives towards the medical officers?—One of very great gratitude to those who are attentive and kind to them; but if a medical man is careless and inattentive, nobody will go near him if he can help it.

5809. Are the natives generally treated by European medical officers?—It is generally so in the regular corps; in the irregular corps they prefer being treated in their own lines in the huts. If the case is a severe one, the men go to the regimental hospitals. In the lines the native doctor treats them. In very severe attacks of disease, and in all surgical cases, they themselves prefer the European medical officer, in whose skill and remedies they usually have great confidence. This is always the case where the European surgeon does his own work, and does not leave his men too much in the hands of native doctors.

5810. (*Sir R. Martin.*) Generally speaking, you would say that their feeling is of the most kindly nature towards the surgeon?—Until the mutiny, I certainly should have said so, but at that time the medical officers suffered just as much as the other officers; the medical officer is generally very well liked, if he takes the slightest care of his men; he does not come in contact with them upon any question of discipline.

5811. (*Chairman.*) His business is to afford relief, and not to inflict punishment?—It is so.

the Government to compel them to observe any sanitary rules in building them, and that drainage is very much neglected?—Drainage is completely neglected; the huts are very much huddled together, but drainage is utterly disregarded; ventilation is not properly attended to; and, in the rains, from want of drainage much inconvenience must be felt. In many of the stations the Sepoys rather encourage the growth of jungle round their very doors, and in Barrackpore I have seen large quantities of jungle, which was quite sufficient to stop any ventilation, growing up round their huts; the jungle consists of high grass and bushes, which they plant.

5819. Is that done for the sake of obtaining shelter or for what purpose?—I do not know that it is done for the sake of shelter, because it is not high enough for shelter, but it is sufficiently high to obstruct the circulation of air; the doors of the huts are also very low, and the men have to creep into them. The jungle is quite sufficient to obstruct all due circulation of air.

5820. I presume that the general outline of a station to be occupied by native lines is marked out

by the officers?—Yes, the general outline is marked out by them, but the rest is almost entirely left to the natives themselves.

5821. Roads I suppose are carried through?—Yes, there are certain lines of road running between them for each company, but the arrangement of the huts is left very much to the men themselves; in fact it depends chiefly upon how much a man chooses to lay out upon his hut.

5822. Is there for every man, or for every set of men, a certain amount of space assigned?—I think there is.

5823. For instance, for every company?—Yes, there is, generally for the average number.

5824. The huts are not placed at regular intervals, are they?—Very often they are not, but lately they have been more regularly built.

5825. Does the Government exercise any control over the choice of the materials and the amount of space that is allowed: the number of cubic feet?—I do not think it does; the men can only get one set of materials, the bamboo and the straw, with a little mud put over it at times.

5826. Are these huts, for the most part, of a permanent character?—No, they require renewal after a few years; they are left by one regiment, and then the next regiment that comes in takes them up. They are very slenderly built, merely bamboo with matting. They are of no value; I suppose that a hut does not cost above two rupees. The men sleep generally, except in the rains, outside; if they can possibly do it they have their bedsteads outside.

5827. Do you think that in that respect any improvement is possible, or that it would be objected to on the part of the men?—I think that the objection ought not to be allowed. And in the same way with diet; in all cases with native troops, when treating them medically, it is an absolute farce not to exercise some kind of control over their diet while they are sick.

5828. Do you suppose that it would be possible to induce them to live in barracks after the manner of the European troops?—I think it would be quite possible. I think that hitherto they have not done it because we have allowed them to do so much as they chose; but I do not think that they would object to it under certain restrictions, such as could easily be understood.

5829. Do you speak upon this subject from any experience that you have had?—Yes, I know that they did not object to go, during an unhealthy season at Berhampore, into European barracks, indeed they were very glad to do it.

5830. The Commissioners understand that in the Bengal service there is not a very large proportion of the men who have their families with them, but that in Madras and Bombay the number is great?—I believe so.

5831. Assuming that it were possible to keep the lines in good sanitary order, do you think that that is a more unhealthy mode of life than the soldier's life in barracks?—I should say so, certainly.

5832. Do you think that there is no increased liability to disease when several hundred men are placed in close proximity to each other?—I think not with proper ventilation.

5833. Are not epidemics more liable to spread?—Not if the ventilation is properly attended to; indeed, I should think less so than in the low huts.

5834. Except that it suits the habits and prejudices of the men, you do not think that there is any advantage in the system of hutting?—No.

5835. (*Sir R. Martin.*) Altogether, you would give a preference to permanent barracks after the European fashion?—Yes, with certain modifications, in order to suit the natives.

5836. (*Chairman.*) If that were impossible, do you think that much could be done in the way of improving the condition of the native lines?—I think that a great deal might be done in all our stations, both in the selection of localities and in drainage, and in the water supply; more especially, an improvement might be made in the quality of the water which they use chiefly in Lower Bengal, and also in the Upper

provinces, but not to so great an extent, for cooking purposes.

5837. Does the water come from tanks?—It does, chiefly.

5838. Are impurities to be found in the water that comes from those tanks?—A great quantity. At Barrackpore one or two of the tanks were kept for drinking purposes; but during the rains, from percolation and the overflowing of the water, impurities are washed into the tanks.

5839. What remedy do you see for that state of things?—There is very little, I think; it is difficult to offer any opinion upon the subject. I refer to very minute particles of decaying vegetable matter that are floating about, and which are carried into the water, and produce disease. It has been hitherto thought that malaria results from impalpable or gaseous matters, but I believe these matters have a palpable nature, which may, in time, be traced under the microscope; and these minute matters are washed into the tanks. You cannot take up any portion of the mud that has been overflowed after the rains without finding that on the surface it is one mass of minute plants and minute animals. Although the surface looks quite like ordinary fine mould, it is not so; and I believe that these causes of miasmata may become quite palpable under the microscope.

5840. (*Dr. Farr.*) The water, you think, is charged with organic matter?—Completely so. I do not speak upon this subject merely as a matter of supposition, for at Berhampore there are large and splendid barracks, but they are placed in the midst of a series of tanks, and with respect to those tanks I have reported that they were charged with vegetable matter, but the answer was that this vegetable matter was cut down and cleared away with large rakes as soon as it grew up. But it is not this larger kind of growth; it is the water that is charged with the minute particles I have described. In one part of Berhampore the unhealthiness is so great that the Europeans will not live in it. One house has the name of fever hall, and, as certainly as anyone goes to live in it, he takes fever. Although the water appears to be perfectly clear all round the station, yet during the rains the country is inundated, and the whole of these minute particles are washed in, and the soil is left to dry up after the rains, which produces miasmata.

5841. You have known cases in which you thought you could trace disease to the water?—Yes.

5842. That was the vegetable matter, but do you not think that animal matter may also cause disease?—Yes; most certainly.

5843. What diseases do you refer to?—I refer to fevers, dysentery, and cholera. Many minute organisms heretofore considered minute animals, are minute plants; but they have hitherto been considered as animals.

5844. You have, I believe, paid a great deal of attention to minute botany?—Yes.

5845. You cannot refer these diseases to any particular form of vegetation or animal life?—No; the reason why I mention it is this, that although the whole subject is, in my opinion, completely in its infancy, with regard to the attack of cholera up in the north-west provinces of which we have heard, we shall know nothing about the cause unless we begin with something tangible, and I believe that what I have mentioned is the small end of the wedge.

5846. Would you recommend that the water used in India by the troops should be carefully examined by the microscope?—No; I do not venture to recommend that, although no doubt such an examination, in India more especially, would be fraught with beneficial results. I should collect the rain water and have it stored away. I think that that would have a great effect in preventing a great deal of disease in Bengal. The thing would be perfectly easy, because the quantity of rain that falls is so great that a quantity might be collected which would be quite sufficient for the largest garrison, and I should store it away in iron tanks.

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5847. Covered tanks?—Yes, they should be carefully covered, and the water should be collected in open spaces, away from jungle of any kind.

5848. How would you bring the water down to the stations?—There are plenty of open spaces to collect it in. A few miles of extent would be sufficient for the purpose.

5849. The water, I presume, differs in character according to the soil, and it is purer on the high grounds than on the alluvial plains?—Yes, at Ranee-gunge, for instance, the water is very pure in certain places, where there is a hard iron soil, but, below in the hollows, where there is a great quantity of mould, the water is not so pure, and I know that it is surcharged with minute particles of living vegetable matter.

5850. Do you think that we know enough now of the effects of these elements to justify us in saying that the Government should incur considerable expense in supplying the troops with pure water?—Certainly.

5851. Which water could always be obtained in the ordinary seasons?—Yes; I cannot venture to say absolutely that these minute matters produce diseases but I think that we are justified in inferring that they do, in the absence of any other known cause; we talk of malaria, but we do not know what it is.

5852. A theory was started before this Commission of this kind, that these plants rather purify the water by disengaging the oxygen, in your opinion is that so?—No, it has been only very recently, within the last two years, that a number of very remarkable facts have come to light. Most of the scums and films resting on stagnant waters and damp surfaces generally which we see in this country and all over the world are actually derived from these minute living plants that I have been speaking of; they go on propagating, and thus repeating themselves for a certain number of generations, possibly for years; but at a certain time, and under certain conditions, an alteration takes place in the series of phases of development, and I think it is very probable that under certain conditions, of which we know nothing now, these same little organisms affect the human body, while at other times they would not affect it.

5853. Do you mean in some of their transformations?—Yes.

5854. When passing into a state of decay?—Yes, or, more correctly speaking, during the various changes they undergo.

5855. (Dr. Gibson.) Independently of that, the habits of the natives, who defecate all over the surface of the country, must necessarily cause the water in the tanks to become impure?—Yes, it is so; in point of fact the natives have no idea of taking sanitary precautions. For instance, a man will eat and drink and perform his evacuations actually on the very same foot of water, standing in it, or close to it; he has no idea of impurity as long as it happens to be Ganges water.

5856. The European troops and also the native troops drink the water from these tanks?—Yes; there is nothing else for them, and the same causes will operate with Europeans in an increased degree.

5857. (Chairman.) Would not the practice of filtering the water be an effectual remedy for its impurities?—Yes; but it would be difficult, I think, to do that upon a sufficiently large scale.

5858. Would that be more costly than storing up rain water?—Yes, I think it would. At Barrack-pore there is no other water but that which is taken from the tanks; it is pure looking water that you get from one particular tank; it is clean, but it is nevertheless full of living vegetable matter.

5859. (Dr. Gibson.) Do you think that filtration alone would so purify the water as to make it safe to drink it?—Continued boiling would perhaps be the greatest safeguard; but many of those lower organisms will stand an immense amount of heat, and then when they are placed under circumstances which are favourable to germination they will grow again.

5860. (Dr. Farr.) Are there any circumstances

that, in your opinion, would explain the different rates of mortality among the native troops and the European troops, as connected with the water supply?—I think that the climate, the water, and the peculiar mode of life taken together, are sufficient to account for the great rate of mortality among Europeans.

5861. Do you happen to know the rate of mortality among the native troops?—No, not as an average; it varies so much.

5862. Have you made any calculations upon the subject?—Yes, but it is four years since I was in the country.

5863. In your experience what diseases chiefly prevail among the natives?—Dysentery, fevers, cholera, and rheumatism; the three first are the chief fatal diseases, and these I think will eventually be traced to impurities in the water.

5864. Have you reason to believe that we get in the returns an account of all the deaths which might be considered fairly returnable in a regiment?—Yes; certainly.

5865. Is it not the practice to send the men home when they become ill?—Yes.

5866. Is that done to so large an extent that men are sent away who may die at home?—Yes, and I have protested against the practice of sending men away, because they are so sick that cure appears improbable.

5867. What are the diseases generally from which they suffer?—Chronic dysentery and fevers.

5868. You do not mean acute fevers?—No; they do not send men away in that state; but I have seen men sent to their homes when they have been hardly able to crawl, and a couple of men have been told off to escort them.

5869. After they have been suffering from ague, for instance?—Yes, or general debility. It is often the case, that when it appears they are beyond cure they are sent away.

5870. When the homes of the men are very distant what is done then?—Still they go away; it is their great craving; they themselves desire it.

5871. Do you know what term of service is required before they become entitled to a pension?—I really do not know that; but the rate of pension depends upon the period of service.

5872. Do they remain long in a regiment generally, or do they pass through it quickly?—Some of them will remain for 20 or 30 years. In the majority of cases the natives do not seem to suffer from long service.

5873. Does consumption prevail much among them?—Not much.

5874. Have you had many to treat for syphilis?—Yes, in some stations; but all that depends upon the bazaars; in Lahore and in Meerut there is a great amount of syphilis.

5875. Are many of the men married?—They are married, but very few of them have their families with them; a great many of them have women in the bazaars.

5876. Not living in the huts with them?—Never, I believe.

5877. That is not the case among any class of native troops?—I have never seen them; certainly not among the higher orders of them, and I do not know of any case.

5878. It is not so common as to make any very great distinction between them and the European troops in that respect?—It is about the same; very few of them have their wives and families with them; they leave them at their villages.

5879. What would you suggest as the most likely way of diminishing the diseases which are prevalent among the natives?—I should recommend great care to be taken in the selection of cantonments, proper attention being paid to ventilation and drainage, and some limitation as to diet. When the men are maintained in hospital at a great expense to the Government, besides the loss of their services, they are getting medicine from the surgeon, whilst they are at the same time completely at liberty to adopt any diet which they

choose. I remember a very marked case of a man who was under my care. I was sure that he was indulging in free diet, and I happened to pass by when the men were eating their dinner, and I saw an immense pile prepared which this man was going to eat. I let him eat it, but immediately afterwards I gave him a violent emetic. This man was taking quinine at the time, and suffering from a most obstinate fever; but there I saw an amount of food which it was even difficult to believe that a healthy man could devour.

5880. (*Chairman.*) This arises, does it not, from the system of placing men in huts?—The men are allowed to eat their dinner outside the hospital; this man was a sick man.

5881. (*Dr. Farr.*) The Government allows a sick man to be supplied with expensive drugs, but gives you no control over his diet?—Yes.

5882. And there is very little control over their huts?—None whatever; there is no control. It is the duty of the medical man to report what he sees; but, unless the officer commanding the station has some fund at his disposal for the purpose of effecting alterations, it is of no use; the reports cannot be attended to.

5883. Then in that case you have no power of preventing disease?—None whatever.

5884. You have only power to give them drugs when they are sick?—Yes.

5885. You have no power to do anything else?—No; you may represent a thing, but it has been so much the custom to give in to all their prejudices, that no one would meddle with them.

5886. Very strict rules have been laid down for the guidance of European troops, and it is seen that they are strictly carried out?—Yes; but the natives are invulnerable.

5887. Is there anything in caste that would prevent such interference as was necessary for a man's good?—I think it is one of those cases in which it becomes a matter of humanity and of right to insist upon it.

5888. Do you think the Government, if they were to do so, could then get as many men as were required for the service?—If they made it known that they would not take men except under those conditions, I am sure that they would soon get over it, except, perhaps, in the case of the high caste men.

5889. You have mentioned several stations; what stations do you think should be selected by preference, if the Government had the power to place the native troops where it chose; ought they to be placed upon the low or upon the high grounds?—Most certainly upon the high grounds, without following the too general custom of selecting a post, because there is not the vestige of a tree near it, for trees are beneficial instead of being otherwise, as long as they have not got a thick underwood beneath them.

5890. By whom are the stations selected?—Generally by committees, but a station is generally chosen in a military point of view; it is merely a choice between one half mile of ground and another.

5891. Has the medical officer anything to say to that?—Very little indeed officially.

5892. Has he to give his opinion in writing on the eligibility of a station?—He has to sign the papers of the committee, but not to give his opinion in writing; he may protest if he likes, but he is overruled.

5893. Is the selection of stations not made so as expressly to secure the health of the men, but generally rather for military reasons?—I think for the latter, and it is very difficult to do it entirely with regard to sanitary considerations, though a great deal might be done no doubt.

5894. Sanitary considerations have not hitherto been thought so much of as you think they ought to be?—I think not.

5895. You have no control, have you, over the clothing of the men?—None whatever; all regimental clothing is laid down by rule, but out of the cantonment they may do whatever they like; in fact they very seldom wear anything except a small piece of cloth round them.

5896. (*Chairman.*) Do you think it is possible or expedient to interfere more than the authorities do at present with the personal habits of the natives?—I think that when the services of the men are purchased at a very high rate, the Government are perfectly justified in exacting those services to the greatest possible extent, and where you do not do a man any harm or wound his religious feelings. I do not think that a man would object to measures of sanitary precaution, for instance, living in barracks, or a particular limitation as to diet, if he knew that the Government was determined not to employ men who would object to being so treated.

5897. As a rule the native troops are very sober, are they not?—They are very sober.

5898. With the exception of the Sikhs?—Quite so; a great many of them eat opium and bang, which is Indian hemp; but very few of them drink.

5899. I take it, as a general conclusion from what you have said, that you think that the worst evil in the native lines is the impure quality of the water supply?—Yes; and that the lines are badly arranged.

5900. There is a great want of sufficient drainage?—Yes; and also a want of ventilation.

5901. Is there any suggestion that you would like to offer with regard to the sanitary condition either of the native or European troops?—I think that a good deal might be done to improve the condition of the European troops in India by preventive measures, such as giving them quinine, when they are still in barracks or not actually in hospital. By having inspections so that when the medical officer thinks that a man is likely to become sick he should use preventive measures. I am sure that diseases, such as fever, cholera, and dysentery, do not attack a man unless he is in a particular condition of body, unless he is already out of order. I think that a great many precautions might be taken in India to prevent disease by treating men before they are actually attacked by it. I think that that could be done by more careful inspections of European troops, for you constantly see men who have been for a long time looking unhealthy, flaccid, and pale, but they do not come into hospital, and those are the men who have these attacks.

5902. What kind of preventive measures would you suggest?—I think that by giving one or two doses of ordinary medicine you may frequently prevent a man from being attacked by disease, or when his system is out of tone by giving him quinine, which is one of the most valuable preventives that can be used in India, not only as against the one or two specific diseases, but against other diseases.

5903. Is not that in the power of the medical officer of a regiment now?—Yes; but it is not done; in the first place quinine is a very expensive medicine, and a man cannot step out of his way to do what no one else has done.

5904. (*Dr. Gibson.*) In fact, it would be necessary to introduce some system to make your suggestion generally useful; what would you recommend?—I would suggest weekly inspections for the purpose of picking out the men who were not actually ill, but men who seemed to have a tendency to become ill.

5905. Are not inspections made weekly?—Yes; but that is chiefly for syphilis; if you see a man who is really ill enough for hospital, he is picked out.

5906. Do you think that a weekly inspection would be sufficient for the purpose?—I think so, especially if the men were encouraged to say when they felt themselves slightly ill during unhealthy seasons or the continuance of epidemic diseases.

5907. Soldiers are not very much disposed to do that?—No.

5908. Would not a daily inspection interfere with the duties generally?—Yes.

5909. If a man is taken ill on a Monday morning, and he is not seen till the Saturday following, one would think that a weekly inspection would not be sufficient?—No, but a man is sometimes for weeks and months not well; he loses his appetite, he feels

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listless and heavy, and he gets an attack of disease, which he probably would not have if his symptoms were earlier attended to, and he was treated as I have suggested.

5910. Would you take those men into hospital, or excuse them from duty?—No, I would merely give them a dose or two of medicine, and perhaps relieve them from duty for one day, while under the operation of the medicine.

5911. But would a single dose of medicine, do you think, be sufficient to restore a man to health?—I am talking only as to a man being excused from duty.

5912. (*Chairman.*) You have pointed out that the military system only recognizes a man being either well or ill?—Yes.

5913. And that it often happens that a man without being positively ill is unwell and predisposed to illness, and that if the medical officer would deal with him in that state it might prevent his being attacked with illness?—Yes.

5914. You also suggest that a man should be encouraged to apply more often than he does now to the medical officer?—Yes.

5915. (*Dr. Farr.*) And you would treat him out of hospital?—Yes.

5916. That would be a novelty, would it not?—Yes.

5917. Do you see any objection to treating certain diseases out of hospital?—You could not treat disease in this manner. It is not disease that I mean when

you allow a man medicine and his diet is restricted; I merely allude to having the power of encouraging a man to come to you when he feels slightly ill, and to give him in such cases slight doses of medicine, without sending him into hospital or exempting him from all duty.

5918. Have you paid much attention to cholera?—Yes; I have seen most serious outbreaks of cholera.

5919. Is it preceded, in India, by premonitory diarrhoea?—I think that it generally attacks men who are predisposed. You cannot tell what it originates from; but a healthy man is not generally attacked with cholera, it is, generally speaking, the man who is out of sorts.

5920. And suffering from slight diarrhoea?—Yes, which merges into cholera. In cholera the only cases that are cured are those which are treated in the early stage.

5921. (*Dr. Gibson.*) In practice, is not that done?—Not often. The men have not an opportunity of coming in; they come into hospital after the first stage, which is often extremely short, and cholera cannot be treated successfully except in the first stage, it is so rapid.

5922. Do not the medical officers encourage the men to come when they feel at all indisposed?—Yes, and the men will come in when cholera is raging; during the prevalence of cholera it becomes doubly necessary to do so.

The witness withdrew.

Friday, 18th October 1861.

PRESENT:

THE RIGHT HON. LORD STANLEY, M.P., IN THE CHAIR.

Sir PROBY CAUTLEY, K.C.B.

Sir RANALD MARTIN, C.B., F.R.S.

J. B. GIBSON, Esq., C.B., M.D., D.G.A.M.D.

WILLIAM FARR, Esq., M.D., F.R.S., D.C.L.

Sergeant-Maj.
W. Walker.
18 Oct. 1861.

Sergeant-Major WILLIAM WALKER, 1st Battalion, 8th Regiment, examined.

5923. (*Chairman.*) How long have you served in India?—20 years.

5924. In what presidency have you served?—I have served in both the Bombay and Bengal presidencies, and also in South Arabia.

5925. At Aden?—Yes.

5926. In the course of your service have you had reason, at any time, to complain, or do you think there has been any inclination on the part of the soldiers to complain of the rations which have been supplied to them?—Not in the slightest degree; the soldier in India is better fed than he is in England.

5927. Does that remark apply to every station?—Yes, with the exception of when on field service. I have been speaking of garrison duty; the men then are better fed in India than they are in England. Of course, on field service they must put up with what they can get.

5928. Is there variety in their food?—Yes, they get roast, boiled, and baked, and altogether the different rations are far superior to what they get in England; I do not mean in the quality of the food, but it is far superior for the use of a man, because every soldier in England must confine himself, at the most, to two descriptions of food, either boiled meat or, if he chooses to pay for it, he may have a baked dinner; but every soldier in a company in India can order his own dinner to be prepared by the native cook, and the cook is bound to bring him that dinner; some get curry, some get baked meat, some get stews, and some get food of other descriptions; the soldier may make his choice of 20 different dinners.

5929. (*Sir R. Martin.*) Are fruits and vegetables abundant?—Very abundant.

5930. (*Dr. Farr.*) During your period of service has there been any improvement made in the diet of the soldier?—Yes, a great deal, especially with regard to the bread, which, when I first went to India, was of a very inferior description to what I found it to be afterwards.

5931. Has any improvement taken place in the

supply of vegetables?—They are much the same as they were, but since the cultivation of the English species of potato in the hilly part of Bengal and Bombay they have been able to supply the troops a great deal better than they used to be. The potato was considered a dainty 20 years ago in India, but now potatoes are served out to a regiment in plenty.

5932. Did you get vegetables in sufficient quantities at the earlier period of your service in India?—No; in the first period of my service in India I did not know what the potato was.

5933. Did you get vegetables at all?—We used to get carrots and pumpkins.

5934. Do you remember the date when the improvement was made in the diet of the soldier?—No; but I know this, that during the last 12 years in India the soldier has been liberally supplied with vegetables.

5935. Do you think that circumstance has had a good effect?—Yes.

5936. It has pleased the soldier?—Yes, and, in fact, the soldier has more vegetables supplied to him than he can make use of.

5937. With regard to the supply of liquor to the soldier, I believe beer is very abundantly supplied to him?—It is plentiful at every station, and of the best quality.

5938. Is it obtained at a moderate price?—Yes, the soldier can get it quite easily, and the price of beer is cheaper than it is in England; even reckoning the cost of carriage, it is only 3d. a quart, draught porter, which is issued to the troops; but the Government is at a certain loss by the sale of it.

5939. (*Chairman.*) Have you seen anything of experiments which have been made to brew beer in India?—No.

5940. You do not know how far the attempts have answered?—No; I know that there was a brewery 20 years ago in Poona, but it was kept by a man who had been a soldier; I forget his name now, but it failed to a great extent.

5941. (*Sir P. Cautley.*) Have you been at Meerut in the Upper provinces?—I have marched through that district, but I never lay there.

5942. You have never had any beer that was made at Mussourie and Landour?—Not that I am aware of, but I have drunk beer all over India almost.

5943. (*Dr. Farr.*) Do you mean beer that was made in India?—I will not be sure of that; I could not vouch for that; but I dare say that a great part of it was, although they palmed it off for English beer.

5944. (*Sir P. Cautley.*) The men do not complain of the quality of the beer, generally speaking, do they?—They do not; on the contrary, the men have always been perfectly satisfied with the supplies of ale. There is one thing that I may mention, that if the commanding officers of regiments did not take means to prevent even beer itself from being adulterated, there might be complaints made by the men, but which we have never had made in our regiment; but I have heard of complaints that have been made that the beer has been mixed with water, but it was drawn up in such a rapid manner, with perhaps 300 or 400 men coming for it as quickly as they could be served, the froth was on the beer, and the men would scarcely detect it, but if it was left to stand for a while, that would test its quality.

5945. (*Sir R. Martin.*) Does what you have stated apply to the beer which is supplied direct from the commissariat?—Yes, it applies to that; there is a non-commissioned officer who receives 5*l.* a month from the Government, in addition to his pay, to look after the canteen, and perform the duty of that particular situation; of course, if he is dishonest, and he might be to a certain extent; there is roguery in all trades, and if they are not looked after there are means of doing such a thing.

5946. (*Chairman.*) But I suppose that the men would very soon find it out?—Yes, and they would report it immediately, but upon the main question about the liquor, I have never heard any complaints made of the quality of the liquor that is supplied by the Government to the troops, and which is supplied at a reasonable price, the beer being cheaper than they could get it in England, and, if anything, of a better quality.

5947. What quantity of spirits is a soldier allowed to draw?—If he draws beer he is only allowed to draw one dram (speaking of the Bengal dram, there are 40 to a gallon); the liquor is made in one of the Government factories, and is of the best quality.

5948. (*Sir R. Martin.*) You speak of rum?—Yes.

5949. (*Chairman.*) May a soldier draw that one dram at any hour of the day?—No, he is not allowed to draw it until after 12 o'clock in the day; no spirits are allowed to be sold at any canteen or cantonment in India until after 12 o'clock. Should a man think proper to drink his quart of beer he is allowed one dram of spirits and no more.

5950. I suppose that means are taken to prevent a man from selling his dram of spirits to another?—Yes, he drinks it at the table in the canteen—he must have a pass from his commanding officer to take away one dram from the canteen, and if liquor is found in the possession of any soldier in India without a written pass from his commanding officer, he is immediately placed in confinement and called to account for it; neither is a civilian allowed to sell liquor to any soldier without a written authority from the officer commanding the station in which the civilian resides.

5951. (*Sir R. Martin.*) In the case of a man not consuming beer, how many drams is he permitted to have per day after 12 o'clock?—Two drams, one after 12 o'clock in the day and one at night.

5952. (*Chairman.*) Does any considerable quantity of liquor get smuggled into the stations?—There are instances in which it is smuggled in, but that is of the worst description; it kills many soldiers.

5953. From your experience do you think that there are a considerable number of men in every regiment who obtain smuggled liquor?—It used to be the case formerly, but recently the military police

have been brought to such perfection that it is almost impossible to smuggle a single glass of liquor into a station.

5954. (*Sir P. Cautley.*) But it is the fact, is it not, that they cannot prevent grog shops being established just on the outside of the cantonment?—The grog shops are there solely for the use of the natives; if a European soldier enters one of them he is immediately made a prisoner, and if a native is seen to sell one drop of grog, or to give one drop of grog to a soldier, he becomes immediately liable to a very heavy penalty; one that would ruin him for a year.

5955. I presume that the soldiers are allowed to go out of the cantonment?—They are allowed to walk about the cantonment to a certain extent, the same as at Aldershot, but he is not allowed to purchase spirits; there is such a strict injunction laid upon the natives that no merchant would even give a bottle of beer. For example, in my rank, he could not give me a bottle of beer without I had permission to purchase it; the orders are very stringent in India about that. I know that in the time of the late Sir Charles Napier the canteen regulations were altered; they used at that time to be kept open from daylight in the morning till tattoo in the evening, but you were only supposed to obtain a certain quantity of liquor, but then you had the whole day to get it in; a man would, perhaps, get one or two glasses of grog before his breakfast, and Sir Charles Napier stopped those morning drams altogether, and since that time, in the order that was issued, it is laid down that no soldier shall be allowed to take liquor of any description, more particularly spirits, before 12 o'clock in the day, and there has therefore been a great change in the system, but it caused men at first to run after contraband liquor, and that is of the worst description, and kills almost anyone who uses it for any length of time.

5956. But you say that although there are grog shops outside the cantonments, and although the soldiers are allowed to walk outside the cantonments still the police is so well maintained that you do not think any considerable number of men find their way into those shops?—I am convinced of it.

5957. (*Sir R. Martin.*) Do you refer to a military police or the ordinary police of the country under the direction of the magistrates?—The military police; the ordinary police of the country, the black police, would not dare to interfere with the men, they would be afraid; they might report to the magistrate that they had seen a soldier in one of those shops, and the magistrate might take notice of it, but they would not dare to lay hands on a soldier, or take him into custody; indeed there is a very strict order in India against anything of that sort in order to prevent collision between the troops and the natives.

5958. (*Chairman.*) It has been stated by some witnesses that it would be better if no spirits were issued to the men at all, and if nothing was given to them but beer: what is your opinion upon that point?—I do not think that that would do; speaking from long experience in India I do not think it would do at all, for there are some men with whom a glass of spirits would much better agree than drinking beer, and with others it would be just *vice versa*, and I therefore think that it would not be a good thing to do away with spirits altogether in India. I think it would still further drive the men to seek for it elsewhere.

5959. As far as your experience has gone you do not think that there is much excess or drunkenness among the men?—Not so much as there used to be.

5960. (*Dr. Farr.*) But still I presume that cases of drunkenness do occur in some regiments?—There is plenty of it every day in every regiment in India, and it will be the same as long as the British army is there; they obtain the liquor in the canteens through great neglect on the part of the non-commissioned officers, who frequently get punished for their neglect; the men get more than they are allowed by the commanding officer; he issues an order that a man may have so much supplied to him,

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and through either improper favour being shown to him, or certain neglect on the part of the non-commissioned officer, he obtains more than he ought to have. There is a rule of this kind, a man, should he be punished by the commanding officer, there is a mark placed opposite to his name, so that the sergeants shall know that he is a defaulter; the men come in by files, and there are two markers, one for each wing of a regiment, and when a man comes in he gives his name, or his regimental number, and the sergeant immediately looks to see if he is a defaulter, and if so he is confined at once for attempting to come there for liquor, he need not ask him whether he has been there before. If he is not a defaulter he gives him a mark for one glass, or a pint, and the man walks to the counter of the canteen, and a sergeant, or a servant under his superintendence, issues to the man the grog, or beer, and he is supposed to drink it himself; as soon as he drinks it he walks out; there is a non-commissioned officer and a sentry at each door, and a man must go round and again pass the sergeant before he can get any more, and the sergeant would be strictly responsible that he did not drink two glasses at once; so that it must be either neglect of the sergeant, erring intentionally by a gross neglect of his duty in allowing a man to go there, and have more than the regulated allowance, or else there might be one here and there who might mistake the name of a man, and do it in ignorance, or he might be one who was not well acquainted with every man in the regiment.

5961. Then cases of drunkenness do occur from neglects of that kind in the canteen?—Yes.

5962. And not from the soldier getting native spirits?—No. There is another thing that I wish to mention, that in the hot season of the year the soldiers are not allowed to go near the canteen until sundown; they are confined to the barrack room during that season, which lasts from about the month of May until October; during that time they are strictly confined to the barracks during mid-day, and a non-commissioned officer will go round to each company and collect the names of the men who require beer for their dinner; a man may put himself down for a quart of beer, and the money is collected at the same time from the men and handed over to the non-commissioned officer; he then goes with a written pass signed by the senior non-commissioned officer of the company to the canteen sergeant, draws the liquor, and brings it up to the barrack, and issues it to the men at the dinner hour; there may be men who get drunk in that way, because a man is allowed to take his quart away, and place it on the table and drink it with his dinner, and he may give his comrade a drink.

5963. (*Dr. Farr.*) Is a quart of beer considered equivalent to a dram of spirits?—Yes.

5964. Can a man have beer without any spirits?—If he drinks beer at all he can only have one dram, if he gets only one half pint of beer he can get only one dram of spirits.

5965. But he is not bound to have the dram at all, is he?—No; if he has it he pays for it, it is not served out as a ration; that practice is done away with now in India, and there is no such thing even on field service.

5966. What is the price of a dram of spirits?—Four pice, or one anna.

5967. How much beer can a man obtain for the money which he pays for a dram of spirits?—He pays six pice for a pint of beer, and three annas for a quart.

5968. Is it the fact that a great number of the punishments of the soldier are incurred by him for crimes committed in a state of intemperance?—Yes; a great many.

5969. Do you consider that a great portion of the crimes committed by the soldier in India may be referred to the use of intoxicating drinks?—Yes.

5970. (*Sir R. Martin.*) It used to be so in your earlier period of service, that much of the crime arose from drunkenness?—Fearfully so.

5971. But has not that greatly diminished lately?—Yes; crime has diminished in India more so than in England; there are fewer prisoners in India. In my regiment we had fewer prisoners in India than in England.

5972. With regard to the issue of spirits; if you began with a recruit, and gave him beer, might you not carry that on, and continue to issue beer to him throughout his course of service?—That would be forcing a thing upon some men that they would not like to put up with; they would not think it right; they would consider that as taking a liberty with them that they would not like, and they would obtain liquor elsewhere. If you could effectually prevent a man from getting what you deprived him of, that would be right enough; but it would be scarcely possible, I think, because there are such means through native servants and other people going about, that if they wished to get a glass of grog, they would have it in spite of all the authorities in the place; as long as they could leave their barrack-rooms, they would get it if they put their heads to work.

5973. You think, probably, that it is best to leave it as it is to the will of the men?—Yes, and to the discretion of the commanding officer.

5974. (*Dr. Farr.*) Suppose the men were supplied with tea, coffee, and wine, which they might purchase in the canteen, and spirits were suppressed, do you think the men would object to that?—The men, I am sure, would object to being deprived of the use of spirits, as a general thing.

5975. But they do not always drink spirits in England?—No.

5976. Then why should they wish for it in India?—I do not know; but they generally prefer a glass of spirits on certain occasions, and now more especially when the soldier generally gets used to it during the campaigns, and they require a stimulant of some kind after a long march, and during a fatiguing march, and during hard work. I know that in the late mutiny, during one 30 mile march, without any food, from Lucknow to Cawnpore, the troops got as much as two glasses of grog given to them, by order of the general commanding, to get them along.

5977. That, no doubt, on medical grounds, was an advantage to them, but if they were to be convinced that spirits were injurious to their health, and did them, upon the whole, harm, would they, do you think, object to the substitution of other drinks?—If they could be convinced of that, decidedly not.

5978. (*Sir R. Martin.*) Do not even sober men like to have the choice of getting a dram of spirits occasionally?—I am sure that they do; and I think that they would behave far better, if they thought that they were not deprived of it by force. I think, also, that it would be a good thing if meetings were held, at which the soldiers were invited to attend, and where the medical gentlemen would point out to them, in a plain manner, the errors arising from drinking in India, and give the soldiers a lucid explanation of the injurious consequences. That would be better than all the general orders that might be issued; the men generally might not go at first, but some few might go, and they would tell their comrades, and so it would pass on from one to another, and I think that that would be a very good way of bringing the men to consider their own safety, and of abstaining, to a certain extent, from drinking spirits.

5979. (*Dr. Gibson.*) Still you do not think it would be possible to convince the men of the injury they did themselves by the use of spirits?—I do not think you could; it might be possible to convince some men.

5980. (*Sir R. Martin.*) When men go into hospital sick from intemperance, does not the surgeon usually admonish them on the subject?—The surgeon reports the subject to the commanding officer, and the patient, when he comes out of the hospital, if he survives, is handed over to the commanding officer, to be dealt with by him, and he is then punished for tampering with his health. Any soldier who is pronounced by

the surgeon to be suffering from the effects of liquor, is considered a proper subject for the commanding officer to deal with, and that would appear against him; and when he is discharged, it will be a very serious bar to his obtaining a pension.

5981. (*Dr. Gibson.*) Does not the surgeon more frequently remonstrate with the man himself, rather than report him to the commanding officer?—Yes, I have known them many times to do that; but in a case of delirium tremens, which I was speaking of, the surgeon always enters the man as a prisoner at once.

5982. (*Chairman.*) Upon the whole, you do not think there is room for much improvement with regard to the canteen system?—I think there is not much room for improvement in the system that is pursued at the canteen, indeed I am sure that it could not be improved. I am speaking, of course, of my own regiment; I do not know exactly whether we do not differ from some other regiments; some regiments may work in a very different way in their canteens, but I am speaking of the 1st battalion of Her Majesty's 17th regiment, and the 1st battalion of the 8th.

5983. (*Dr. Farr.*) Who were your commanding officers in those regiments?—My commanding officer in the 17th Regiment was the late Lieutenant-Colonel Pennicuck, who was killed at the battle of Chillianwallah, and Colonel Robertson commanded the 8th a portion of the time in India; the present Colonel Greathed commanded the regiment for a long time, and then Major-General Longfield.

5984. (*Chairman.*) Have you heard any complaints from the men as to their clothing, or of the way in which they are supplied with their clothes and accoutrements?—No.

5985. There has been a considerable alteration in the clothing, has there not, in the last two or three years?—Yes, there has been great alteration, but there has been a greater alteration since we left India in the clothing of the army. It was much the same all the time that I was in India as to the furnishing of the clothing to the men; it was the khakee clothing, that they used during the mutiny, a dust coloured khakee which they wore as uniform; the men used to prefer purchasing it themselves, and they were never prevented doing so by the commanding officer if they could procure an article of the same pattern and of the same quality. Our commanding officer of the 8th regiment never interfered with the men in that; it was necessary that it should be of the regular pattern, and of the same material, but they could sit down and make it themselves.

5986. (*Sir P. Cautley.*) They could not purchase it so cheaply themselves, could they, as they could get it from the Government stores?—They might get the cloth very cheap, and if they chose to have it cut out and make it themselves it would be far better made than the article that they would be served with from the stores, because there would be more pains taken in the sewing and making up of it, although of a similar material, but the men had no complaints to make about the clothing.

5987. (*Sir R. Martin.*) For the hot weather, and during the rains that kind of dress was a great improvement, was it not, upon the old red jacket?—Very great, but the men had to wear the red jacket in the rains. It was a great improvement on the white clothing that used to be worn, and showed itself so in the mutiny; the troops in India wore white calico, and the commanding officers immediately saw the utility of darkening it as much as possible, or of turning it into some colour to disguise the men as much as possible from the enemy, and the khakee suit is almost an invisible suit, indeed it is the best clothing that I have ever seen issued to the soldier for Indian service; it is unsightly, but it is of the best colour, and of the very best description for service.

5988. (*Sir P. Cautley.*) The movements of the men are less interfered with, are they not?—Yes, a great deal less; the dress is very loose.

5989. (*Dr. Farr.*) Is flannel worn at all by the men?—Yes.

5990. Flannel shirts?—Yes, each man is obliged to be in possession of two flannel shirts, and two flannel bands; he must have them as a portion of his kit.

5991. Those articles of clothing make him comfortable?—Yes, they are mostly worn in the rainy season, and a man is punished if he is found to be mounting guard without his cholera belt on; it is irksome to many men, but they are obliged by the medical men to wear them.

5992. (*Sir P. Cautley.*) Have you found that the men suffered much from the tightness of the shoes?—No, the ammunition boot is the best boot that can be got for the soldier; the Government boot that is served out.

5993. Do they generally fit well?—They are fitted in the quartermaster's store; you need not take them unless they fit you; the quartermaster is there and the officer of the company is there also with you, but you need not take the boots unless they fit you, if you do not find them easy.

5994. Can they get them altered if they do not fit them?—No.

5995. (*Sir R. Martin.*) Do you consider the ammunition shoe the best for all seasons in India?—Yes, I consider it the best boot for India; it protects the foot from the burning soil; the soles are stronger than the native boots, and protect the feet, and in the wet season they keep out more wet than the Indian leather; the Indian shoes wear out in no time on the macadamized roads in India.

5996. The blue barrack trousers are generally approved of by the men?—Yes, because they are easy to wash; that is the principal reason why they are approved of so much by the men.

5997. They are easy, are they not, for marching?—Yes, very good for that purpose, and as soon as a man comes in off a march he can wash them, wring them out, and hang them up, and have them clean to put on again in an hour.

5998. (*Dr. Gibson.*) Do you think canvass leggings would be good?—They could not be worn except in the cold season; they would do very well for the cold season for drill purposes.

5999. But I mean on the march or in a campaign?—Yes; they are very serviceable then, on the march especially. In some parts of India, when marching through sand, it works up through the trousers, and gets into the boot, and down into the sock, and works about the feet and cuts the skin. The gaiters on the same principle as those which the Highlanders wear; they are very good, and much of the same description, either under the trousers or over them.

6000. (*Sir P. Cautley.*) What head-dress was considered the best?—The best head-dress was one that we used in Colonel Greathed's brigade. We used it going from Delhi down to Cawnpore—a plain forage cap, the Kilmarnock—with a padded calico cover over it, and a turban fastened round it; it was sword proof, and you could make a pillow of it.

6001. Had it any flap behind it?—Yes; which covered the back of the head from the sun, and it was light and comfortable; it fitted the head and sat easily.

6002. Do you think it was better than the shako?—Yes, far better; for you could use it for a pillow at night; if you were on picket and you wished to lie down, it formed a pillow of itself.

6003. (*Sir R. Martin.*) Did the men find that it kept their heads cool?—I will not say that; but they liked it the best. I do not say that it was as cool as the helmet that we got under Lord Clive. The helmet is very light and cool, but it is not so comfortable to the men; it is an awkward thing to have about, and it is liable to fall off if the men are out skirmishing. It does for parade or garrison work.

6004. (*Sir P. Cautley.*) The head-dress which you prefer is the turban, which is very nearly the same as the native turban?—It is much the same as the native turban; you can put the puggery to several uses.

6005. (*Dr. Farr.*) That is not generally used in the army in India, is it?—It was used by the whole

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of the Delhi field force; that was the first time that I saw it worn by the troops. From Calcutta the men were all served out with that helmet.

6006. (*Chairman.*) Is a stock worn by the men?—The stock has been discontinued in India altogether, except when parading in full dress in European clothing as they call it; but which is only twice a year for general inspection.

6007. (*Sir R. Martin.*) Is the stock which is worn the same stiff leather material that it used to be, or has it been changed of late years?—It has been changed for one that is far better, like that which I have on.

6008. Is that the description of stock which is served out to the common soldier?—Yes; I wear exactly the same as the private soldier does; this is the regulation stock, and the piece of leather which you perceive in front prevents its slipping up on the throat, and keeps it down.

6009. (*Sir P. Cautley.*) Do the men complain of the knapsack that is worn now because it impedes their motion?—No; they prefer it to one that was sent down last week to our regiment to be approved of—a new pattern. We tried it on some of the sharpest field days that we have had at Aldershot; we tried it on several of the men, but they did not approve of it. They liked it as far as this was concerned, an opening behind. There was a flap to cover the coat, so that in the rain it would prevent the coat getting wet. On picket, if it commenced to rain they could turn the flap down over their great coat till such time as they wished to put it on; but the straps on the front pressed too tightly on the shoulders. One strap comes down to fasten on the waist belt, that draws the waist belt up, and draws the man into that position. That is the fault of it.

6010. (*Sir R. Martin.*) But the knapsack is never carried by the British soldier in India?—No; except on general inspections; it was formerly, but is not now. Under Sir Charles Napier we did all our work in heavy marching order.

6011. (*Sir P. Cautley.*) Generally speaking the greater portion of the men's things are carried for them, are they not?—A soldier in India walks without his knapsack, with the exception of a general inspection, or when his colonel orders a marching order parade; but there is no drill, no knocking about with the knapsack. He marches out sometimes in the cold season in marching order; but, as a general rule, the knapsack is not used in India. The soldiers' articles are carried for them.

6012. Do you think that the equipment of the soldier as it is now is as good as it well could be?—I think it is.

6013. (*Chairman.*) Have you heard any complaints made about it?—Not the slightest.

6014. Have you, in the course of your service, ever been quartered at a hill station?—No.

6015. But you have probably seen and have been acquainted with many men who have been so quartered?—Yes.

6016. Can you state to the Commission what is the general feeling among the men as to the hill stations, do they like them or not?—Yes; they invigorate the men; it makes a striking alteration in a man. If a man has been sick with fever or anything at all, if he is sent to the hills and returns in a few months' time, he comes back quite a new man altogether.

6017. (*Sir P. Cautley.*) Do the soldiers like the hill stations?—Yes; and a great thing it would be in Bengal if this system could be adopted, if they could only mass the main body of the troops in the hot weather at the different stations in the hills, letting the regiments take its turn about for duty in the plains, in the strongest forts and places about, and let the native troops do the remainder of the work; but it would be a good thing, I think, to mass the troops there, and send them down, the same as they do in England, to the different camps for drill with the native troops during the cold season. If that were done it would be a great thing, I think it would be the best thing that ever was done, for the

men, during the hot weather in the plains, cannot sleep at night from the heat; they cannot do anything; they have no energy about them, and they go and get drink to put a little life into them; and they would not want it in the hills.

6018. They become dispirited and listless from the idleness of the cantonment?—Yes; they cannot go out, while, if they were in the hills they could walk about all day; but they must stop inside the barrack down on the plains. It would be a great thing, I think, if that could be done, perhaps the greatest thing that ever was done for the army, and it is so considered by every soldier.

6019. Although confinement to the barrack in hot weather is necessary, still the men find it very irksome?—Yes, they do; they would rather be out in the sun, and some men might be out in the sun for years and years and never become sick, but upon others who go out in the sun, it would take an effect upon them.

6020. (*Dr. Farr.*) Will you be good enough to describe the daily life of the soldier when quartered on the plains in India; beginning with the morning, for example, what time does he rise?—He must be up 20 minutes after gun-fire; but the time varies, sometimes at four o'clock, and sometimes at five o'clock, in hot weather, say half-past four. He must be up at five, as the parade is generally at half-past five or a quarter to six, and the parade must be over shortly after sunrise, a quarter past seven. Then there is breakfast; after breakfast he amuses himself in the barrack room. Then there is a parade at half-past ten in side arms in the barrack room; then he cleans his accoutrements; after that he has his dinner.

6021. He does not go to bed again?—He can if he likes; that is, he must not go into bed, but he can lie on it; the bed is made up. Then the afternoon parade takes place; then he has his supper, and after that he has nothing to do until the tattoo beats at eight or nine o'clock, as the case may be.

6022. Is he allowed to go out of barrack in the hot season?—Yes, at certain hours.

6023. He is not shut in?—In the hot season, he must stop within the barrack between eight in the morning and four in the afternoon; if he is caught out of the barrack, he is liable to be confined, except he is on duty.

6024. How does he amuse himself during all that time?—Some of them read, some go to sleep, some play at dominos, but they are not allowed to gamble; cards are never allowed, but they may play at dominos or chess, and backgammon.

6025. During the rainy season, what is the course of life in the plains?—There is very little change. The men cannot go out. It is exactly the same; but the parade cannot be outside. There are three parades per day, and, as they cannot be outside, they have them inside the barrack. In the evening almost all the men stroll round about the barrack in some way. If they are delicate, they cannot walk very far; but you find them generally outside taking an airing.

6026. Do the men object to being shut up in the barrack in that way?—They like to walk about, and they have skittle alleys and ball courts, and places of that kind, when they can once get out.

6027. What evils do you think would arise from their being allowed to go about?—I think that it would be very injurious for the men to go out in the middle of the day in hot weather or in the rains; it would never do, because they would get wet through, and where one man might be careful to change his clothing another man would be too lazy, and lie down in his wet clothing, and get rheumatism or fever, and perhaps lose his life.

6028. That is the state of things in the rainy season and in the hot weather; what course of life do they lead in the cold season?—They are very comfortable in the cold weather. They commence with drilling in the morning; there is none in the middle of the day, no matter whether it is the cold or the hot season. They are generally drilled in the evening again, say after four o'clock in the cold weather, and the men then have plenty of amusement,

cricket, and other games; but there is one thing that, I think, would be very good for them in the stations, and that is to have more plunge baths for the men. It is a bad thing not to have them. There should be one close to each wing of a barrack, so that a man could go in hot weather under cover, to these plunge baths. It would be very easy to have for them a covered bath in the same way as in the model barracks at Agra, so that they could go to it without being exposed to the sun. There is nothing that the soldier likes so much in India as a plunge bath.

6029. (*Sir P. Cautley*.) Would you have the men paraded for that purpose?—No, I would let them go as they thought proper, and I would have a sentry at each bath, to prevent the men stopping there too long, for you will find men who in the very hot weather would stop there for hours, and injure themselves, men who are just fresh from England.

6030. (*Dr. Farr*.) Then the men in the hills would escape many of the disadvantages of the hot season below?—Yes; they would escape the whole of them.

6031. In fact they would enjoy a climate nearly like that of the plains in the cold season?—Yes; they enjoy in the hills much the same sort of climate as that in England.

6032. Of what hills are you speaking?—I speak of the large range of hills that divides Bengal from Afghanistan, the Himalayas.

6033. You have been at Poona?—Yes; there is another splendid sanitarium there.

6034. You would prefer an elevated place, such as Poona and the stations around it, to the stations down on the plains in the Bengal presidency?—Yes; but there is a vast difference between Poona or any part of the Bombay presidency and Bengal. At Poona the men could play all day long, while at Agra and Calcutta you cannot move out without risk.

6035. The men enjoy health in Poona and in such stations almost as much as they do in England?—Exactly the same; the only thing is when cholera sets in.

6036. But they suffer, do they not, from some diseases which they do not suffer from in England?—Yes.

6037. (*Sir R. Martin*.) But even the climate of Poona is not so cool as the climate of the mountains?—No, although it is at a considerable elevation; but in Bombay the heat is not felt the same as it is in Bengal. The plains in Bengal are the places where the main body of the British troops in India are, and there thousands of men die; I am convinced that their lives might be saved if they were massed upon the hills.

6038. Speaking of the cold weather in Bengal, do not the men complain in the long dull nights of the lights in the barracks being put out early in the night?—I do not think so; the men are not forced to go to bed till about a quarter past nine in the cold weather, they must be up at about half-past five o'clock in the morning if they have a day's work to do.

6039. You have not heard any complaints on the part of the men on that score?—No, there is always one light allowed in one barrack room.

6040. (*Dr. Gibson*.) Is that a sufficient light to enable the men to read?—No; but it is so that the duty can be correctly done, so that the non-commissioned officer could see anything that was going on; if necessary, he would light another lamp, but one only is allowed in each barrack room for the purpose of the duty being performed.

6041. (*Sir P. Cautley*.) Had you workshops in your regiment to give employment to the men?—We have carpenters and shoemakers, and tailors. In the model barracks there are workshops for the different trades, but we never lay in one of those model barracks.

6042. Would it not be a very good way of occupying the men to give them the means of working at their different trades and supplying them with tools?—It would be a most excellent plan.

6043. That plan has been adopted in the Punjab a good deal, I believe?—Yes.

6044. Did you see any of the barracks there that had at one end a workshop, and at the other a reading room?—Yes, I have seen the reading room in one of the barracks at Agra, in the North-west provinces; at Agra they have a reading room, and the soldiers are under cover when going to the necessary, or to the wash-house; they can go without being exposed to the sun; they are the only ones on that system that I have seen.

6045. (*Sir R. Martin*.) If the men had the benefit of their own work, would it not be an encouragement to their industry?—Yes, a great encouragement.

6046. (*Chairman*.) Do you think that more could be done than has been done to provide the men with occupation?—If they were encouraged to work at their own trades as they do at Aldershot, it would be a good thing; the soldiers there do the whole of the work, and there are carpenters and stone masons, and they do it all themselves under a new regulation there in camp, and they take a pleasure in it; it is a variation they consider to their daily life, and it would be the same in India. I think that they would take a pleasure in it, and there is nothing in India that tends so much to keep the soldier in health as to keep his mind employed; if he is allowed to lounge about and to lie down almost any man will get sick there.

6047. I suppose that in point of expense it costs less to employ native workmen than to employ soldiers?—It is not a tenth of the cost, but the work is not done so well, except certain things; the native tailors, for instance, are generally very good, especially those who work for the ladies, making dresses and things of that sort; the soldiers' wives generally make their own, but the natives work far cheaper and far better than Europeans generally could do; they are very good with the needle, and very good at embroidery or anything of that sort.

6048. (*Sir P. Cautley*.) Have you seen with any regiments means supplied for athletic exercises?—Nothing of that sort.

6049. (*Sir R. Martin*.) No exercising grounds?—I never saw anything of the sort in India, nothing but the skittle alley and cricket; it was on their own parade ground that they were exercising themselves at that. I saw nothing in the shape of the other. I understood from the question a particular piece of ground set apart for those public amusements.

6050. Yes; the native regiments have them?—Yes; but I never saw anything of that sort, and I think it would be very good if they had something of the sort supplied without putting the soldier to any expense, and a person appointed to look after it.

6051. It has been stated before this Commission that an experiment of that sort was made, and that the men took to it at once, but that they soon tired themselves completely, and left it off; they found that they got stiff, and they overdid the thing?—That might be so certainly, and they could scarcely keep it up in the hot weather.

6052. (*Chairman*.) Nor would it be desirable, I presume, that they should?—I should say not. The medical officer would not allow it; they will not allow the men to be drilled in the middle of the day.

6053. (*Dr. Farr*.) Was there no garden attached to your regiment?—Yes.

6054. How did that work?—We had several men who were gardeners, and we let them off duty for the purpose of attending to this garden; any man was allowed to walk in the garden as long as the things were not interfered with; and the commanding officer visited it, and made every inquiry, and saw that they had proper seed placed in it; we used to get a certain quantity of vegetables from the garden, in addition to what we received from the commissariat, and vegetables of the best description.

6055. Do you think it is an advantage to be able to obtain good and fresh vegetables from a garden of your own?—Yes; good vegetables are the best things in India.

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6056. Do you think that it would be generally satisfactory to the soldiers if a garden were attached in that way to the stations?—Yes; if you could have it large enough to supply a little more; they are generally not large enough.

6057. Would there be any difficulty in finding men to work, and to do all that was required in the garden?—Not the slightest; there are many men who could do that.

6058. (*Sir R. Martin.*) There are plenty of gardeners and farm labourers?—Yes; in the hot season the men need not employ themselves during the heat of the day; a couple of natives could look after a very large garden in the heat of the day, and do anything that was required.

6059. (*Dr. Gibson.*) Would the men be inclined to work in a garden in addition to their usual duty?—I would not say that the generality of men, who profess to be gardeners, would like to take to it as an amusement.

6060. (*Dr. Farr.*) Would they require to be paid for their labour?—I think they would be allowed to be relieved from all other duties.

6061. (*Chairman.*) If a regiment has taken an interest in its garden, and put it in good order, and they are afterwards removed to another station, what becomes of the garden then?—It is left for the next regiment.

6062. In that case those who introduced the garden lose all their labour and trouble?—Yes.

6063. (*Dr. Farr.*) Do you think that any allowance should be made to them, if they left their garden behind them, for the vegetables in it?—Yes; and I have not the slightest doubt that an allowance would be made, but I have never heard it applied for.

6064. Would it not be an encouragement to them to cultivate it if a premium were given for a good garden?—Yes, if he got publicly praised by the authorities.

6065. The two combined you perhaps think would secure attention being given to the garden?—Yes, I think they would.

6066. (*Sir R. Martin.*) In every case you think that the soldier should understand that he is to have the full benefit of his own work?—Yes, I think so.

6067. (*Chairman.*) What proportion of the soldiers are now allowed to get married?—Twelve per cent., that is the allowance; we have eight.

6068. Do you think that there is any wish among the men that that number should be increased?—A great many men wish to get married, but the difficulty is to get a sample of women fit for soldiers' wives. Colonel Haines is adopting a most admirable plan, so that it is almost a matter of impossibility for any improper character to get into the ranks of our regiment; he is adopting a system by which a person who wishes to be married must bring forward very satisfactory references from a clergyman, of whatever persuasion they may be, before he will listen for one moment to the proposal, whether he keeps the regiment up to 12 per cent. of married men or not.

6069. Should you say, from what you have seen, that the married men are more comfortable than the unmarried men?—In India, yes; they are very comfortable indeed, far more so than they are in England. In England, no. There are many comforts for a married soldier in India that he cannot obtain in England, and a married soldier is therefore far better off in India than an unmarried soldier.

6070. (*Dr. Farr.*) In what respects?—He has quarters to himself in the first place, and he has the company of his wife, and there are many things of that description which make him better off than his unmarried comrades, and his wife is allowed (I do not know whether it is altered now) 10s. a month by the Government, and each child 5s.

6071. (*Sir P. Cautley.*) Shillings or rupees; it used to be eight rupees?—It is 5s. and 10s.; two rupees and a half for a child.

6072. (*Dr. Farr.*) Have they a detached hut?—Yes; they do not as in England live amongst the

men; the married soldier has a place to himself in what is called the patchery.

6073. Has the woman any means of getting employment so as to support herself?—No; they have their own household duties to perform, or they may be servant to one of the officers' ladies, or anything of that sort, but native servants are generally preferred.

6074. Then the married soldier can live upon his pay?—He can live comfortably, and save money if he is a saving man and has a careful wife.

6075. Does he dine with his wife?—Yes; he has his food served out from the commissariat; he can get it or he can get six rupees and a half a month in lieu of his commissariat food, and provide his own food; he can get his pound of meat and pound of bread, his tea, coffee, and sugar every day, and his wife can cook it at the fire at home; or he can get six rupees and a half, if he chooses, in place of that. Some prefer that, as they can get meat so very cheap, except upon active service.

6076. What takes place then?—Then a soldier is separated from his wife, and he has to contribute a certain proportion of his pay through the officer commanding his company, from whom it goes to the paymaster, and to the officer in charge of the dépôt, for her support.

6077. His wife does not accompany him?—No; no females are allowed on service, and a man's wife has her five rupees a month, and free ration for herself and half ration for each child, and her husband, if he is a private soldier, generally sends her five more out of his pay.

6078. (*Sir R. Martin.*) You would say that a married soldier is more comfortable in India than in any country in which you have served?—Yes.

6079. (*Dr. Farr.*) Have you observed that the married soldiers are healthier than the unmarried men?—Yes, I have always noticed that they are less liable to many diseases which are very prevalent in India.

6080. They are not so frequently in hospital?—No.

6081. I mean not merely from the venereal disease, but from other diseases?—Yes; there are fewer on the average who go into the hospital than of the single men.

6082. (*Chairman.*) They are more steady in their general conduct?—Yes, and more temperate.

6083. (*Dr. Farr.*) And their minds are more contented, are they not?—Yes, a great deal more so, especially those who have a family.

6084. Do you think that a greater proportion of the soldiers should be allowed to marry in India?—Yes, I should say so.

6085. More than eight in 100?—Yes, if they could manage to have the troops stationed in the hills in India, then they might have an increase in the number of married soldiers. The children of the soldiers born in India are not at all, in comparison, the same as the children that are born in England; they are generally delicate, and they never seem to thrive in the same way as children do at home.

6086. Not even those that are sent to the hills?—They seem quite different altogether; they are fine rosy cheeked children; but before they have been long down upon the plains, they dwindle away, and you see a difference in a very short time.

6087. (*Sir R. Martin.*) Have you seen any of the children from the Lawrence asylum in the hills?—I never saw one.

6088. (*Chairman.*) If a soldier is killed in action, or he should die, there is not much provision made for his widow, is there?—By a late regulation, I can only answer that whatever the rank of the soldier was, either non-commissioned officer or private, his wife, for six months, received the pay allowed to women, and also the children's allowance, and then she was sent, if she did not get married again, at the expense of the Government, to her friends.

6089. (*Dr. Farr.*) You are aware that a great deal of sickness in the army arises from the venereal disease among the single men?—Yes, that is very prevalent in India and very dangerous, a great number of men are destroyed by it.

6090. Have you seen their health injured, and is a great number of them out of the ranks in the hospitals in consequence?—More so than from any other complaint, except fever.

6091. Although it does not kill them it disables them?—It disables a great many, and in many instances it kills them.

6092. Have you any suggestion to offer by which you think the ravages of that disease might be diminished?—I think it might be diminished by vigilant superintendence on the part of the authorities in charge of the different bazaars and places of that description.

6093. What do you mean by superintendence?—There are native hospitals where these females reside for the purpose of their being received in, and there are native doctors.

6094. Under the superintendence of the Government?—They are paid by the Government; in all the cantonments occupied by the military those places are a part of the cantonment equally the same as soldiers' barracks.

6095. (Sir P. Cautley.) Are the names of the women registered?—I do not know.

6096. (Dr. Farr.) What stations do you refer to?—To Poona, to Agra, and Jullundur, those I am aware of; there is a place set apart for those people to live in.

6097. Are they under the same control?—Yes, and they are supposed to be examined as to their state of health.

6098. By natives?—Yes, and a report made to the surgeon of the station, generally the staff doctor, as to the state of the women.

6099. Are the women who are ill sent away?—They are supposed to be sent away immediately to the native hospital.

6100. Do you think that does any good?—Yes, I am certain that it does if it is carried out, but the thing is this, that a great deal of the fault as to everything in India is in not having the orders carried out correctly.

6101. An order is given, but it is not always carried out?—Just so, and I know that if it was there would be less sickness; the intentions of the Government are all very good, and if their orders were carried out properly by subordinates there would be fewer complaints and less bother than there is.

6102. There is no lock hospital in the neighbourhood of these cantonments, I believe, for the treatment of these women under European surgeons?—No, nothing of that kind; although they are allowed to accompany the army into the field they have nothing of that kind. Colonel Greathed sent them away from his army, and would not allow one, and the men were all very healthy, and it caused a vast improvement, but that was only for a short time.

6103. Upon the whole do you think that could be done generally?—No, I am sure that it could not, except for a short time, say a few months.

6104. What is your impression with regard to the climate of India as to its healthiness or unhealthiness?—I think that the great cause of the sickness there is the bad drainage about the barracks, and the filth of the towns that the barracks are near.

6105. Is it the general opinion of the non-commissioned officers and men that India is a very healthy climate to live in?—It is the impression of almost all soldiers until they try it, of those who have been there three-fourths would rather go back again.

6106. A regiment that had not been there at all would not object to go there?—No, it is just the contrary, they would sooner go to India than to the West Indies. I know that the West Indies are dreaded by the soldier.

6107. They would as willingly go to India as to Canada, would they not?—Yes.

6108. (Sir R. Martin.) Those who have served in India generally, like to go back again, do they not?—Yes, I am convinced that three-fourths of them do.

6109. (Dr. Farr.) They are aware that it is unhealthy, but they are not afraid to encounter the dangers of the climate?—It is so.

6110. (Sir P. Cautley.) When a regiment is

ordered home, a great number of the men generally remain in the country, do they not?—Yes, 200 or 300 out of a regiment.

6111. (Dr. Farr.) You are aware that a large portion of the army will be sent in future to India, and remain there for some years; do you think that will be acceptable or not to the men in the army?—I do not suppose that the men will at first like it, but I am convinced that the men, when they have had a specimen of the duties of the soldier in India, and especially if they have many old soldiers with them who have been in India, they will become satisfied; it is those who have never been in India who complain so loudly about it.

6112. Do you think that young men are not deterred from joining the ranks of the army by expecting that they will be sent to unhealthy places?—I think that they are.

6113. If you were endeavouring to obtain recruits in any part of England, do you think that would at all influence the young men?—I should be so much afraid that it would, that I would not venture to say that they were likely to be sent to India. I do not think that I should be conferring a benefit upon the service if I did.

6114. You have seen a good deal of sickness in India at various times?—Yes, I have had the cholera myself twice; I had it at Delhi, and I was one of the few that did recover, but we lost thousands of men altogether from cholera; very few of them survived who were attacked; I was one of the few that did by taking proper remedies in time.

6115. Fever is another disease from which the men suffer, is it not?—Fever is the more prevalent disease in India.

6116. The men suffer more from that, do they not; cholera kills them off, but they suffer from fever for many days and weeks, and even months?—Yes, except the remittent fever, I think it is called; that is a dangerous fever, and men die sometimes in a very short time from that.

6117. Dysentery is also another disease, and a very painful disease?—Yes.

6118. What effects have you observed these diseases have on the physical condition of a regiment, does it make the men weaker, or less able to fight, or to do their duty after they have been in India some time and have suffered from these diseases?—I think that troops fresh from home always stand disease better; they always seem stronger and better able to withstand those sort of things; the longer a soldier has been in India, the less he is able to stand attacks of sickness.

6119. You think that an injurious effect is produced upon men resident in India?—Yes, more so than upon strong fresh men just from home; I observed that in the 93rd Highlanders who were just from home; they used to bear the heat and work in the heat and sun better than our old hands that had been for 18 or 19 years in the country.

6120. Did you bring many men home with you from India who had served there for any length of time on the return of the regiment?—I dare say that we brought home 200 old soldiers.

6121. What was their condition?—Several of them died, and almost all of them from one complaint after we came home, a complaint something like consumption.

6122. (Sir R. Martin.) A good many of them wasted away, did they not, from bowel complaint?—It was some internal complaint; they complained not so much of the bowels as about the chest.

6123. (Dr. Farr.) Some of them, I suppose, completely recovered, but a great number were permanently disabled?—Yes; I should say that the same results might have been expected had they remained in India; they were old soldiers.

6124. Had they served 20 years in India?—A great portion of them had served in the first battalion of the 17th regiment before volunteering into the first battalion of the 8th regiment.

6125. What was the strength of the 8th regiment when it went out?—I cannot say.

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6126. (*Sir R. Martin.*) Do not men who have served many years in India dislike the climate of England?—Yes; they cannot stand the cold.

6127. (*Dr. Farr.*) I suppose that the duties in India are generally not so heavy as they are in England?—No.

6128. The only thing which they have to complain of is the diseases to which they are liable?—Yes, and which are incidental to the climate.

6129. Have you any notion yourself as to the causes of those diseases?—I do not think that in many instances the barracks are sufficiently high and ventilated for the number of men that they contain in some of the stations that I have been in; in others, and, indeed, in almost all the stations, there is no such thing as proper drainage, no sewers. At the corner of each barrack-room there is what they call a cesspool, where all the filthy water, soap suds, and all sorts of dirty water runs in; it is ladled out by the natives at certain hours in the day or night when full, and sometimes there is a fearful smell from it in the hot weather, the sun being upon it; it almost stifles you.

6130. Do you think that is injurious?—I am certain of it; there is a bad smell even in the wash-houses, although they are kept clean.

6131. What is the state of the sleeping-rooms in the barracks at night during the hot weather?—They are very close, and there is a very bad smell, which any one can perceive that comes in from the air. If you go into a barrack room, there is a very bad smell.

6132. Particularly, if there is any prevalent disease, such as dysentery, or is there any difference?—No.

6133. Have you any complaint to make of the water in India?—The worst water that a soldier has in India is in Calcutta; it is not fit to use; indeed, it is dangerous. I am sure that there are more soldiers die in Calcutta than in any other station in Bengal; and I am certain that most of them die from the frightfully bad water that they get there; men who do not take the trouble to purify it with alum and charcoal frequently become sick.

6134. (*Dr. Gibson.*) Is it obtained from tanks or wells?—From wells, I think.

6135. (*Dr. Farr.*) Have you any complaint to make against the water supplied to the men at the other stations?—No; the water is generally very good in India.

6136. (*Sir P. Cautley.*) The natives drink the same water, do they not, at Calcutta?—I should say so; but I am not sure of that.

6137. What is the state of the closets and urinals; is that satisfactory in India?—They are very well kept.

6138. Are they emptied frequently?—They are emptied every night; they are supposed to be emptied before gun-fire in the morning; before the soldier wakes, everything is supposed to be cleared away, and that is almost always the case; sometimes it may be neglected, and in such instances the people who ought to have done it are punished by the quartermaster.

6139. (*Dr. Gibson.*) Are these places close to the barracks, or at some distance off?—The distance varies; they are never more than 40 or 60 yards from the barracks.

6140. Is there a covered way to them?—In very few instances. There is a covered way at Agra, and there is also in a barrack at Colaba in Bombay. Those are the only instances in which I have seen a covered way leading to those places.

6141. (*Dr. Farr.*) In the hospitals are the soldiers, according to your experience, properly attended to?—Yes; I think that that could not be better.

6142. Do you think there is no ground of complaint?—None; every care and attention are shown to the soldiers who are sick.

6143. (*Dr. Gibson.*) Do the men like the native nurses?—They are not so attentive as the European

orderlies; but the only thing that a soldier has to do, if he has any complaint to make, is to mention it to the medical officer, and these people are severely punished if there is the slightest neglect on their part, but they are hardly worked on service; and with regard to the wounded, the soldiers have almost all comrades for that purpose, they send for them from the regiment; but they do not let the natives meddle with them, except to bring them their food.

6144. If a man is very ill is he attended by a native?—No; there is always a man belonging to his company who is sent to the hospital to superintend the natives in what they have to do. The soldier is well treated in hospital.

6145. The men have not confidence in the natives? Yes, they have confidence in them, but, perhaps, sometimes a man cannot talk to them; they therefore do not understand each other, and a man may want things that the natives do not understand anything about, and sometimes they will not understand. They do not take the same interest in an European that his own comrade does; they are merely working there for four rupees a month (sometimes four, and sometimes five, or whatever they may get), and they do not care who a man is, or what he is; they think that the easiest way they can get their wages the better for themselves, but by having an orderly there to look after these people, they are made to attend more on the soldier than they would do at other times. If any soldier has any complaint to make, if he is not properly treated by the orderlies, and speaks to the medical officer, the complaint is instantly attended to, and every satisfaction is given to him.

6146. Have the men ample means of washing in a hospital?—Yes.

6147. Do they do that in the verandahs?—For those who are able to wash themselves there is a wash-house for them, for those who are not able to go outside they generally wash near the cot, and there are proper chatties, as they call them, to wash in, and the natives carry them away, and throw the water away into the cesspool. But drainage is the principal thing that I am certain is wanted. I am certain that the barracks in India, even in the plains of Bengal, could be made a great deal more healthy, provided they were properly drained, for after the rains there will be a pool of water standing in the lines for five or six days; that gradually dries up by the heat of the sun, but there is much smell from it, and I am certain that it must cause fever; these things are often reported by the men and by the officers.

6148. (*Chairman.*) Have you noticed that the men were more unhealthy than usual at the time this bad smell prevailed, or just after it?—I have always noticed that the sick list takes one particular barrack room more than another, or one particular side of a barrack more so than it does another; from what cause I cannot say, but there is always more sickness in the rains than during any other period of the year in India.

6149. (*Dr. Gibson.*) What kind of barrack floor is most easily kept clean and dry?—The best floors for a barrack are a kind of freestone in large slabs; the floors in the Bombay presidency are chiefly of earth, with cow dung put over once a week by the hands of the natives, and left to dry.

6150. Do the men consider them good floors?—They do not like them.

6151. On what account?—I think the principal reason is the dirt that is occasioned, and the trouble that it gives them, for the soldier cannot move about in his barrack room until it gets dry, and it takes a considerable time to get the cow dung dry.

6152. Does it smell?—Yes, of course.

6153. (*Chairman.*) What is the use of the cow dung?—I do not know; it is the Indian custom; it is what the natives use in their own huts.

The witness withdrew.

OBSERVATIONS by MISS NIGHTINGALE on the EVIDENCE contained in Stational Returns sent to her by the ROYAL COMMISSION on the SANITARY STATE of the ARMY in INDIA.

MY LORD,

In compliance with the request sent to me by the Royal Commission on the Sanitary State of the Army in India, in Mr. Baker's letter of 11th October 1861, that I would make on the contents of certain MS. replies to queries addressed to all Indian military stations any observations which might occur to me as bearing on the sanitary condition of cantonments and hospitals, I beg to transmit the following. In doing this, the difficulty of giving what every one might consider a fair representation of questions of such extent, by stating specific cases, has been great. Some will see no importance to health in the facts. Some will think the facts given the exception and not the rule. If there be an exception, *i.e.*, if there be a single station in India with a good system of drainage, water supply, and cleansing for itself and its bazaars, with properly planned and constructed barracks and hospitals, provided with what is necessary for occupation and health—a station where the men are not encouraged to drink, and where they are provided with rational means for employing their time—to such a station these remarks do not apply. But I have not found it. Everywhere there are grievous sanitary defects, which, wherever they exist, can lead only to sickness and loss of life to the degree in which they exist. And let those who doubt whether this representation is true, taken as a whole, look at the stational reports for themselves.

In the papers sent me I find an amount of evidence showing the causes of disease in the Indian army, such as perhaps was never before brought together on any similar subject. It is shown in these papers that:—

I. INDIAN STATIONS ARE SUBJECT TO THE DISEASES OF CAMPS.

1. The prevailing diseases at Indian stations are zymotic diseases, connected with camps,—such as I myself have seen,—all of them, cholera, fevers, diarrhoea, dysentery; together with hepatic disease.

The main point of the Indian sanitary question is, indeed, camp disease, the causes of which are rendered more intense by climate; and liver disease, occasioned to a great extent by over eating and over drinking, and sedentary habits, the result of these habits being, as in the former case, intensified by climate.

Stations have been chosen with as little regard to health as camps often have been. Many are in positions which the mere verbal description proves to be unsuitable. Or, at all events, little or nothing appears to have been done to render them suitable. They are low, damp, or even wet, often mixed up with unhealthy native towns and bazaars abounding with nuisances.

II. INDIAN STATIONS PRESENT THE SAME SANITARY DEFECTS AS CAMPS.

2. At all or nearly all the stations the usual causes of camp disease appear to exist. I will give examples of the more important of these as shortly as I can, as they exist at the larger British stations. These are:—

- (1.) Bad water.
- (2.) Bad drainage.
- (3.) Filthy bazaars.
- (4.) Want of ventilation.
- (5.) Surface overcrowding in barrack huts and sick wards.

(1.) *Bad Water.*

Hyderabad (in Sindh) says "No doubt it (the water) swarms with animal life."

Where tests have been used, the composition of the water reads like a very intricate prescription, containing nearly all the chlorides, sulphates, nitrates, and carbonates in the pharmacopœia, besides silica and large quantities of organic matter (animal and vegetable), which the reports apparently consider nutritive, for few of them but "consider" the water "good" and "wholesome;" *e.g.*, Fort William, Calcutta, says that the water for cooking, drinking, &c., is carried from a tank filled by surface drainage, which tank is kept "perfectly clean," and is "generally free" from "surface impurities." Many "city tanks are in a most filthy condition, producing malaria." Sealkote calls its water "decidedly good," while containing a considerable portion of sulphate of lime. Ghazepore calls its water "good and sweet," and says that it "does not seem contaminated by the amount of leaves that necessarily fall into open structures." Chunar says that its water is clear, sweet, and inodorous "if allowed to settle before it is drunk." Agra's water is "laxative," and "apt to disagree at first." Dinapore admits that its wells have been poisoned by infiltration from barrack privies. Nussereabad says, "The flavour (of the water) varies according to the quantity of the salts." At Murree the quality is "considered inferior by native visitors, and to cause colic." "Boiling" and filtration through sand and charcoal are necessary to "render it wholesome." At Hazareebaugh tank water, "on standing, copiously deposits" and contains "organic matter in considerable quantity." Its well water for domestic use contains silicic, phosphoric, hydrochloric, and carbonic acids. But it is satisfactory to know that "persons particular about the quality of their drinking water" can "obtain their supply" from "several good wells."

At Bangalore, the Ulsoor tank, used for drinking, is the outlet for the whole drainage of a most filthy bazaar, (125,000 inhabitants) for that of our cavalry, infantry, and horse artillery barracks, and of the greater proportion of the station. The commander-in-chief says, "the disgustingly filthy nature of the source from which the water used at Bangalore is taken, has been brought to notice scores of times by me within the last 4½ years; but, as usual, nothing has been done to remedy this most crying evil." Even the wells from which drinking water is taken are impure from sewage. They are open; and "when they get dirty are cleaned."

At Secunderabad, as much as 119 grs. of solid matter, and, as it would appear, 30 grs. of organic matter per gallon, are found in some of the well and tank water. [Secunderabad and Poona are almost the only stations which give a chemical analysis.]

At Surat "no one thinks of drinking the camp water."

At Asseerghur the same tank is used for drinking and bathing. "For the former the natives slightly clear away the surface." Asseerghur thinks that its water "smells good."

The application of chemical science to water supply appears hardly to be in its infancy in India.

The arrangements for raising and distributing water are everywhere, as Bombay Presidency remarks, the same as what they might have been "1,000 years or more ago." Belgaum has attained the maximum of civilization under this antique system. The water is there "raised in leather skins by bullocks, emptied into troughs, and thence conveyed by water-carriers."

At Kirkee "no such a thing as a pump is known;" Government pays 617 rupees per (hot) month to water-carriers.

Everywhere "each individual has his bheestie, and each regiment its set of bheesties."

BEGINNING OF WATER PIPE.*



END OF WATER PIPE.



These water-pipes with a will are not always found to answer, for Fort William (which pays them 134*l.* per annum) admits that they sometimes take the water from "nearer and impurer sources." Would it not be better to try water-pipes without a will?†

It is singular that, while describing water sources, qualities, and modes of distribution which civilized cities have ceased to use, most of the reporters consider the water as good and fit for use. The practical result of this part of the evidence is that safe water supplies are yet to be found both for Indian cities and for British cantonments; and that many sources, as described in the returns, would in England be scouted as infallible causes of cholera in epidemic seasons.

Lavatories.

As for all means of cleanliness, bathing, except in a few cases where there are plunge baths, seems to mean washing the face, or throwing water over the body, for where there are lavatories there are no or few fittings, where there are fittings there is no water.

At Lucknow a small canal runs along the bath room, from which the bathers draw the water and throw it over themselves, being prevented by iron bars across from "lying at full length in it and soiling the whole supply." The bath at Mean Meer is a long shallow tank, "in which the man can lie down and bathe."

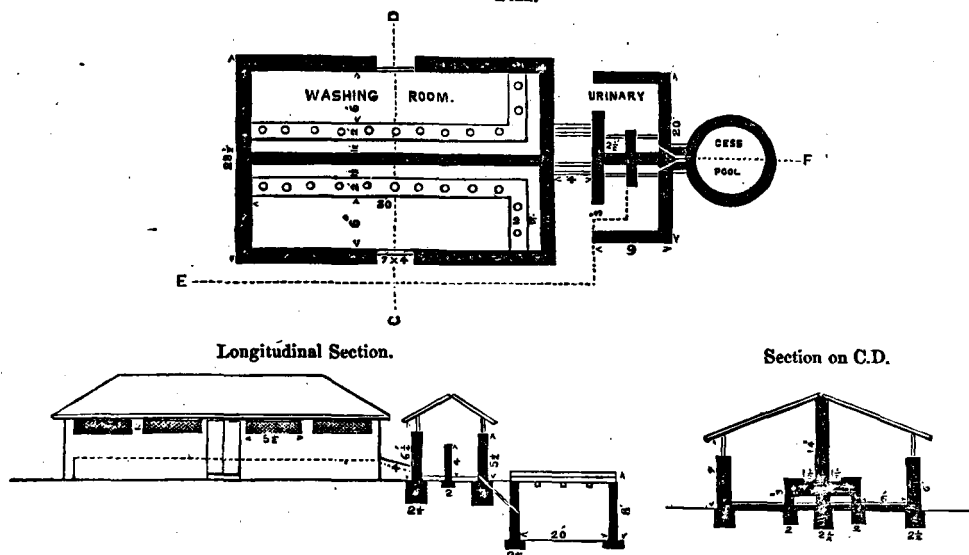
Madras and Wellington are literally the only stations where anything like lavatories and baths, with proper laying on of water and proper draining it off is known, either in barrack or hospital. But at St. Thomas' Mount, and at many other stations, each lavatory is a tub filled by a bheestie, in which all the men wash, there being no basins.

Fig. 1. gives a plan, elevation, and section of a lavatory at Aden, which affords rather a favourable specimen of the kind of accommodation provided. It will be observed that all the refuse water is conveyed into a built cesspit, 8 feet deep, from which it is expected to "make away with itself," as it best can. Why cannot civilized basins be provided for men to wash in and the foul water be properly drained away?

* Words convey such an imperfect idea of the actual state of things, that I obtained, by the great kindness of an Indian friend, illustrations taken from the life, which I have had cut in wood and transmit with this paper. I have also had woodcuts prepared of barrack and hospital plans, from drawings contained in the papers sent me.

† The reason usually assigned for employing these human water-pipes in barracks is, that they are indispensable on field service. But so are tents; and yet nobody proposes to barrack men in tents in time of peace. Barracks are built for peace, and ought to be supplied with reasonable and decent conveniences. Why should the bheestie and waterskin be preserved, when the tent is abandoned? Let the bheestie be for field service, if no better device can be discovered; but let some civilized method be adopted of supplying barracks, garrisons, and towns with this prime element of health and cleanliness. Besides, human labour is daily becoming of higher value in India, and it may be actually more expensive to use men as beasts of burthen now than to use the appliances of civilization.

Fig. 1.

LAVATORY. ADEX.
Plan.

Washing and bathing in barracks and hospitals will have to be conducted on quite a different scale from the present in India, if health and cleanliness are aimed at. If the facilities for washing were as great as those for drink, our Indian army would be the cleanest body of men in the world.

(2.) *Bad Drainage.*

This may be rendered no drainage whatever, in any sense in which we understand drainage. The reports speak of cesspits as if they were dressing rooms. As at Nusseerabad and Kolapore, "a small cesspit is attached to each bathing room, urinal, or privy," and "to each married man's quarter there is a bathing room with cesspit."

At the capital of the Bombay Presidency, where civilization has introduced a "main drain" 2 feet square, with a "flat bottom," this "main drain" is a "great nuisance," and the "stench at times scarcely to be endured." At Fort George, in Bombay, the "latrines are not drained except into an open ditch, which is always in a foul state."

Indeed, Bombay would gladly say, as the London woman said when asked to point out the drains, in the days when London drainage was in a similar state, "No, thank God, sir, we have none of them foul stinking things here."

At Madras (Fort St. George) the drainage hitherto is stated to be worse than useless. The main drain of the town is 80 yards distant from the European fort; the effluvia from it very offensive. The arrangements at the native lines, as described in the reports, are simply abominable. The old privies in Fort St. George are "as bad as they well could be."

At Bellary, a large station, there is no drainage except the fall of the ground.

At Secunderabad (Trimulgherry) there is no drainage of any kind. The fluid refuse evaporates or sinks into the subsoil. A nullah which intersects the cantonment stinks. The extent of the cantonment is so enormous, that it is said "to preclude any general surface draining," a statement which, if true, would amount to this, that the occupation of ground by human beings must inevitably lead to disease, a statement as applicable, or rather much more applicable to the area of London than to that of Secunderabad, and yet London is drained both on the surface and below it.

Everywhere the system of "drainage" is that "cess-pits" are "emptied" when "filled," or "when necessary," and their contents carried away by hand, as at Deesa and Belgaum. Generally they are close to the buildings.

At Hyderabad, in Sinde, in the native lines, the contents of the cesspits are "thrown about in close vicinity to the cesspits." "Anything edible is immediately picked up by birds or dogs." There is "great room for reform" in the native latrines, the cleansing of which consists mainly in the liquid "sinking into the subsoil, so that the earth is thoroughly saturated, and a noisome odour pervades the atmosphere." And yet it is added that the sanitary condition of the station is, "in every respect, satisfactory."

At Neemuch the "drainage of privies and urinals is only on the surface."

Often, as at Aden, it is expressly stated that it (viz., "all drainage") is "allowed to sink into the subsoil," which (at Aden) we are told is so useful as to "absorb the contents." The arrangement for enabling it to do this is shown in Fig. 1. Figs. 2 and 3 represent the usual construction of latrines. In Fig. 2 the contents are intended to be swept up and removed daily by hand,—a noisome and dangerous process, especially during epidemics. Fig. 3 shows the cesspool system of "cleansing," which means saturating the subsoil with filth, and endangering all the wells in the neighbourhood.

At Neemuch, which has attained the high pitch of civilization of building latrines for its bazaar, the "latrines are too close to the houses, and are not used at present for lack of a proper establishment to keep them clean." Therefore the people at Neemuch do like their neighbours in this respect, a proceeding which it is impossible to describe farther. At Asseerghur a similar abomination appears to be practised on an "open space of ground near the main guard and parade," which is "always offensive," and "ready to nurture epidemic disease."

Fig. 2.
LATRINE. POONA.

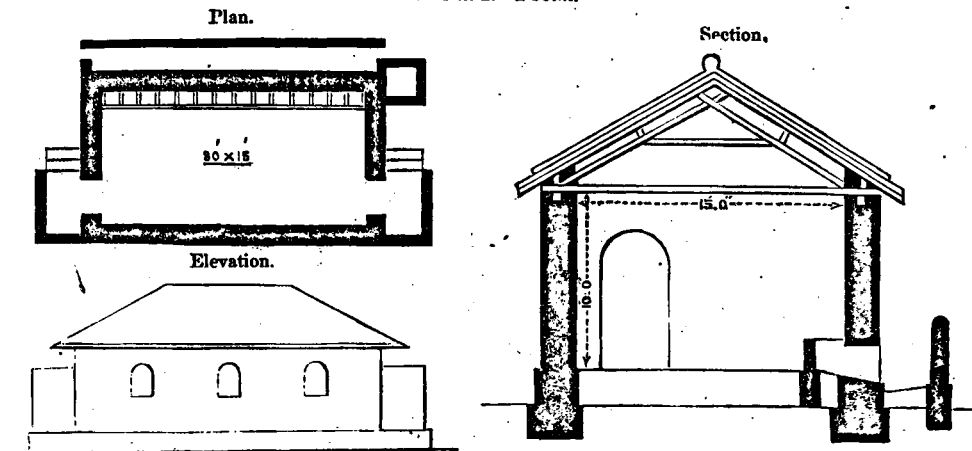
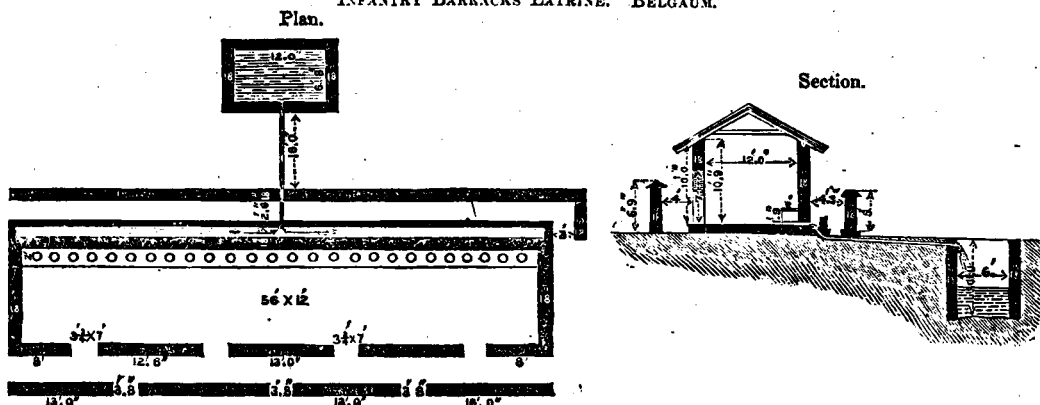


Fig. 3.
INFANTRY BARRACKS LATRINE. BELGAUM.



At Asseerghur the "construction of sewers and drains has not as yet been considered." They "consider," on the contrary, that the sewage "will probably be removed by hand." "The refuse, in all cases, is thrown "over the fort wall." "One of the tanks" is called "unsavoury."

Almost everywhere it is said, as at Nusseerabad, Kirkee and Poona, and Dinapore, all of them large and important stations, "barracks and hospitals" are "only wet" or "damp" during the "rainy months," as if it were a proof of great and unusual precaution in construction which builds buildings to be dry in dry weather.

At Fort William it is stated that the fluid refuse is swept away by garrison sweepers and water carriers, with the aid of a fire engine; that much of it evaporates; that the outlet is a foul ditch.

Dinapore also boasts of a foul ditch, often very offensive. At Poonamallee the "foul ditch" surrounds the fort and encloses the hospital; and "all fluid refuse sinks into the subsoil where it falls."

At Cawnpore is the singular statement, that the drains are "not intended" for draining cookhouses, privies, &c. Here, as elsewhere, the drainage is effected *by hand*; that is, everything that will not evaporate or sink into the ground is carried away to a distance in pails, skins, or carts, and emptied out.

INDIAN DRAINAGE SYSTEM.



At Meerut the cesspools are cleansed "by opening the tops and drawing out the fluid in buckets." It is said "they seldom require cleansing." We may infer from this what a condition of saturation the subsoil must be in!

Agra employs all the powers of nature, and none of its own, to get rid of its "fluid refuse;" evaporation, sinking into subsoil, &c. Nature, however, is dilatory, which renders "raised paths necessary between the barracks." The water from the lavatories is collected in an open cesspool, from which it is spread over the ground. The hospital cess-pits are deep wells, never cleaned. It is "tried to keep them sweet by lime, but in vain." (Probably.)

At Umballa the surface water "disappears with tolerable rapidity."

Mean Meer, the new station for Lahore, has no drains about the barracks. The water lies for hours. The lavatory cesspools sometimes overflow, saturate the ground, and taint the atmosphere.

These cesspools, as in Fig. 3, were intended for saturating the ground with foul matter, and out of the same ground the well water is taken.

Is not the whole history here of the late frightful cholera at Lahore?

And why cannot the refuse which does so much mischief by remaining be used to do good, and raise any amount of vegetables in soldiers' gardens?

Ferozepore tells the same story of no sewerage or drainage. Also at Ferozepore the lavatories are brick and mortar floors, "adapted for receiving and draining off the water into the subsoil outside, so that the men may freely bathe themselves!" There is no bath except the aforesaid floor. So at Peshawur and Sealkote is the same want of all sewerage or drainage.

At Berhampore, with its square mile of cantonment, only one cart is allowed to remove the contents of the privies to "holes a mile from barracks." The vicinity abounds in jheels and foul ditches, with putrid water.

Allahabad, one of our largest and most important stations, in one of the worst positions, as if that position were not unhealthy enough by itself, trusts to nature again, has no drainage nor sewerage, and leaves its surface water to "evaporate," "percolate," and "run off."

Benares follows in the train. At Rangoon the drainage is supposed to run up-hill. For we are told that all sewerage and drainage are merely "trenches made without reference to slope."

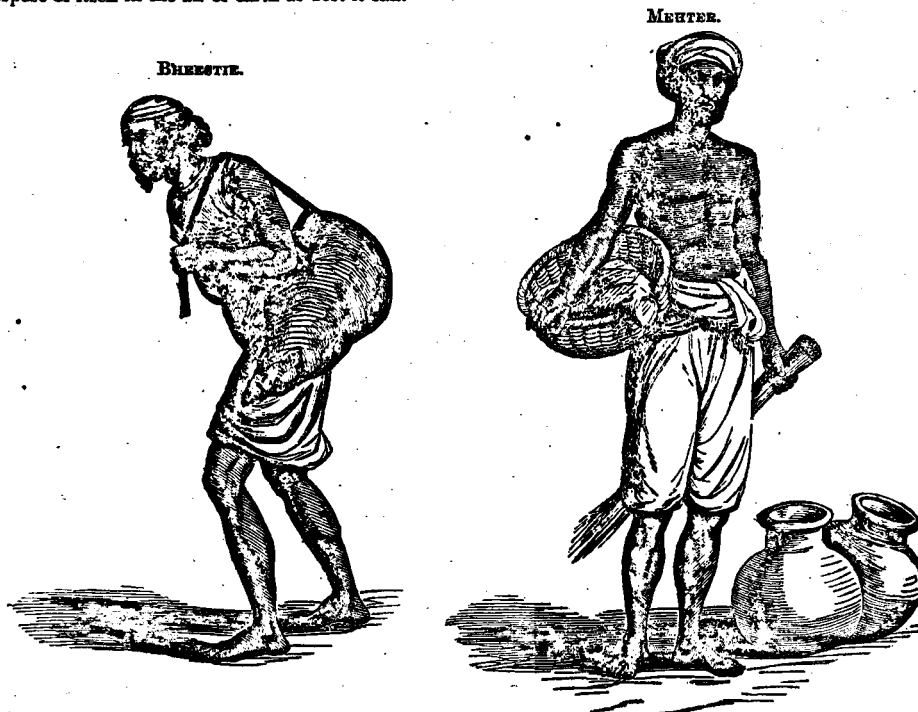
Landour, which is a hill station, has every house damp for three months in the year. Yet their "spacious lavatory, with brass basins," is not much used, "from the scanty supply of water in the dry season."

It is evidently quite possible to locate the whole army on hill stations and leave it more unhealthy than on the plains.

Nyneer Tal, also a hill station, lets all its fluid refuse flow down to plains below.

It is impossible to pursue this subject further. There are such much worse things in the Stational Reports than what I have chosen to give, that I must say to those who call my "bonnet ugly," "There are much uglier bonnets to be had."

The system of water supply and drainage in India may be briefly defined as follows: they draw water from a well, not knowing whence it comes, and if there be any means to drain off water it is into a cesspit, or into long, open, pervious drains, not knowing whither it goes. Where this is not done, all the fluid refuse is collected in open cesspits, and carried away by hand labour or carts. Or else it is allowed to dispose of itself in the air or earth as best it can.



THESE TWO OFFICIALS REPRESENT THE SYSTEM OF WATER SUPPLY AND DRAINAGE IN INDIA FOR GARRISONS AND TOWNS.

Drainage, in the sense in which we have found it necessary for health in this colder climate, is by no means considered necessary for health in the hot climate of India; for, as in the case of the water supply, most of the reporters consider no drainage a sufficient guarantee for health.

(3.) *Filthy Bazaars.*

It is almost impossible to describe these. But one description will do for all. Except where the two Lawrences have been—there one can always recognize their traces—the bazaars are simply in the first savage stage of social savage life.

No regular system of drainage, no public latrines, or if there are any, no sufficient establishment to keep them clean, no regular laying out of houses, overcrowding, bad ventilation, bad water supply, filth, foul ditches, stagnant water, jungle and nuisances, this is the account of all. The country round some is stated to be "one immense privy."

At Neemuch, the Bazaar Superintendent maintains "strict supervision," and "punishes the inhabitants," although the latrines cannot be used. The native houses are all more or less dirty, with dung-heaps close to them. The "disagreeable emanations" from the bazaar are felt in barracks.

In Dinapore some streets were impassable dunghills "last year," "until cleared." The elephant sheds and all the south of the station in a state disgraceful to any cantonment. The drains, deep holes of festering mud. No latrines, although "the population is as thick as can be;" until lately, only one filth cart, now three. At a neighbouring village the dead are buried within the huts.

FEMALE SWEEPER.



At Agra it is a proof of "respectability" to have cesspools. The inhabitants (152,000) generally "resort to the fields."

English works, treating of sanitary improvement, insert sections of the bad drainage arrangements. But none contain such an illustration as this of how a woman is made to supply the place of a drain tile.

At Berhampore "nothing can be worse than the sanitary condition of bazaars." The native houses are dirty in the extreme. Dung-heaps or deep holes full of stagnant water, the common cesspit of the houses, are close to them. The nuisance is felt even at barracks. The "Conservancy" establishment is quite unequal to its work.

At Muttra the bazaar is an accumulation of huts without order. "Drainage bad; ventilation worse; water supply execrable." "All the wells brackish, from nitre," the earth being contaminated with all sorts of impurities. Latrines "hardly known." "In short, the bazaar is a mass of filth."

At one hill station, Nynee Täl, where men are sent for their health (!) the stench is at times overpowering, from both bazaars being in a filthy and crowded state, no proper drainage or latrines, no means of preserving cleanliness, which causes nuisance even in the barracks. At another, Darjeeling, among other defects, the native villages, writes the medical officer, "are the most filthy" he has "ever entered, and it is quite sickening to walk through them."

At Jubbulpore, where every hut is crowded, where there are no latrines, where cleanliness is almost impossible, the same causes produce the same results.

At Cannanore the native houses have dungheaps and cesspits within the compounds. Owing to the want of latrines, the "filth and indecency" are described to be what it is impossible to repeat. The dead are buried within the compounds of houses.

At Trichinopoly the water supply is bad, scanty and brackish. The bazaar is said to be "clean," while the open cesspits are described as an "intolerable nuisance," when the wind blows over them. The native houses are ruinous and not ventilated. Levelling, filling up, pulling down deserted huts, &c., is urgently required, but not done.

Those who think I have given anecdotes and not fair illustrations, I refer again to the Stational Reports for further and fouler evidence.

These instances are enough to illustrate the subject. Bazaars are the real hot-beds of disease, and require sweeping reforms as much as or even more than the stations.

Native regimental bazaars, from which the soldiers procure supplies, are within military limits, and as much under military control as the ground on which the barracks stand, and ought to be kept in as good a sanitary state as the barracks will be when thoroughly improved.

(4.) *Want of Ventilation.*

The reports generally say, ventilation good, if barracks not overcrowded. But as the barracks are almost always overcrowded, we must conclude ventilation is bad.

Or they say, ventilation sufficient, because doors are kept open during day, which is as much as to say, ventilation is sufficient, because it is not.

At Kirkee, there can scarcely be said to be any ventilation in barracks. There are pigeon holes in the roof, but during the rains, when ventilation is most wanted, these have to be covered with tarpauling. At Poona the weather side has to be "dammed up" during the monsoon. At Bombay it is said that ventilation is generally sufficient; "at least there are no complaints," although "improvement is imperative."

At Kamptee the ventilation is described as "most faulty and deficient," although there are three openings in the roof of each barrack. The windows are unglazed. At Ramandroog, a hill station, the doors are venetian in the upper half, "a great disadvantage in wet weather." Half glass doors are required. At Bellary there are no windows. The doors are half venetian, half panel. At Trichinopoly, one of the very hot stations, the old artillery barrack is stifled by having only doors.

At Dinapore, where the ventilation is entirely by doors and skylights, "which latter, however, do not open," one may safely say, ventilation not sufficient when doors are shut (at night). In the "permanent Hospital" at Dinapore, placed so that the "wind does not blow across" it, the ventilation is "only sufficient" when the doors are open.

At Allahabad the doors have to be closed in high winds, dust storms, &c.; and the ventilation, although there are roof ventilators and small windows over the doors, is generally insufficient. The hospitals of Allahabad, although they "face the wind," have "in most instances no windows, except openings over the doors, and in the roof." And the ventilation is pronounced to be "very defective," especially when the doors have to be closed.

So at Dumdum.

At Agra, ventilation is said to be sufficient, provided the verandahs are not occupied for sleeping.

But the verandahs are occupied for sleeping.

At Landour, where sick men are sent to get well, there is both overcrowding and bad ventilation. There is no roof ventilation.

At Nynce Tal the air is said to be "pure" inside the huts, which means that they are always full of "smoke."

The cooling by tatties, *i. e.*, air passing through damp vegetable matter, often tends to produce ague.

External ventilation is often also bad, not giving the barracks the benefit of the prevailing winds, as at Dinapore, Allahabad, and Berhampore. This is a point of primary importance in India. At Muttra, although there is abundant ridge ventilation, the entire length, it is insufficient at night, simply because the barrack is in a position which the wind cannot reach.

At Allahabad one-third of the station is below the level of the river.

Generally, very little attention appears to have been paid to independent ventilation as a cardinal point of barrack construction. Doors and windows have been trusted to; yet they are so placed that men are often exposed in bed to hurtful draughts, and if shut, the fresh air is also shut out. Sometimes there is no glass in the windows, and when these are shut there is darkness as well as foul air.

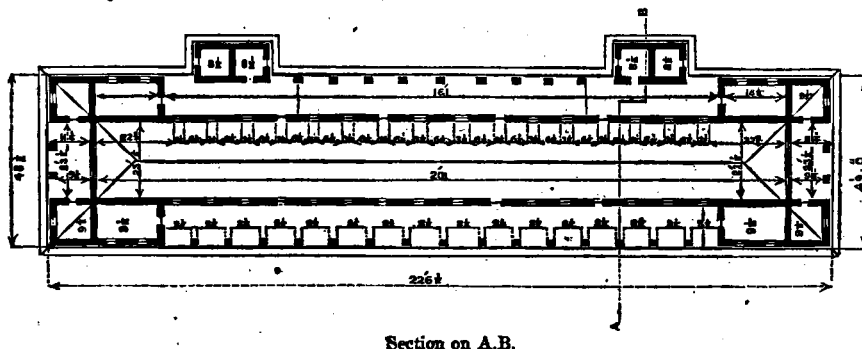
A knowledge of the proper application of sanitary appliances to building in India appears to be as yet in its infancy.

(5.) Surface Overcrowding.

The structure of Indian barracks varies much. But in one thing they almost all agree, *viz.*, in crowding the men upon the floor.

Fig. 4 represents a plan and section of a hut room at Deesa, no less than 200 feet long, intended for 80 men, at 1,116 cubic feet per man. It is well constructed for ventilation, and is altogether one of the best plans in India. But for its 80 men, which is just four times too many for any room, it allows less than 59 square feet per man.

Fig. 4.
EUROPEAN BARRACK. DEESA.
Plan.



Even in the most recent barrack plans there is the same defect.

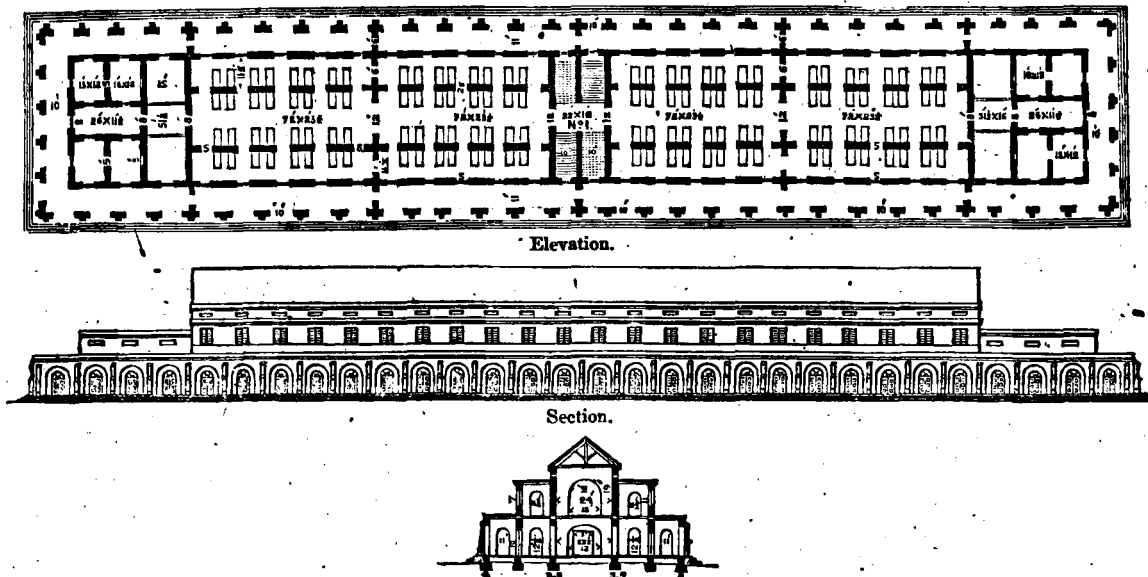
Fig. 5 gives a plan, elevation, and section of the new barrack, either erected or about to be erected, at Mhow. The elevation shows a magnificent and costly structure. But it is on two floors; it has double verandahs, the inner ones occupied by beds, so that there are four rows of beds, and 53 feet between the opposite windows; the ventilation of the whole interior is interrupted in rather an ingenious way by cross walls, and the men have 65 square feet of space each.

But even this is not the worst.

At Fort William, the Dalhousie barracks, which are said to be "perfect," have six rows of beds between the opposite windows, 216 beds by regulation in each room, and three floors of such rooms. While it is added "900 men" (300 men per room) "are generally accommodated in the barrack without inconvenient "overcrowding." What is convenient "overcrowding?"

The cubic space generally looks large in India, but the height of the rooms being enormous, often greater than their width, the superficial area is comparatively small. At Cawnpore the barrack rooms are from 25

Fig. 5.
INFANTRY BARRACK. MEOW.
Plan.



to 30 feet high. The superficial area for 1,000 men in 10 rooms is only 41 square feet per man, for 140 men in two rooms 61 square feet per man, and for 240 men in two rooms 88 square feet.

Also, the cubic space pre-supposes the inner verandahs not to be occupied. But in some places, as at Cawnpore, they are invariably occupied from influx of troops beyond the accommodation; there are then four rows of beds between opposite windows.

In all the five barracks of Fort William the men put their cots in the verandahs in hot weather. Perhaps the wisest thing they can do.

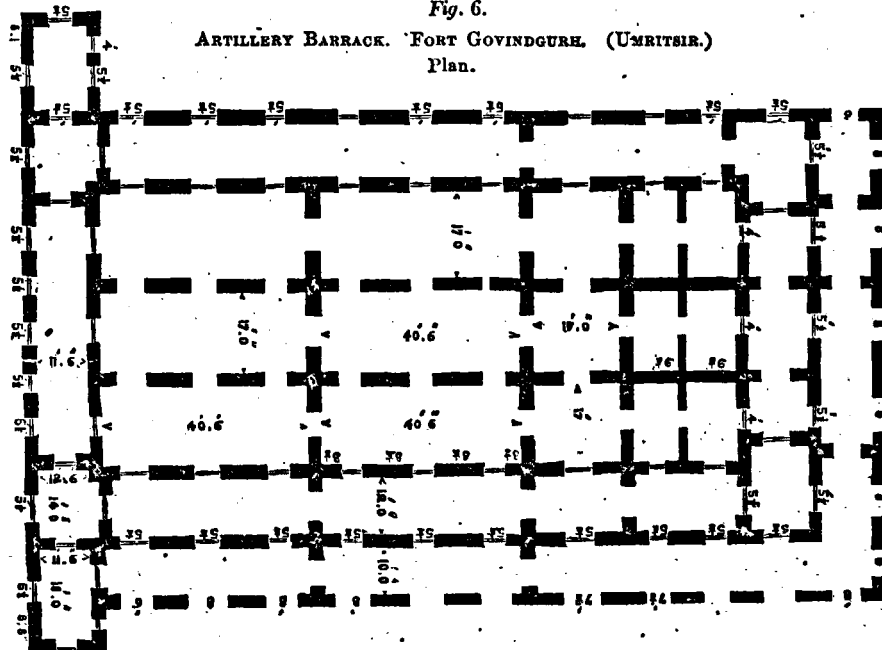
At Dinapore again are two of these enormous barrack-rooms (827 feet long, for 308 men). The superficial area in these rooms is 94 square feet per man. But one may safely say that 120 would be barely enough under such circumstances. Madras has two stories, of one room each, for 1,030 men, the upper of which rooms is stated in the return as nearly 2,125 feet long, (probably the longest room in the world), for more than 600 men, and the other, 1,483 feet. The superficial area per man is only between 60 and 70 feet in these overgrown monsters of barrack rooms. Secunderabad has 10 rooms, for 104 men each, with only from 40 to 60 square feet per man. At Poonamallee there are two long rooms, with 300 men in each, of which the space given by the dimensions is so incredibly small (112 cubic feet and $8\frac{1}{2}$ square feet per man,) that it is scarcely possible to believe them given correctly. The verandah, it is said, is frequently used as sleeping quarters. (No wonder!)

At Meerut, for upwards of 4,000 men, the superficial area is only from 52 to 79 square feet per man, and the verandahs are occasionally used for sleeping on sudden influx of troops.

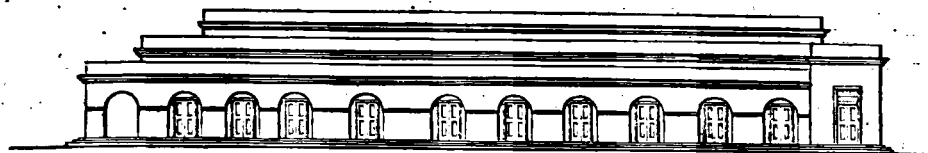
At Agra it is the same. So at Jullundur.

There is one barrack at Fort Govindghur, at Umritsir, in the Punjab, a plan and elevation of which are given at Fig. 6, which is a perfect nest of rooms one within the other, and has an open verandah

Fig. 6.
ARTILLERY BARRACK. FORT GOVINDGURH. (UMRITSIR.)
Plan.



Elevation.



besides. The elevation looks promising enough; but the inside, with its double defences of windows and doors against the outer air, is about the last place to put 70 men in. The distance between the opposite windows is 86 feet. The superficial area in this case (better than in the other instances, but more than counterbalanced by the extraordinary construction) appears to be about 85 square feet per man.

The men are far too crowded in their Indian barracks. In almost every case there are too many men in the rooms for health.

The floors in most barracks are merely the ground bricked over, or they are of stone or of a kind of plaster.

At some stations the floors are of earth, varnished over periodically with *cow dung*: a practice borrowed from the natives. Like Mahomet and the mountain, if men won't go to the dunghill the dunghill, it appears, comes to them.

To sum up: it is not economical for Government to make the soldiers as uncivilized as possible. Nature sends in her bill—a bill which always has to be paid—and at a pretty high rate of interest too.

III. INTEMPERANCE.

There is a good deal of intemperance among soldiers everywhere, but I very much doubt whether the same amount of tipping ever goes on in the British army in this country as appears to be encouraged by the canteen system in India.

A soldier in India may buy at the canteen no less than a gallon of spirits in 20 days, or he may have a quart of strong beer every day and one or two drams of rum or arrack.

It is easy to see what must be the effect of this on health in such a climate.

The gist of the stational returns amounts to this:—

Men all “temperate.” The maximum daily allowance per man is three quarts porter, or two drams spirits and one quart porter, or one dram spirits and two quarts porter. This as at Mhow, the largest of our stations in the Bombay Presidency. Agra too issues to each man per diem, during the “cold season,” 2 drams of rum and one quart of beer. But “no more than” two drams spirits, or “one quart (32 ozs.) porter and one dram (3 ozs.) spirits” per man per diem is the common allowance.

Sale of spirits “strictly forbidden” in bazaar to soldiers; every man can nevertheless get as much as he likes in bazaar, besides the above quantity. For, as might be expected, it is practically impossible to encourage and restrict an evil at the same time. Government sells the licence to sell drink in the bazaar, and orders the men not to profit by it. The present law is like lighting a fire and charging it not to burn anything.

* No confirmed drunkards; cases admitted into hospital directly from intemperance, numerous; indirectly, innumerable.

Average of habitual drunkards in some European regiments not less than 15 per cent.

At Fort William seven trials for habitual drunkenness in 8th Regiment in three months; in the 5th Fusiliers admissions into hospital indirectly from intemperance, 17 in 100; directly, 2 in 100. Spirits, it is said by more than one report, are the curse of the European soldier in India; also, that the evil effect of spirit drinking was manifest during the last field service. In seven regiments in Madras in 1849 the percentage among different classes was (roughly) as follows:—

	Punished.	Admitted.	Died.
Teetotallers - - - -	23½	131	1·1
Temperate - - - -	58½	141½	2·3
Intemperate - - - -	171	215	4·5

Again, it is said (Hazareebaugh), “soldiers as a body temperate,” and
One-third of disease, and
One-half of crime,

produced directly or indirectly by drink.

The long-cherished idea as to the necessity of spirits for the British soldier is, it is stated, thoroughly exploded. A man who drinks tea or coffee will do more work than a dram drinker, though considered sober. And why? Because we now know that tea and coffee prevent waste of the system under exertion; while spirits afford no more than temporary stimulus followed by exhaustion or collapse, both of which conditions are powerful predisposing causes of disease, especially in an exhausting climate. It is an error to sell spirits in canteens to prevent men obtaining worse spirits in bazaars. It creates craving, to be satisfied elsewhere. Again and again it is said that selling rum in canteens is an unmitigated curse to a regiment, destructive alike to health and discipline; that it will be a “happy day” when nothing but beer, light wines, coffee, tea, lemonade, &c. are to be sold. Col. Greathed, than whom we have no better authority, says that he “should wish beyond everything to see the practice of supplying spirits in canteens abolished.”

In one year (1859), at Allahabad, there were 36 cases of delirium tremens, of which 5 were fatal.

At Umritair one-sixth of the admissions are directly, and one-half indirectly, from drink. Its effect is “injurious to the last degree.”

At Chunar, though the men are "mostly temperate," yet, on a 10 years' average, *one man in three (!)* was admitted into hospital directly from drink, besides those indirectly, out of the admissions. The deaths were just twice, the crimes just 10 times as many among the intemperate as among the temperate.

It is a comfort to hear that at Secunderabad the "average number of confirmed drunkards varies." But 25 out of 26 cases admitted into hospital indirectly from drink (Secunderabad's statement) is really too bad. Though when it is added, that in this large station, occupied by nearly 3,000 men, there is so little for them to do that they "go out in search of liquor," it is the less surprising. And the immense amount of epidemic dysentery that sweeps over the place occasionally, under such a system, is still less surprising.

At Bangalore, one of the largest of our Madras stations, where numerous acute attacks of disease are brought on by the quantity of spirits drunk, notwithstanding its fine, healthy, temperate climate, 3,000 feet above the sea, it is stated that, probably, "not three men out of five go to bed perfectly sober," and when pay is issued not two in five. That, of one-year soldiers, 1 per cent. is a drunkard; after two years, two per cent.; and so the proportion increases with length of residence, owing to their "idle, listless, objectless lives." In India, temperance is the exception and intemperance the rule. "But Government is to blame." It "bids them drink freely," and when the habit is confirmed "denounces them as a disgrace to their country." "The habitual daily two drams ruin the health and habits of the soldier, who thinks that as long as he takes only what Government allow him, he cannot go wrong." The taste for spirits, it is said, is "not easily acquired by young soldiers." "The habit of spirits is maintained by their authorized use."

The temperate men, it is stated, all drink occasionally; impossible to say how much spirit is sold in the bazaars. At present the collectors encourage the sale as much as they can for the sake of the revenue. Under no circumstances, except extraordinary fatigue, almost all agree, should any drink but beer, tea, or coffee be allowed; and the loss of revenue should be otherwise compensated for. Acquiring a taste for spirits should be discouraged in men by every means. It should be absolutely interdicted on the passage out, and malt liquor given instead, with good food, good water, and good accommodation. For want of these, about 10 per cent. of the recruits arriving from England at Kurrachee have in certain years suffered from scurvy.

"All spirit drinking is injurious to health." "Nine tenths of all the crime is caused by it." "It is directly or indirectly the root of all evil in the army." Such is the testimony borne in these reports.

In Burmah, when malt liquor could be had, health always improved. A marked change for the worse took place when spirit was issued instead.

Where beer was introduced, the "tremulous, yellow-skinned, emaciated" spirit drinker was rarely met with.

Madras presidency says that "health, efficiency, and discipline would be materially improved by tea and coffee in preference to spirits and malt liquor," "as has been proved when neither spirits nor malt liquor could be had."

Barrackpore says that, if spirits were abolished, and dietary improved, the mortality among our men would be "extraordinarily diminished."

Fatal cases (in sickness) mostly occur among intemperate men.

There is hardly a difference of opinion as to the necessity of abolishing the use of spirits in the Indian army. Men would be blind, indeed, to the most glaring facts who would justify its continuance. The only plea on the other side in the reports is a very old one, which has been used to justify other vices besides dram drinking, viz., that, "if we do not give spirits in the canteen, which we all believe to be bad for health and discipline, the men will get worse spirits in the bazaar." Thus the men are killed by liver disease on canteen spirits to save them from being killed by liver disease on bazaar spirits, Government in either case benefiting pecuniarily, as is supposed, by the transaction. May there not be some middle course whereby the men may be killed by neither bazaar nor canteen spirits?

IV. DIET. *Excess of Food.*

4. It appears extraordinary to give the soldier the same amount and quality of diet in all seasons, in tropical as in temperate climates. And yet every day the soldier has 1 lb. animal food, 1 lb. bread, 1 lb. vegetables, 4 oz. rice, tea or coffee, and sugar, besides his spirits and beer, and any amount of extra animal food he may buy for breakfast and tea. Of all countries India is the one where men cannot be dieted the whole year round by the same rule without mischief. But only a few enlightened men appear to have any idea of what effect this extraordinary system of dietetics has on the soldier's health.

Surely we have sufficient knowledge of dietetics to be able now-a-days to vary our diet to suit climates and seasons, and to know that we cannot eat every thing every where. Sir John Lawrence says, in his evidence, that Government "might try to induce the men, by varying the ration with reference to hot or cold weather, to take more to vegetable diet."

The means of cooking are of the rudest order—a small square outhouse, sometimes without a chimney, often far from clean, is the regimental kitchen. As for boilers and ovens, considered indispensable at home, there are none. A few holes to put the fire in, and moveable utensils to hold over them, are all that India thinks it wants. There is of course no water laid on, and no drainage. Here as elsewhere is the inevitable cesspit, and sometimes there are two.

Fig. 7 is a plan of a double kitchen at Hazareebaugh. Fig. 8 is a by no means bad example at Belgaum. Both show the total want of civilized appliances. And although the cooking is not often complained of by the stations, there is very good authority for stating that the food is imperfectly cooked, or served up in a way which destroys the digestive organs, and leads to the use of stimulants to promote digestion.

Fig. 7.

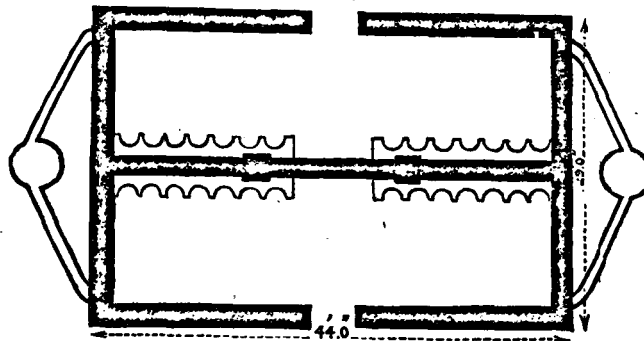
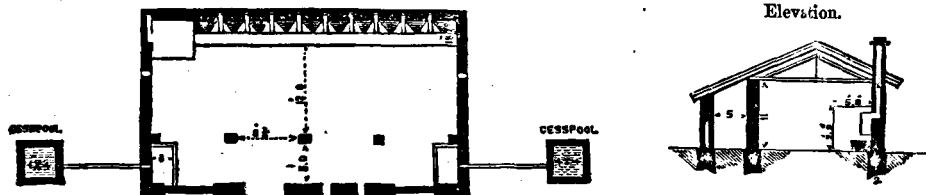
COOK-HOUSE, HAZAREEBAUGH.
Plan.

Fig. 8.

ARTILLERY COOK-HOUSE, BELGAUM.
Plan.

V. WANT OF OCCUPATION AND EXERCISE.

5. To understand the influence of this system of dieting and drinking, it must be remembered that, except morning and evening parades, and the man's turn on duty, he has nothing in the world to do. He can neither amuse himself, take exercise, nor turn his time to profit for himself, for there are no means of doing any of these things. All the spare time people usually give to active occupations he spends lounging in his hot barrack room, most of it on his bed.

The following graphic woodcut of the manner in which a soldier spends his day is from a drawing kindly sent me by an Indian officer of rank. (See page 12.)

India actually reverses the ordinary human day, for the men spend 18 hours of the 24 in or on their beds, and six hours only up or out. Indeed, Kamptee says that "for many months of the year the men are confined to barracks for 20 out of 24 hours." And your imagination must fancy 100 to 600 men or more packed into the same room for eating and sleeping away these 20 hours.

This is an account of a soldier's day:—

bed till daybreak;
drill for an hour;
breakfast, served to him by native servants;
bed;
dinner, served to him by native servants;
bed;
tea, served to him by native servants;
drink;
bed;—and *de capo*.

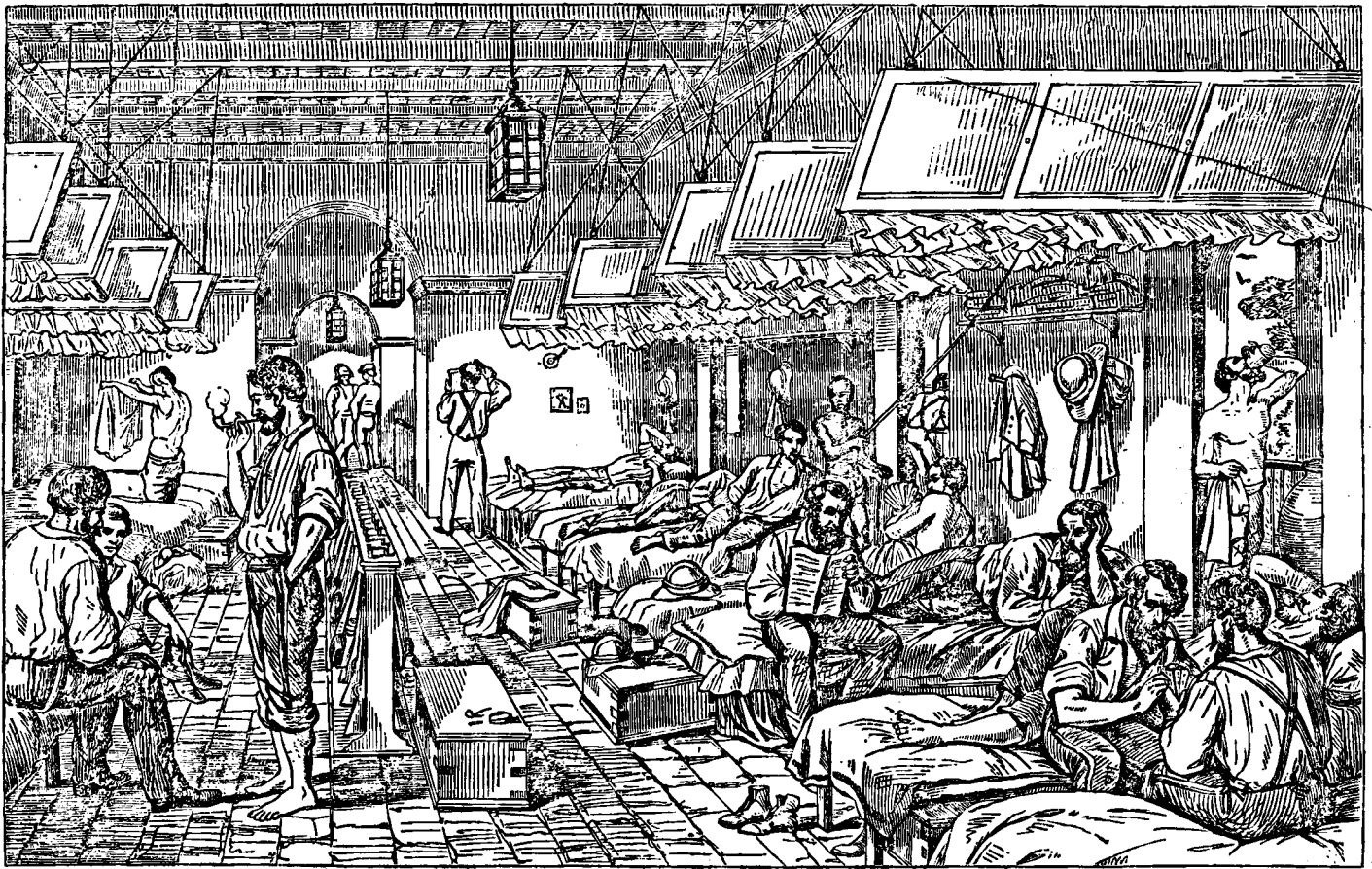
So that the Briton exactly spends his spare time between eating, drinking, lounging, or sleeping; and he eats meat always twice and sometimes three times a day.

All his meals are condensed into the hot hours of the day. And just when he wants one most, viz., before he goes out to his early morning work, he does not get it. Why not give him hot coffee before morning parade, and beer, if he must have it, at dinner and at night? Not one report except Tonghoo but prays for the abolition of all this dram drinking; and it is said that the abstinent man is more enduring of fatigue and less obnoxious to disease than even the temperate man. Spirits, it is said, should never be offered for sale, as men are induced to take spirits who never would if they were not so "handy." Trichinopoly says that the sale of spirits should be abolished in canteens, bazaars, and within a circle of 10 miles round barracks.

If the men had employment, recreation, good tea, coffee, milk, more variety of food and of cooking, spirit drinking might be abolished. A good hot cup of coffee is the best stimulant for a soldier. As it is, the old soldiers often take a dram before morning parade, and nobody can prevent them.

The following piece of information is curious (the scene lies in the Madras presidency,) viz., that "the canteen funds" (the profits derived out of the soldiers' drunkenness) "are insufficient to provide amusements to keep the men from drinking." Also that where there is no library there are "plenty of books which can be read till 8 p.m., when all lights are put out." Berhampore has a library and reading-room, but "neither lighted at night."

That want of occupation, leading to drink, lays the seeds of disease among the troops, is acknowledged "Alcohol and unrefreshing day sleep," says Bangalore, "contribute to engender disease and accelerate mental and physical decay." Ahmednuggur says that, for one man occupied in a barrack there are six idle. Also, that when men are actively engaged in the field in hot weather, there is little sickness or epidemic



DAILY MEANS OF OCCUPATION AND AMUSEMENT. INDIA *passim*.

disease among them. So unaccustomed is the soldier to ordinary exertion that, as might be expected, the short parades are talked of as injurious; as if they were long harassing marches; while, curiously enough, it is admitted that the soldier is never better than when he is exposed to the harass and fatigue of field service.

Kolapore and Belgaum say that, the more varied and agreeable a soldier's occupations, the better his health; that the troops require means of occupation and amusement to keep them out of the bazaars.

All the sensible reporters say that too much stress cannot be laid on the importance of using the utmost exertion to provide legitimate amusement and occupation for the men—workshops, shelter for athletic games, &c. We must always remember that, in hot weather, the men, save those who can read, "have positively nothing to do." Employment on public works "would be a great boon;" "the work would be as cheaply done as now; it would occupy the soldier, and he would feel he was doing good." Savings banks would answer, "if workshops for trades were established." The usual account from a station is, no library, nor reading nor day room, no club, no garden, no workshops, no theatre, no gymnasia, no means of instruction or recreation whatever, no skittle grounds, or if there are any, not covered, no sufficient shade for exercise. And the men are generally confined to barracks from 8 a.m. to 5 p.m. in hot weather.

Cawnpore actually orders the men to be confined to barracks for 10½ hours a day in hot weather; but the order "is often disobeyed." At Chunar there is no restriction as to exposure to the sun. The "men go about at all times, and, except when under the influence of liquor, do not appear to suffer from exposure." Yet Chunar's mean temperature is 65° in December and 92° in June, its sun temperature as high as 120° in June. And yet the men do not "suffer from exposure."

Agra, Ferozepore, and Umballa say that a large covered building for gymnastics, workshops, games, with a library, reading and coffee room, a theatre and plunge baths, "would draw many men from their cots, where they idle and sleep all day." And Peshawur recommends that this building should be separate from barracks.

Dinapore recommends a farm yard to employ the men: an excellent idea.

Mean Meer (Lahore) suggests photography, modelling, and drawing as occupations for the men.

Sealkote (1,200 men), and Ghazee-pore (850 men) may be offered as examples of the two opposite types of rational occupation and idleness.

Sealkote, indeed, is the only station, except Rangoon, which has anything like completeness. It has ball courts and skittle grounds. It has schools and regimental libraries. It has a well-lighted reading room, with chess, backgammon, dominoes, and 16 newspapers, &c. It has a soldiers' garden, with seeds and tools provided by Government, who grant prizes for the best cultivation (soldiers' gardens, when they exist at all, are elsewhere worked by natives). It has armourers', saddlers', tailors', shoemakers', and one watchmaker's shops. It has theatres; it has cricket and regimental clubs; it has foot ball, and it is particularly fond of quoits. The savings bank of one of its regiments has 8,000*l.* It has sufficient shade for exercise. Yet Sealkote does not think it has done enough. And while other stations, whose men "lie in their cots all day," seem unaware that anything else is desirable, Sealkote wishes that "workshops for every trade" were instituted, as they might be, and "strongly recommends" a gymnasium.

It is noteworthy that the health of the troops at Sealkote seems to require but little amendment, and that no complaint is made of its climate.

Rangoon has a ball court and skittle grounds; schools, three libraries and dayrooms; soldiers' gardens; shops for trades; two theatres. But Rangoon says it requires lofty open sheds for gymnasia, and that Government should afford every aid in establishing good coffee rooms, *independent of canteens*, all amusements to be as near as possible, all canteens to be as far as possible, from the coffee rooms.

Now take Ghazee-pore. Its whole means of occupation, instruction, and recreation, are one ball court and two skittle grounds. Its whole shade consists of the verandahs, under water during the rains. "Almost everything has yet to be done."

The large station of Allahabad (with accommodation for upwards of 4,000 men) is almost as ill off. Tonghoo, the only station which considers the quantity of spirits drawn as "conducive to health," and the amount of "sickness, mortality, and crime occasioned by intemperance" as "trifling," has, as might be expected from this statement, absolutely no means of occupation and amusement for its men, and few of instruction. It appears to consider drinking and idleness the normal state of things. At Bangalore (1,700 men) "day rooms, soldiers' clubs, workshops, theatre, gymnasia and gardens, are things unheard of." The "regimental library has no attraction for men who read with difficulty." This is the place where, as soon as "the noonday gun announces that the canteen is open, a rush is made for the raw spirit dram;"—where "the canteen and the cot divide the hours unoccupied by the daily routine of petty duties." What else can be expected? There is, of course, plenty of liver complaint here.

But amusements are not all that is required. In conformity with all reason and experience, Sir Charles Trevelyan observes, that, however necessary and useful chess and backgammon, ball courts, and skittle grounds, and even books and newspapers may be, they only furnish some present diversion, and do not supply any strong pervading motive, such as induces men to submit to sacrifices, and to make persistent exertions in other lines of life. This motive is to be found only in the hope of rising to a higher and better position. He advocates a system by which every soldier who conducts himself well and cultivates himself so as to acquire a knowledge of the native languages and other necessary attainments, should be able to look forward to promotion as a matter of course, either in the army or in the commissariat, ordnance, or other military departments, or in the department of public works or police. The British soldier in India would then feel himself engaged in the serious business of life, at least as much as any of his countrymen of the same class at home. The army would take its tone from the active influential portion of the men. The amusements of various kinds provided for the soldiers would be more appreciated and would have a more wholesome effect, because they would take their proper place in subordination to higher interests.

This is no theory. It was actually carried out by Sir C. Trevelyan at Madras. Men were first selected by competitive examination within the regiment. There was a second examination at Madras, and the result was the obtaining "of 20 men who were the pick of the whole army for the administrative service of the Government in the civil and military departments."

One element essential to placing soldiers in positions of civil usefulness is, of course, their learning the language of the country, necessarily part of that voluntary education which they must have for competitive examination. Teaching the native languages in regimental schools would at once provide the men with interesting occupation and the prospect of future advantage. The War Office has already sent to all European regiments in the Madras Presidency a cheap edition of the New Testament and Psalms with a Clavis in Hindostanee, in furtherance of this object.

Sir C. Trevelyan would also encourage trades and handicrafts to the full extent consistent with the means of profitably disposing of the produce. And this is the more necessary because all are not equal to the intellectual acquirements to which the previous remarks refer.

All officers who give an opinion on the subject concur in recommending workshops.

Dumdum, in the total absence of all means for occupying the men, opens a small museum, with lectures, to which the men crowd, showing "that soldiers are ready to avail themselves of any means of rational amusement in the evening in preference to spending all their time in the canteen."

Muttra again has no means of instruction, occupation, or amusement whatever, except a soldiers' garden, for which there are no tools, although indented for a year ago. Carpentry, saddlery, and coopers' work are in great demand, and would benefit the men, as regards health, morals, and finance.

Lucknow is building everything that is required, except workshops.

Rawul Pindi has nothing but schools.

Barrackpore petitions for five courts, a theatre, gymnasia, swimming baths, public reading of good biographies, travels, and novels; for trades, such as clothing, accoutrements, barrack furniture, watch making, printing, paper making, baking. It says that savings banks should be connected with workshops.

Darjeeling has a hospital reading room, and reader: a very good plan. But for its men out of hospital, at a hill station, where the rains fall incessantly for five months, there are no means under cover provided and the men are pent up in barrack-rooms, to the great injury of their health. Darjeeling says, "there should be restaurants where men could get coffee, tea, newspapers, magazines, and mix with men of other regiments, instead of the discomfort of the everlasting barrack-room."

Hazareebaugh has a Government library, not lighted at night, a temperance reading room, well lighted, with upwards of 200 members (out of 1,080 men, for which number the station has accommodation), and, although it has armourers', shoemakers', and tailors' shops, it strongly recommends further means of occupation and amusement "as the long days of the Indian hot weather hang heavily on the soldiers' hands."

This part of the subject is by no means exhausted, but these examples and illustrations are quite sufficient to show the small amount, indeed, of physiological knowledge which has been practically applied to the British army in India.

Suppose any one wanted to try the effect of full diet, tipping, and want of exercise, in a hot climate, on the health of men in the prime of life, the Indian army method would be the process to adopt, in the certain expectation that every man exposed to it will be damaged in health.

While all this scientific "turkey stuffing" is practised, the men are carefully kept in barracks and not allowed to exercise themselves. And every body seems to believe that the way of making diseased livers in geese for Strasburg pies is the best way of keeping men's livers sound and of making efficient healthy soldiers for India. Wherever the régime is otherwise, as in the case of cavalry and artillery, who have some exercise, or where an enlightened officer allows his men to go shooting, there is, of course, improved health. But nobody learns the lesson.

People seem to consider that health is a natural production of India, instead of being the result of rational management. At the same time everybody says that India is "so unhealthy." Under this system of diet, regimen, drink, and idleness, it is indeed to be expected that cases sent to the hospita will be much more numerous, much more severe, and much less amenable to treatment and management than under a sensible system.

VI. HOSPITALS.

6. The Indian hospitals, though planned on simple principles, admitting of admirable details, are, as a rule, exceedingly bad as regards points considered essential to health and administration, even in this country. What would be, *e.g.*, thought in this country of a hospital without a watercloset, or bath, or means of personal cleanliness? Such a hospital would be considered as a mere makeshift, till accommodation fitter for recovery could be provided.

The "means of ablution" in Indian hospitals, are often "a tin pot, with which the sick pour the water over themselves." Or, as at Bombay, they "take water to bathe themselves from a trough." Elsewhere, they have "one tub, one basin, to 100 men." The means of washing, as at Ramandroog, a convalescent station, are "two shallow earthenware pie dishes," "on a form in a room" ("very chilly in damp" weather) "adjoining where the night stools are."

At Rangoon the "bathing accommodation" is "hitherto nothing but a tub of water, without basin, soap, or towel."

There may be a bath room. But "all apparatus is entirely wanting." The sick "can always, if they please, get a skinfull of water thrown over them by the water carriers," as at Hazareebaugh.

One may safely say that when the sick are able to bathe in India, it is a sufficient test of their being able to leave hospital, as has indeed been discovered to be the case at some home stations.

At Nynce Til the sick bathe in the lake. Darjeeling says, "in fact the inducements to remain dirty are, especially in the case of sickly men, greater than those to be clean."

There does not appear to be a single well placed orderlies' or nurses' room in any of the hospitals, from which the sick can be seen at all times, and where the nurses themselves can be inspected. The surgeon's and "nurses'" quarters are sometimes three-quarters of a mile or a mile off, so that they (the medical and nursing attendants) are represented as spending their whole day in going backwards and forwards on the road.

The hospital is generally surrounded by a "high prison-like wall." At Ghazepore it is said "of course" all the buildings generally are most unsuitable for hospital purposes." Proper ventilation is represented,

as at Baroda, as "next to impossible." At Kolapore the rain beats in through the cowl, and "makes the wards so damp that charcoal has to be used to dry them." The water for drinking may be brought, as at Bangalore, from a tank which receives the whole sewage of the cantonment, and which "just now is not very clean," from which "hundreds of bullock loads of impure matter are removed year after year when the tank is low and the smell from it most offensive." Or the water may be brought (cholera also being brought with it) from wells into which the said tank drains. The drainage may be by an open ditch into the tank, whence the hospital derives its water. Or the water supply may, perhaps, have to be carried from half a mile off, or even from two miles off, as at Madras. But "no improvement is required in this respect." (!) The privies are everywhere either "highly offensive" or "not more offensive than the best of such places usually are in this country." Or the privies are "without seats," and are "kept pure by burning salt in them." "Arrangements admit of improvement."

Scarcely ever is there any provision of separate wards for convalescents; although, in a country whose scourge is dysentery, to leave men convalescent from dysentery in the same place and under the same circumstances as those suffering from dysentery is just to ensure as far as possible their *not* convalescing. The same may be said of fever and of bowel diseases generally. Convalescents pass their whole 24 hours in bed, except during their time of exercise (*where* they have means of exercise) on elephants, in sick carts, or doolies. They have not even a room to take their meals in, but eat their food upon their knees, sitting on their beds, "possibly with dying-men around;" or they are sent to barracks and put on barrack rations, and "marched out under a non-commissioned officer morning and evening for exercise."

Where there is no guard house the "men on guard occupy a corner of the hospital verandah, where they eat, drink, and smoke at their discretion." No hospitals have dining rooms, although all ought to have them because of the pest of flies in India. Not one has a day room for men who can leave their beds.

The "sanitary state" is generally represented as "good," although at the same time we are told as in certain cases that the hospital is "unfit for accommodation of European patients;" or that "epidemic disease has appeared in it;" that "sores become erysipelatous;" that, as at Bangalore, "one of the flags" in the floor being removed, "the smell from the opening was so offensive that" the surgeon was "obliged to run;" that "gangrene and phagedæna have appeared, when the hospital was crowded;" that the "privy is a nuisance to one ward;" that the "cesspools are always more or less offensive;" or that the "outhouses are in a very dirty and unwashed condition." At Muttra the contents of the latrines are "carted away every morning for combustion in one of the many brick kilns which surround the station and help to poison the air." At Madras the "sanitary state" is called "good," and the commander-in-chief himself adds, "if the vile stinking river Cooum were not under the very noses of the patients." Both cholera and gangrene have appeared at times in the hospital. The latrines are placed to windward "unfortunately;" "tubs only are used." The privy is washed daily, and charcoal "burned in it." It is called "not offensive," the commander-in-chief again adding, "a year ago it was odiously offensive."

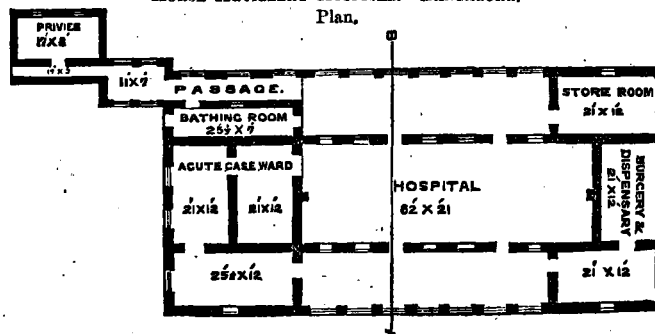
No wonder that it is stated, as at Bangalore, that "sick men are reluctant to come into hospital from barracks," and that the medical officer does not want "convalescent wards," because he finds it better to send his convalescents to barracks, where they recover faster.

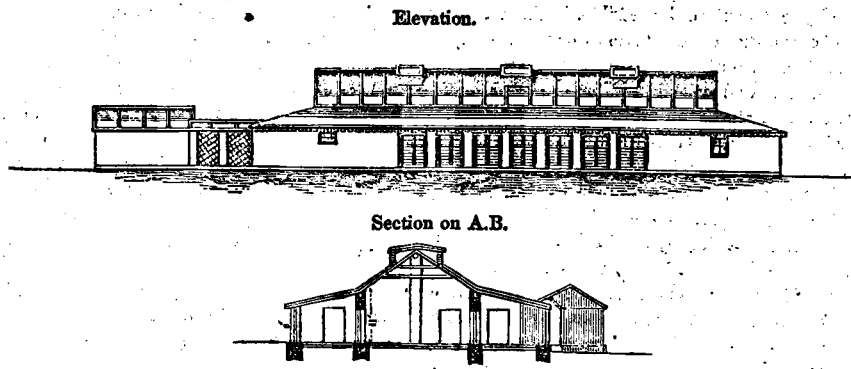
From some hospitals the "impurities" are removed by hand carriage to 30 yards from the hospital. In another, the privy is said to be a "disgrace to the 19th century." One wonders to what century it would be a credit.

At most hospitals the bedsteads are of wood instead of iron, and the men break them to pieces in their efforts to expel the vermin." As at Ramandroog, where men are sent for their health, "the building swarms with bugs." And so of every barrack and hospital where these wooden bedsteads are used. One surgeon complains of the serious injury to his sick occasioned by want of sleep from vermin. The bedding is of hemp or straw, instead of hair, which latter it ought always to be in hospitals, and which is now the regulation in all Queen's hospitals. It appears from several reports that sheets are not provided except for dysentery and fever: and certainly in no hospital deserving the name should the inspector-general feel himself called on to recommend that "a good mattress, a blanket, *sheets*, and pillow cases should be provided for every bed," as does the excellent inspector-general of the Madras Presidency.

Figs. 9, 11, are illustrations of the smaller class of regimental (British) hospitals. Fig. 9 shows the simpler form of construction, a single large ward, partially enclosed by other rooms for sick, all communicating and having a common ventilation, the arrangement good and simple up to a certain point, and then marred in the details. There are privies in place of water-closets, with covered passages, to conduct foul air to the sick in certain states of the wind. Bangalore gives a reason for "the covered way to the latrines," which we never should have thought of. It is a "covered place for exercise."

Fig. 9.

HORSE ARTILLERY HOSPITAL. BANGALORE.
Plan.



It will be seen that the hospital is entirely destitute of proper ward offices.
 Fig. 10 shows the privy arrangements in plan and section. There is no drainage; the contents are carried away by hand.

Fig. 10.

EUROPEAN INFANTRY HOSPITAL PRIVY. BELGAUM.

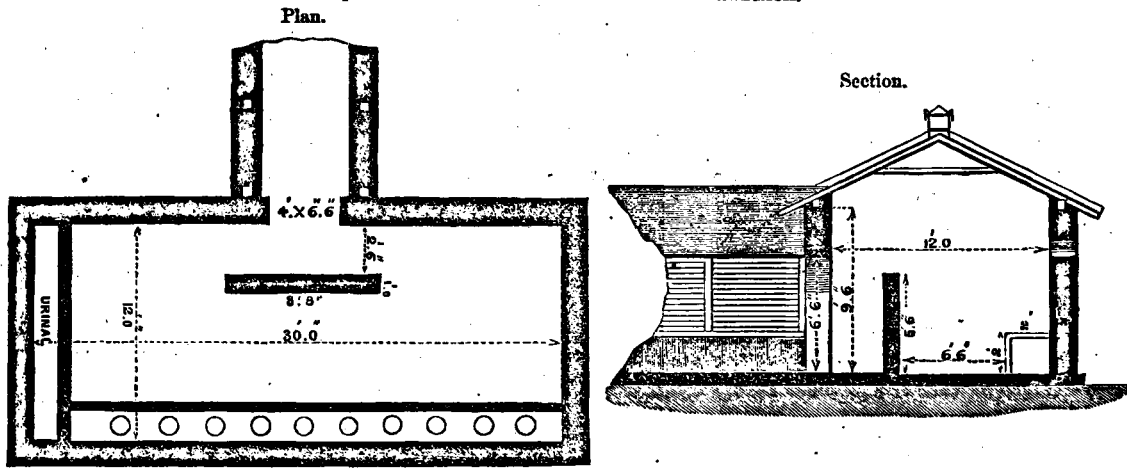
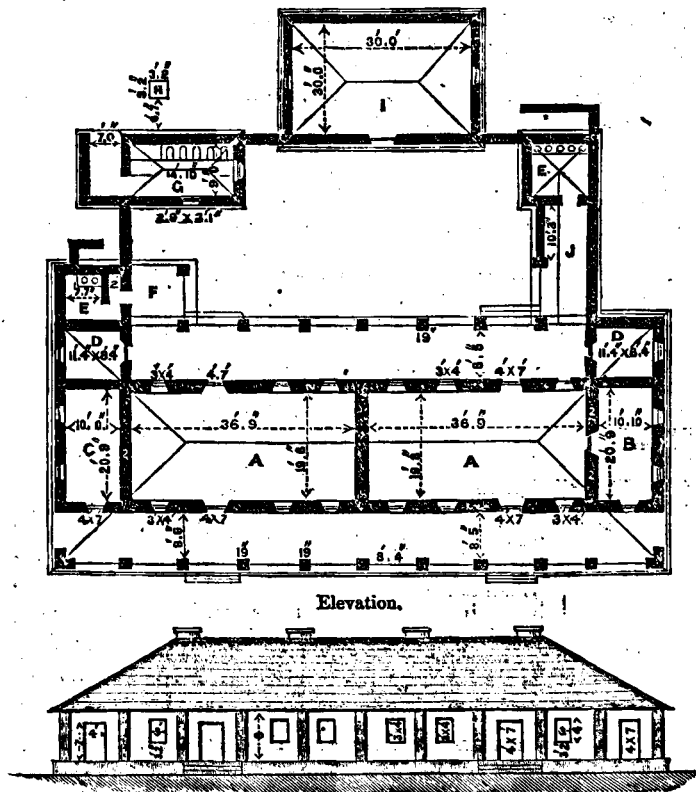


Fig. 11 shows a somewhat better construction of hospital, but there is the same defect in detail.

Fig. 11.

ARTILLERY HOSPITAL. BELGAUM.

Plan.



Either plan might answer for temporary camp purposes, in default of better, but that is all.

Indian hospitals generally, so far as all conveniences and comforts are concerned, appear to be simply camp hospitals; good, because the best possible for field service, but by no means good or the best possible for permanent stations.

There is no instance, except at Wellington, where the hospital, if on one floor, as is usual, is raised from the ground with any current of air beneath. These hospitals are stated, as at Bangalore, to be "always damp in wet weather." And often the floor is merely the ground bricked over. Rangoon and Tonghoo live like the beavers, and raise their barracks and hospitals on piles, with free passage for air underneath. The consequence is, that in those jungly swamps, they are more healthy than at most other Indian stations where the men sleep close to the ground.

As at Allahabad, Barrackpore, Dinapore, Meerut, Kurrachee, and Secunderabad, vast wards of from 100 to 150 beds, and even up to more than 200 beds, exactly the same as the barrack rooms, are in use.

The wards can never be said to be light or airy; "as a general rule, hospitals are badly lighted and gloomy;" doors are more common than windows. And these doors, when closed, leave the ward, if not absolutely dark, yet absolutely dismal and close. Indeed a dark ward must always be a close ward. Or "light enters from a couple of panes in the doors near the top, and when closed darkness is almost complete." There is in Indian hospitals hardly a room light enough to perform a surgical operation. And operations, it is stated, have to be performed in verandahs.

The inner verandahs are generally used for sick wherever more room is wanted: the outer ones sometimes cut up for lavatories, destroying what ventilation there is.

The superficial area per bed is almost invariably too small, and the wards almost as invariably too high; the result to the sick being that, with an apparently sufficient cubic space, the surface overcrowding is excessive. One of the worst examples of this is the recently constructed hospital at Trimulgherry (Secunderabad) which consists of three wards, two of which contain no fewer than 228 beds each; the wards are 42 ft. high, and afford 1,001 cubic feet per bed, but the surface area per bed is only 24 square feet. This surface overcrowding is greater than I have ever seen in the smallest or the largest temporary war hospitals. Such facts strike one very forcibly in connexion with the high mortality among sick entering these and similar hospitals.

All the defects of barracks re-appear and with worse consequences in the hospitals: viz., bad water-supply, bad ventilation, no drainage, (Ferozepore says, "drainage not necessary,") offensive latrines, so offensive indeed that the patients have sometimes to leave a particular ward, no means of bathing, and hardly any of cleanliness.

There are besides, however, two grave defects not felt in barracks, but peculiar and fatal to hospitals.

These are the cooking and the attendance. It is in several reports complained that under the present system the cooks (natives or Portuguese), are nothing but "miserable pretenders," because the pay is so small; that the kitchens are no better than, but just the same as the barrack kitchens. They are often small open sheds, without chimneys, the smoke finding its way out as it can, and with but few utensils; sometimes the food is prepared on the ground. "But we are accustomed to this in India." It is added, that though common food is tolerably well prepared, there is nothing whatever that can be called sick cookery, nothing whatever to tempt the appetite or spare the digestion of the sick man, whom the hospital is for.

In hospitals at home, trained cooks of the army hospital corps are now in charge of the cooking, under the direction of the purveyor, who is responsible that the diets are properly cooked. In India the chief quality in native cooks appears to be the "pursuit of cooking under difficulties;" their ingenuity in bringing about an apparently good result, in a rude and often bad way, is frequently admired by the reporters, as if the end of cooking were "to make a pair of old boots look like a beefsteak."

In England where the grass-fed meat is so much better than in India, it is found necessary to put the purveying of meat for hospitals under the charge of the purveyor, for the sake of always obtaining the best quality.

There does not appear to be any provision of this kind in India, where all is under the commissariat.

As to the attendants, they are just the same as would be supplied to idle healthy men. Quantity, it would seem, is supposed to supply quality. In serious cases a "waiting man" is supplied "from the battalion who is relieved daily." That is, he goes on guard for 24 hours, as in the guard room, so in the sick room. It appears that mounting guard in the sick room is disliked, and the guard sometimes neglects his patient.

As to supposing that any nursing is required, the thing is totally out of the question. There are neither trained orderlies nor female nurses.

A matron is sometimes "sanctioned," but "only for a complete battalion." If there are fewer sick they must do without. Every severe case, as has been stated, is allowed to have its comrade to itself in from the ranks, i.e., the case which requires the best nursing is to have the worst nurse. Something more is needed to make a nurse, as well as a surgeon, than mere kindness. Wherever the above comrade-practice is found, we know beforehand that there can be no nursing, no discipline in that hospital, and any amount of drink.

There is generally one hospital serjeant and a "plentiful supply of ward coolies." The hospital serjeant is for discipline, and under him are 79 coolies and bheesties in cold weather, 240 in hot weather. This for an European corps. The general impression, as regards the native attendants,* is that they are in some

* And here comes in again the difficulty of difference in language. Our men dislike and despise the natives, and are regarded by them in return more as wild beasts than fellow creatures. The native, however, makes much more effort to learn the Briton's language than does the Briton to learn the native's. It is difficult to give an idea of the evil effects of the gross ignorance of all that relates to the country in the ranks of our army in India. The commonest attempt at conversation gives rise to feelings of impatience and irritation, too often followed by personal ill-treatment. Where the Briton is sick, it is of course worse.

To enable our soldiers to hold ordinary intercourse with the people among whom their lot is cast, is the first element of an useful and happy life for them in India. Every soldier should be required to learn something of the native language. And a somewhat higher voluntary standard should be fixed, the inducement to attain which should be:—1. A specific pecuniary reward. 2. Eligibility for employment in the various departments of the public service.

sense kind, but "as a rule, very inattentive," and when there is any pressure of sick they are "lazy," and "apathetic," and the sick, it need hardly be said, neglected, and "averse to be waited on by them." When at a hill station, as Landour, the hospital serjeant is taken at random from the sick men themselves, sent up for convalescence, it is needless to point out the consequences. This grievance has been repeatedly represented, but in vain.

Nynee Tal has one hospital serjeant, one barber, one orderly, for its attendance.

Lady Canning introduced female nurses at Allahabad, who are mentioned (in the Stational Return of Allahabad) as being a great comfort to the sick. Wherever there are general hospitals there should be female nurses, but only under the organization laid down by the Medical Regulations of October 1859. It is a great mistake to put down a few women among a parcel of men (orderlies and patients) without exactly defining the women's duties and place.

Lastly there appears nowhere in India to be provided any means of drying hospital linen, even during the rains. It is often complained that the washing is very bad and that the native washermen tear the linen, and at one cavalry hospital this keeps two tailors constantly employed in repairing the rents and injuries; for native washing is done by beating the linen against large flat stones or wooden boards.

If the British military hospitals are such, what must be said of those for our native troops? Here the patients "diet themselves."

As regards construction, where native hospitals have been specially built, they resemble the smaller class of British hospital. One of the most complete of these is shown in Fig. 12. There are wards within wards, completely enclosed by other rooms, of which, although there are plenty, not one is suited for ward offices.

Fig. 12.

KURNOOL FORT HOSPITAL. (NATIVE.)

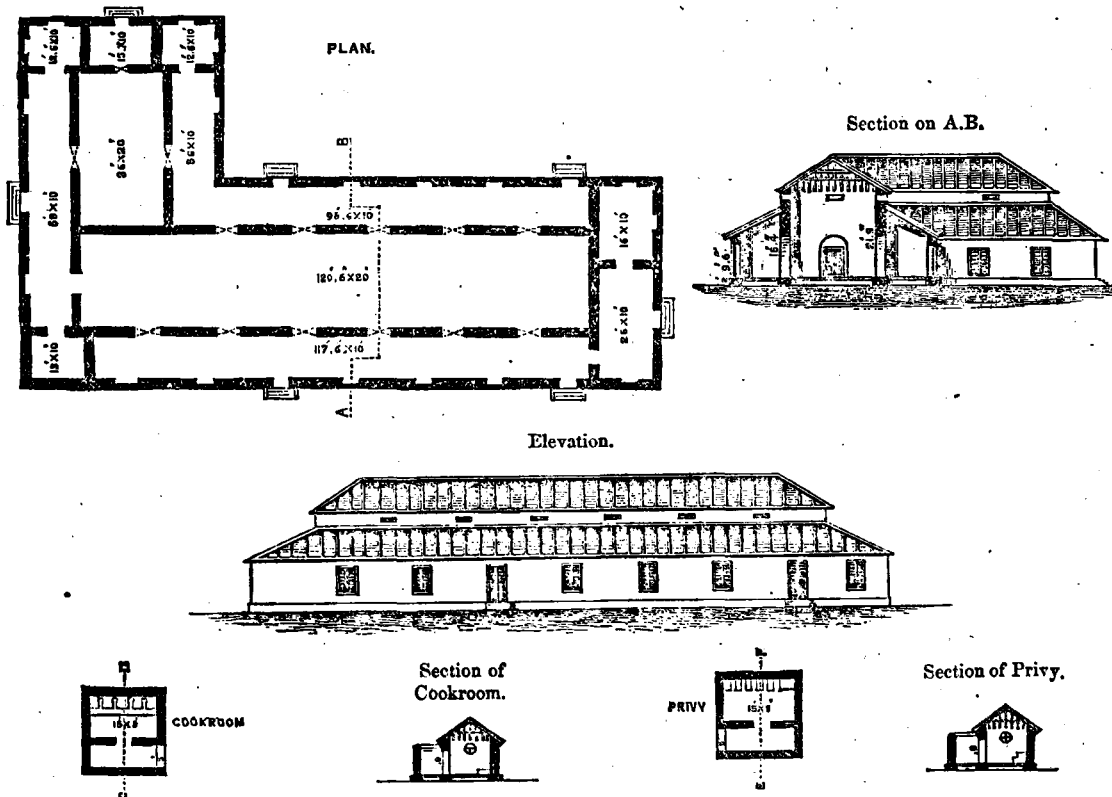


Fig. 13 exhibits hospital construction reduced to the most extreme state of simplicity. It consists of a single ward, with a few square holes on opposite sides, apparently without any glass. No ventilation and no ward offices whatever. But there is a dispensary and store room exactly where they ought not to be.

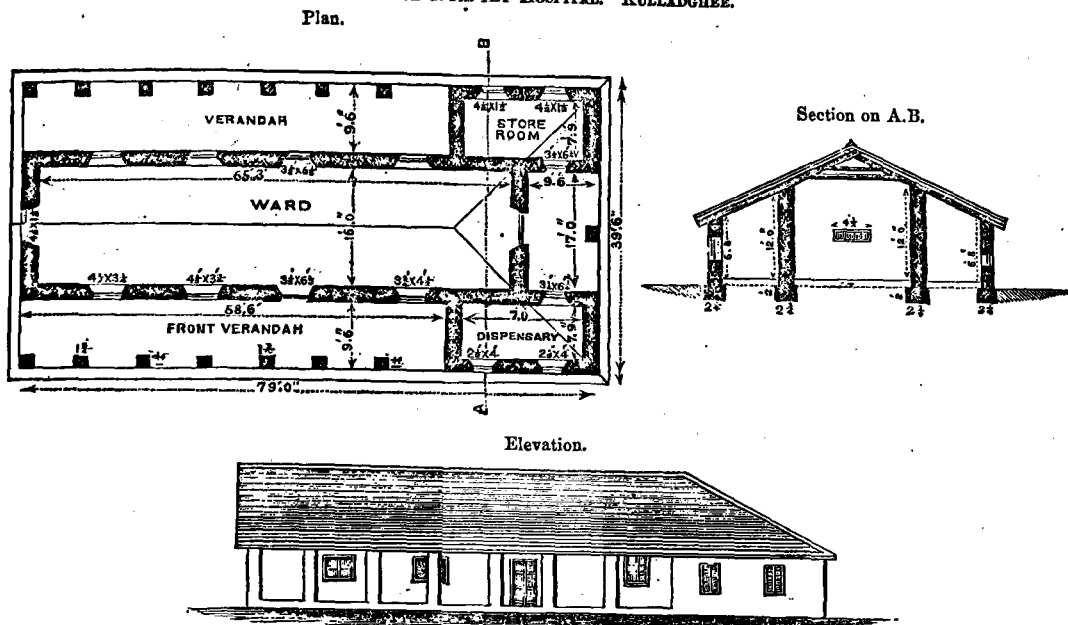
But it must not be supposed that native hospitals are all as good as these. They are generally nothing but a shed, perhaps a "gun shed," or a "cattle shed," as at Kolapore, converted into a hospital, where the sick receive nothing but medicine. The patients cook their own diets, eating and drinking what they please. Or when too ill to cook for themselves, an orderly friend is detailed for the purpose. There are no conveniences; sometimes the sick go home to wash, or bathe themselves in a tank. Such are the "ward offices usually provided for these establishments." In one native infantry hospital at Secunderabad it is stated that hospital gangrene frequently occurs from overcrowding, from the cachectic state of the patients, owing to the unhealthy character of their lines, and from a cesspool in the hospital enclosure, which last is, however, being remedied.

At Rangoon, it is stated that the privies, for native regiments, are built of matting, "which is most objectionable, as allowing the escape of noxious effluvia." Is it then desired to keep the "noxious effluvia" in?

It is supposed that "caste" prejudices are such as to prevent native hospitals being properly built, and supplied with requisites for sick. But this has to be proved by giving natives a properly constructed and provided hospital. There are plenty of "caste prejudices" in this country against good hospital construction; but good hospital construction advances nevertheless.

Fig. 13.

NATIVE INFANTRY HOSPITAL. KULLADGHEE.



At Loodiana, one native doctor, one cooly, one water carrier, one sweeper, are the attendants "sufficient for the ordinary wants of the sick." The present arrangements for the female hospital are said to be "sufficient," (which means *none*) (Loodiana is now a native station).

VII. HILL STATIONS.

Sir Ranald Martin wisely and strongly urges that the whole subject of hill stations should undergo a thorough revision, for the purpose of deciding whether a portion of the army could not be always taking its turn as a reserve on the hills, thus to preserve its stamina.

Children too might be reared as well on the hills as at home. One of the native chiefs going over the Lawrence asylum (of 500 children) at Sunnawur, said to Sir John Lawrence that they looked like lion's cubs.

It strikes one, however, that it would not be safe to depend for improvement of the health of troops solely on occupying hill stations, with such an overwhelming amount of evidence as to the bad sanitary state of the stations on the plains, and even of not a few of the hill stations themselves, such as Darjeeling, Landour, Nynee Tal.

"At some hill stations there is malarious fever; others predispose to diarrhœa." The barracks and hospitals at Kussowlie and Subathoo are defective both in plan and in structure. At Mount Aboo they are "bad barracks," built in a "malarious gully," and the men return suffering from intermittent fever and from scorbutic disease, the result of want of vegetables. Will it be credited that, at one of the two hill stations of the Madras Presidency, the privies are built on the edge of the hill, in order that the natural slope may save us all the trouble of sewerage, the lavatories the same, which are emptied by "upsetting the tubs" down the hill; and that, at the other, with more than 900 men, the barrack square was an immense swamp for want of drainage. Low fever, from March to May, from which the men have suffered who were sent there for health, is attributed to this as if it were a meteorological observation. This refers to Wellington on the Neilgherries. Indeed the Neilgherry stations, the best in India, are in great danger of being permanently injured by sanitary neglects.

In fact, all that the hill station evidence proves is that healthy men, put under healthy conditions, will remain healthy, and *vice versa*.

Hill stations, it is said, are highly favourable to troops arriving in health, if lodged in good barracks; are unfavourable in some states of disease. Dry, spacious, well-ventilated barracks, in well-chosen positions, drained, supplied with wholesome water, and out of the way of nuisance and malaria, have been the great want of hill stations. And want of fresh vegetables and of pure water has produced much mischief. In the rains, the water is often loaded with "rotten vegetable matter causing diarrhœa." [Is this supposed to supplement the want of vegetables?]

High authorities advocate sending certain invalids to sea-side sanatoria.

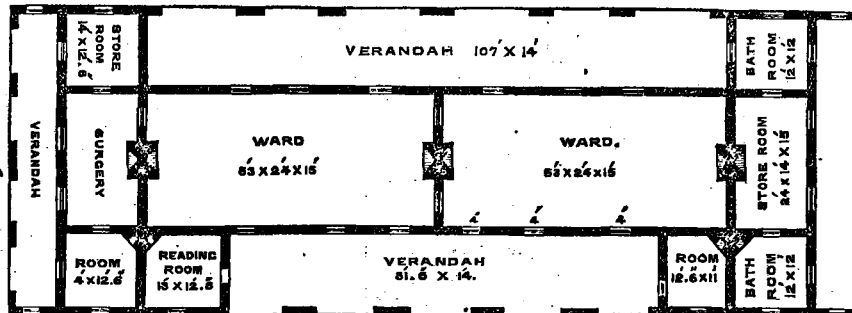
Hospitals at hill stations appear to be very much on a par with hospitals at plain stations, as far as can be learnt from Fig. 14, which represents the hospital at Darjeeling used for sick of the depôt. The arrangement is much that of a field hospital, with fire-places to suit the climate. At this hospital an open privy was placed in one corner of the verandah, which compelled the sick to evacuate the ward, and it took five years' writing to get it removed.

Hill climates, judiciously used, would no doubt be of great value. But they are by no means all that is required for the salvation of the Indian army. This must be brought about by sanitary measures everywhere, of which hill stations, if kept in a good sanitary condition (but not if kept in a bad condition) are one. This is the unquestionable result of the evidence.

When our troops went into a notoriously unhealthy district in China, they were not placed on hill stations. They were properly managed, and their sanitary condition provided for; and they had no larger proportion of "constantly sick," than the troops at home.

Fig. 14.

JULLA PHEAR HOSPITAL. DARJEELING.



VIII. NATIVE LINES.

Native troops have no barrack accommodation, no doubt a most excellent thing for their health. They have hutting money (very little) and make their own huts, which are so badly built as to ensure thorough ventilation, being often indeed only open sheds in compartments. But little or no pains are taken to make them put up these huts in any regular order; they are crowded, or rather huddled, together and without drainage of any kind. They are always damp, and the men always sleep in malaria. When they have families the huts are too small because the hutting money is too small.

Native troops have no rations, and stint themselves of proper food in order to hoard their pay.

They are almost invariably temperate, and have little or no liver disease, whilst the British troops are decimated with it. So far as can be learned from disease statistics, native troops are far more moral than British.

Except schools, no means whatever of instruction, occupation, or amusement are provided for them.

They are, in fact, stipendiaries receiving a day's pay for a day's work, with their uniform, but they are not what we should understand by troops provided for by the State.

With regard to every appliance of civilized life the tale is even more absolutely *nil* than for British troops. There is absolutely no drainage or sewerage, no latrines. And the descriptions of what the surrounding country and bazaars are in consequence are absolutely impossible to repeat.

There are no lavatories nor baths.

There are no kitchens.

There is no sanitary police.

At Mangalore, one of the best of the native stations, "surface cleansing has hitherto been performed solely by the heavy rains." At Quilon, another, there is (as usual) no drainage, but ruinous buildings, harbouring the dead carcasses of animals, and "on one occasion, of an old woman."

The water supply is of course as bad as, or worse than at European stations.

At Kherwarrah, in Bengal, the water "has not unfrequently a filthy taste, and disagreeable organic smell."

The degree to which native troops almost everywhere suffer from guinea worm would alone tell us what the water is. At this same Kherwarrah, one in every six has suffered (for 17 years) from guinea worm.

There is no "conservancy" establishment for cleanliness. At this same large station of Kherwarrah, "this is left very much to the jackal, vulture, and carrion crow" (beyond the lines). There are patrols to prevent nuisances, "except in specified localities." The lines are kept clean, but the "sweepings are deposited 30 yards to windward."

The most ordinary sanitary precautions are not taken. "Every family has its own cesspool; dung heaps close to every hut," also holes for ordure. Animals are slaughtered to windward. The offal is thrown to dogs, jackals, and vultures. During the rains the stench from the offal, the increasing accumulation of years, is sometimes dreadful.

The native population is "decidedly unhealthy" from jungle, swampy ground, cramped, damp dwellings, (which shelter sheep, goats, and cattle, as well as men) bad food and water, neglected cesspools, middens, exuvizæ of men and animals, absence of drainage, opium eating, &c.

What wonder if native troops suffer from quotidian, tertian, quartan, remittent, and typhoid fevers (which alone constitute two fifths of the sickness and cause one-fourth of the deaths in some places) from acute and chronic dysentery, from sporadic and epidemic cholera, from simple and confluent small-pox, and from acute and chronic rheumatism.

The intelligent medical officer of Kherwarrah imparts a very important secret as to the unhealthiness of Indian stations when he says that none of them have had "fair play," (not even such large British stations as Dumdum, Barrackpore, and Dinapore,) owing to the "utter disregard of the commonest sanitary precautions."

At Cochin, in the Madras Presidency, the water is unfit for use from privy infiltration. Drinking water is brought daily 18 miles. One tank is used for bathing and drinking. The sanitary condition of the bazaar is "as bad as it can possibly be." "Cleanliness is unknown." There is "no drainage." The "streets are used as privies without hindrance." No regulation for cleanliness is attempted. The old rampart was converted into a ditch, now used as a public privy. Every odd corner is "in the most disgusting condition."

Rajcote, in the Bombay Presidency, might give similar instances of more or less neglect. But it is needless to follow this subject further. Everywhere there is the same ignoring of natural laws and the same penalties of disease and death.

The hospitals, again, combine all the disadvantages of civilization without any of its advantages. In one place the hospital was so overcrowded that for two years "gangrenous and spreading sores" were "frequent."* Another hospital was so much out of repair that "it would before long be a ruin," (the best thing that could happen to it). If there is a privy it is a "small room, with no place in which the excrement can go to be cleared away." If there is a lavatory or bath, it is "two tubs out of repair," (does that mean that they cannot hold water?) If there is a kitchen, as at Mercara, it is under the same shed as a privy, and cannot be used for the stench. Indeed the medical officer proposes that it should be turned into a privy. The sick generally cook under the nearest tree, and if unable to do so, a comrade cooks for them under the tree. Linen is washed and dried by caste comrades, or by the patients when not too ill. Each patient brings in his own bedding; generally his own bedstead. "Each patient defers bathing, according to custom, till he is cured when he retires to the nearest well, draws water, and undergoes the "bath of cure," i.e., when he no longer wants it. Every report begs for a bath room.

The general construction of native hospitals has been described under the head of "Hospitals."

IX. NATIVE TOWNS.

The description given of the native towns is astonishing.

Can it be possible that such a state of things exists after all these years of possession and unlimited authority?

So far as one can judge from the evidence, the sanitary state of entire large cities is as bad as, if not much worse than, was the state of the worst parts of our worst towns before there was any sanitary knowledge in the modern world at all.

What, for instance, is to be thought of the following?

At Bangalore, a station 3,000 feet above the sea, with the climate of a hill station indeed, and quite as healthy as any in Europe, where we have 1,700 men, we have allowed to grow up within our cantonment a native population of half a quarter of a million, without any of the arrangements of civilization whatever. Houses, tanneries, and slaughterhouses are crowded together without any plan. There are no public necessaries. The natives resort to open spaces. The Ulsoor tank, which may be said to be the receptacle of the sewage of the whole place, including our barracks and hospitals, is used for drinking. In dry seasons, the tank itself is a great nuisance. Even the wells are poisoned, "owing to the amount of filth percolating into them from bad drainage." There is a dirt heap at almost every door. In the better houses, where latrines exist, they are wells sunk in the ground within the house, which are closed up when filled and others opened. The filth from the cow-houses flows into open drains. There are no arrangements for stabling the bazaar horses, which with other domestic animals are kept in the houses. This bazaar is all close to our own barracks; and it is said that now nothing short of removal of the one or the other will remedy the evil. There is nothing, therefore, to astonish us in the fact that, in this, one of the healthiest stations and climates in the world, the mortality of our European soldiers should have been 129 per 1,000† (including cholera) in one year.

In Hyderabad, not far from our largest Madras station (Secunderabad) all the promoters of zymotic diseases are at work, and cholera, small-pox, diarrhoea, and dysentery are, it is stated, the most common of these.

But the capital of the Madras Presidency is, perhaps, the most astounding. Its river Koom is a Styx of most offensive effluvia. The air in Black Town and Triplecane is "loaded with mephitic effluvia at night." The atmosphere around Perambore and Vepery is "perfectly poisoned."

At Kamptee, with its 70,000 souls, "all filth is thrown into pits in the streets (!) of the cantonment." The poorer houses are huddled together without order, on ground intersected by nullahs, making the houses difficult of access. The cesspits "where accessible," are cleansed every 24 hours. The next information is curious. "Persons committing nuisances are closely watched and taken up daily." At Jaulnah there are no dung-heaps nor cesspits "outside at least."

The native population around Fort William, Calcutta, is peculiarly unhealthy; fevers of all kinds, cholera and fatal diarrhoea are "remarkably prevalent." The causes are "bad overcrowding," "bad drainage," foul drains, rank jungle, stagnant water, bad unwholesome drinking water, filth.

At Ahmednuggur it is acknowledged that almost every epidemic in the cantonment has its origin in the crowded, ill-ventilated, and dirty village of Bhingar (of 3,000 souls). The town itself of Ahmednuggur, with its 36,000 people and no latrines, uses "the very boundary of our camp" for this purpose, and "the smell of ordure is very perceptible." At Poona, where is a city of 80,000 people, three quarters of a mile off, a bazaar of 27,000, quite close, a village (Wanowrie) 100 yards from officers' lines, where cholera first arose, there is the same story about "no latrines," "conservancy" establishment far too small for the daily removal of filth, and nuisance experienced in barracks from this cause. Belgaum says of its bazaar that there is "no want of cleanliness," and "that the public privies and cesspools are at times very offensive." The town, with 18,000 people, is between the fort and the camp. It affects the general health of our station from its "bad conservancy." But, again, we are told there is "no want of cleanliness!"

At Kolapore, "one sweeper is maintained by Government" (for the bazaar), who collects the filth and throws it into a nullah, 400 yards from camp, which is also the public necessary; "two peons" prevent nuisance being committed in camp "from 4 to 10 a.m. daily." At Bombay, with a town of from 400,000 to 600,000 souls, there is a municipal commission, with sanitary powers, and the result of its practical labours is as follows:—Native houses generally in a filthy condition; much ordure within precincts of buildings, where it has been accumulating for years; native town proverbially unhealthy; nuisance, from wind blowing over it, experienced in Fort George and town barracks; washermen's tanks particularly obnoxious; site of slaughter-house as bad as can well be; sea breeze cut off by bazaars, &c. &c.

* Labuan says that its hospital is much larger than "the strength is entitled to," but that "frequently the number of patients far exceeds the number of beds," and the "extra" sick (60 in a strength of 161) "have slept on the floor between each bed, and some in the verandah."

† Dr. Macpherson's Report on Madras Presidency, Dec. 27, 1860.

Dung heaps are a "never failing condition of native life in India."

At Baroda, the military hospital is close to a nullah used as a "necessary" by the natives, and as a "receptacle for the filth of the whole station." When cholera occurred, the hospital had to be evacuated. And yet it is added, with great *naïveté*, "the sanitary recommendations of the medical officers are always attended to."

At Dinapore the native towns are "disgracefully filthy," with "holes near all native houses."

At Cawnpore there is overcrowding and want of ventilation, with all manner of filth.

At Peshawur the streets are dirty, the houses densely crowded and ill ventilated. The population suffers from a "severe and fatal" typhoid remittent fever, which rises to an "epidemic" in certain districts, also from epidemic small-pox, &c. &c.

At Ghazepore, in the latter months of 1859, there was a "fearful" fatality from "fever," due to a total want of sanitary arrangements.

At Berhampore there seems to be scarcely any epidemic which the native population has *not*. Among the causes: "holes full of stagnant foul water, close to almost every house, forming the usual cesspool of the neighbourhood." Utter neglect of ventilation and of all sanitary measures."

At Hazareebaugh cholera and small-pox are the "most common and fatal epidemics."

Only the presentable flowers are here. The stational reports are a garden to which those who doubt the truth of this representation, taken as a whole, and think it merely true as to particular facts, are again referred.

The stational reports generally state the native populations to be "healthy," or "remarkably healthy," and then give a list of every disease that flesh, *under defective civilization*, is heir to, to which they are subject endemically or epidemically. What must be the state of health of the natives when "unhealthy?"

One remark, or rather inference, viz., native "caste" prejudices appear to have been made the excuse for European laziness, as far as regards our sanitary and hospital neglects of the natives. Recent railroad experience is a striking proof that "caste," in their minds, is no bar to inter-communication in arrangements tending to their benefit.

Sir C. Trevelyan justly says that a good sanitary state of the military force cannot be secured without making similar arrangements for the populations settled in and around the military cantonments; that sanitary reform must be generally introduced into India for the civil as well as the military portion of the community; that now is the time, for not only has the subject been worked out by actual experiment in England, but the improved financial state of India, the increased influx of Europeans, especially of engineers and mechanics, and the powers of local legislation lately conferred upon the subordinate governments, have given facilities which never existed before. The sanitary arrangements for towns will be conducted by municipal bodies, for the creation of which there is already a very good Act of the Government of India.

The mere passing of such an Act presupposes the impotence of "caste" prejudices; and nobody who understands the relation of bazaars and native towns to garrisons and cantonments can fail to see that the sanitary improvement of the Indian army involves the sanitary improvement and the advance of civilization in India, a work before which "caste" prejudices, and many other prejudices, will have to give way.

X. ABSOLUTE PERFECTION OF CAUSES OF DISEASE.

Our experience at home as to the results of sanitary improvement on the health of the army affords every reason to expect a very great improvement in the health of the Indian army, if proper sanitary measures be carried out. And it would require very strong evidence indeed to convince the people of this country that the epidemics which have devastated India arise from any other causes than those which the stational returns and the evidence prove to exist in what one may call a state of absolute perfection in the Indian towns, but which have been removed with entire success in this country.

XI. SOLDIERS' WIVES.

"Leave to marry" in the British army means that those only who marry with consent of the Commanding Officer have a claim to quarters in barracks. The proportion of quarters allowed by regulation at home is 6 married men per company of 100, in addition to married serjeants. When going to India, 12 married couples per 100 men, together with a proportionate increase of wives of serjeants, are allowed to go with the regiment, a number which high authorities consider too small. There is a general opinion that the proportion of married people allowed to go to India should be raised. The question is mainly one of sea transport and barrack accommodation, neither of which would be very costly as compared with the benefits to health and discipline which all agree would result from increasing the number of married men, always the steadiest, most temperate, and best behaved in the regiment.

Throughout India, however, there is better provision of "married quarters" generally than on home stations. At most places they are reported as "sufficient," at some "insufficient," at others "very bad," and at a few there are none. Where they are insufficient or non-existent, the "married quarters" are men's barrack-rooms or huts, divided off by curtains or partitions. Only at a few places are married people placed in barrack rooms with unmarried soldiers, still this practice does exist. One of the consequences of "allowing" marriage in the army is certainly that decent healthy quarters should be "allowed" too. No time should be lost, for this is especially necessary in India.

In the matter of soldiers' wives there are two instances of striking contrasts (each happened during the mutiny); one, the destruction by dysentery of 64 wives and 166 children of British soldiers at Dumdum; the other, a request made to and complied with by Sir John Lawrence from an officer of a native regiment of guides regarding the native wives. "Mind you look after these women carefully, and do not let them be in distress; several of their husbands, men of rank, have been killed." The request was loyally fulfilled and as loyally appreciated by the men.

At Dumdum 554 women and 770 children were crowded together without care or supervision, and the proportion which fell victims to intemperance, immorality, filth, and foul air was more than six times, in either case, the ordinary mortality of women and children in Bengal. The fathers and husbands were fighting or dead in our battles. This massacre killed as many as it is supposed fell by the hands of the mutineers.

It is singular that in no one part of the Dumdum report does the slightest allusion occur to this tragedy, making one think that it cannot be an isolated case. And it appears to have arisen solely from the absence

of any regulation as to the care of soldiers' wives and children in the husbands' and fathers' absence. Families go to India, and as long as the regiment remains fixed things may go on pretty well, provided there are decent separate quarters and a careful kindly commanding officer. But send the regiment on active service and there is no way of caring for the families. They take their chance under circumstances where they *cannot* help themselves. Or they are all huddled together, as at Dumdum, with this result, that while the husbands were punishing the murderers of English women and children in the upper provinces, their own wives and children were being destroyed in vast numbers, for want of care. Why?—Could it not be made a necessary part of army arrangements to appoint a "picked" married officer to act as guardian over these women and children, to see to their comfort and conduct, to their being properly lodged and cared for. The manner of providing for them out of their husbands' pay is a matter of detail easily settled. If only any one will take the trouble to do it the thing can be done. But more than this, it should be made matter of regulation throughout the whole service. There should be personal responsibility somewhere. At Dumdum nobody was held responsible and nobody was punished for the result. If one-tenth of the calamity had happened in England, there would have been coroners' inquests over and over again, and public opinion, if not law, would have punished some one. At Dumdum the enquiry took place after the destruction of human life had been going on for months.

Sir John Lawrence expresses forcibly his practical opinion that there should be a "system," treating the "men as so many children," in binding them to "remit" money for their families; but also providing guardianship for those families when the "regiment is going on service," and so averting the "terrible results" of "abandoning the wives."

Why cannot what was done for the Sikhs by Sir John Lawrence be done by regulation and on system for our own country people?

There are shocking illustrations of how soldiers' wives and children fare when the men are on foreign service, and how a man does not become a better soldier for knowing that his country does not care for his wife and children while he is risking his life for his country. To the extent to which marriage is allowed in the army should all its necessary consequences be acted out.

But so far from this being done, the principle everywhere has been the reverse. Even as regards illness, in some notorious instances soldiers' wives have expressed (and justly) the strongest indignation that Government took more care of prostitutes in illness than it did of honest wives; that Government will pay to cure the prostitute to go on with her horrid trade, which destroys their husbands, and will not pay to cure the wives and children, or to make the married quarters more comfortable; and it is true, although not so applicable to India, where there are female hospitals.

Some of these hospitals, as at Kurrachee and Deesa, Lucknow, Rantegunge and Ferozepore, appear to be very complete, with female attendants. In the Madras Presidency, they are too often, as at Bangalore, Trichinopoly, and Kamptee, merely men's wards appropriated to women, and justly stated to be "objectionable in every way." Elsewhere they are rather bare. Indeed, as at Baroda, Kirkee, Poona, Darjeeling, the sick women and children "have to be attended at their own quarters," either because "there is no matron," or because the "ward is too small," or &c., &c. Curiously enough, it is generally stated that the "present arrangement is conducive to comfort." What arrangement? Of having no matron? While it is added, that a lying-in ward and a matron are "much wanted." At Darjeeling the women and children are treated in their own quarters, which "would be satisfactory enough if the married quarters were not so dark and damp as they are." Sometimes it is said that "the arrangements are quite equal to those for the men."

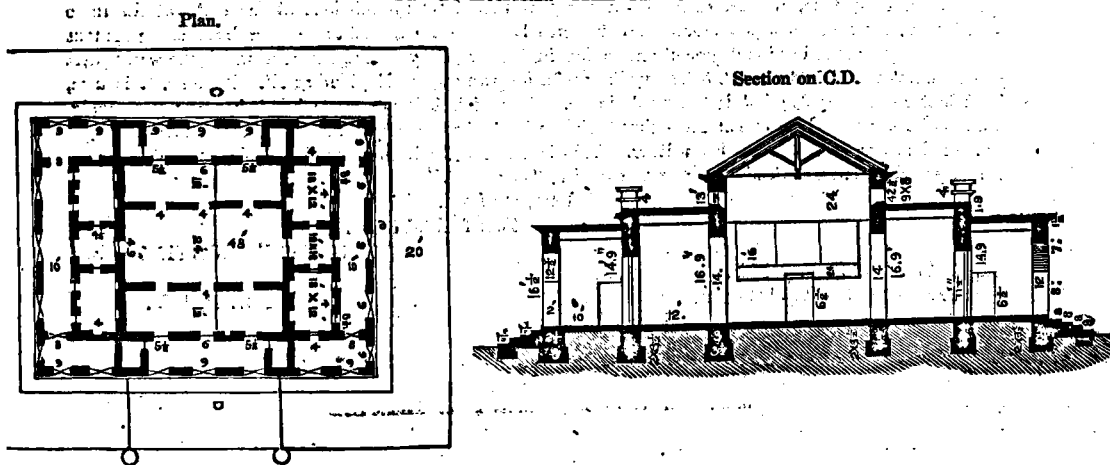
The construction of these hospitals appears to be the same as that of small regimental hospitals.

The following plan and section of a female hospital at Mean Meer (one of the most recently built in India) shows that they require quite as much structural improvement. It is a nest of rooms within rooms; and the same may be said of it that one of our engineers said of the Pacha's new fort on the Dardanelles, that "He would be much safer outside of it."

But, whatever defects there may be, in the hospital accommodation for soldiers' wives and families in India, at least prostitution is not encouraged, and its immorality systematically palliated by lock hospitals on any large scale, although recent attempts have been made to extend them. Lock hospitals, alas! exist—exist, I mean, and are advocated and supported on the principle of restoring the vicious to go on with their vice, the only institution I am aware of for this purpose. (Prisons and lock hospitals in England at least

Fig. 15.

FEMALE HOSPITAL, MEAN MEER.



aspire to reclaim the vicious.) And lock hospitals and police regulation are, alas ! sometimes recommended, just as if they could do any good. At Secunderabad, it is said, a lock-hospital has been long in existence, with these "excellent results," viz., that 20 per cent. of admissions into (military) hospital are from the disease engendered by vice, which is five times as much as exists among the native troops. On the other hand, the enlightened medical officer at Kurrachee has entered a striking protest against the present lock hospitals, and has shown how utterly incompatible at once they are with morality, and how utterly useless in practice. Indeed common sense is the same as moral sense in these as in other things. As in the kindred vice of drunkenness, Government licenses in order to control vice, and the soldier is more drunken than before.

Lately, in one of our own largest seaport towns,—and I understand it is not the only place where such a measure is contemplated,—I was consulted as to the structure of a hospital where Government was going to pay for 15 and for 10 beds for fallen women for the army and for the navy. These are called the "War Office prostitutes" and the "Admiralty prostitutes." The title is just, and therefore the less agreeable. In this same town a hospital for soldiers' wives only lately exists, although it had been long corresponded about, although several women had been confined in barrack rooms, several had had fever in consequence, and one, at least, upon testimony of the army medical officer, had died from it, as well as children.

With two, or at most three, exceptions, there is no accommodation for sick women and children at any home station.

As regards army prostitution, there is, as I have said, the same helplessness as with army drunkenness.

It is apparently never considered that they are both parts of the same vice, and that, so far as human agency is concerned, they both spring from the same causes.

India has its licensed "lal bazaars," and its licensed spirit selling. And both are encouraged to the utmost by leaving the men utterly without rational employment for their time. The "lal bazaar" and the canteen both send men into hospital in abundance. While, instead of confronting both evils with the strong arm, and providing men with useful occupations and manly amusements, Government sets up lock hospitals under its authority, and makes ineffectual attempts to stop drunkenness by keeping the supply of drink, as far as it can, in its own hands, and so encouraging the evil by its own authority. The authority of Government is avouched for both evils. So long as this is the case, they will extend and flourish, and the tax payers in India and England will have to bear the cost.

XII. STATISTICS.

All that can be said under this head is that the statistical abstracts of sickness and mortality for the European troops of the Indian army afford no data of sufficient accuracy to enable us to judge of the sanitary state of the troops, while they are defective in some most important data required for estimating the exact sanitary condition of the stations. Practically, these statistics are very much in the same condition as were those for Queen's troops before recent improvements were introduced. The facts may be in existence, but there are no means of rendering them easily accessible. The question of mortality and efficiency is one of even greater importance now than it was formerly, seeing that the whole British army must pass through India in the course of its service.

The only way to keep a proper check over the sanitary condition of stations is to lay their sickness and mortality statistics annually before Parliament. This can be easily done by adopting the new statistical methods and forms at present in use for Queen's troops at home and on foreign service. These should be introduced over the whole of India, and the results published every year, together with those of the army at home.

XIII. SANITARY SERVICE.

In times past there has been no proper sanitary service in India. No doubt there has been more or less of cleanliness; because wherever Englishmen go they attend to this in one way or other. Otherwise there is just the same neglect of civilized appliances, of water supply, drainage, &c., as used to exist in unimproved towns at home, notwithstanding repeated representations made by Sir Ranald Martin, and by other enlightened professional men. In India, as at home, no good will be done unless it be made some competent person's express business to look to these things.

Even with our habits of self-government, it has been found necessary for the central government to step in and assist local progress. It is certainly of far greater importance for the government of India to do so, seeing that there is no local self-government at all.

There is, it is true, a kind of local sanitary government by commissions at the seats of the three presidencies, the result of whose labours has hitherto been that no one of those three large and populous cities has as yet arrived at the degree of civilization in their sanitary arrangements at which the worst parts of our worst towns had arrived, before sanitary reform sprung up in England at all. Bombay, it is true, has a better water supply; but it has no drainage. Calcutta is being drained; but it has no water supply. Two of the seats of Government have thus each one half of a sanitary improvement, which halves ought never to be separated. Madras has neither. As to barracks and cantonments, it is quite evident that both sanitary medical officer and sanitary engineer need to "be abroad."

I am, my Lord,

Your faithful Servant,

FLORENCE NIGHTINGALE.

Right Hon. Lord Stanley, M.P.,
President of the Royal Commission
on the Sanitary State of the Indian Army.

Nov. 21, 1862.

ABSTRACTS of RETURNS made to QUESTIONS ISSUED by the ROYAL COMMISSION on the SANITARY STATE of the INDIAN ARMY to COMMANDING, ENGINEERING, and MEDICAL OFFICERS of the ARMY in INDIA at STATIONS occupied by BRITISH and by NATIVE TROOPS.

(Prepared by Dr. Sutherland.)

WITH a view of obtaining the fullest local information regarding the sanitary state of the troops serving in India, a series of questions, reprinted in the Appendix, was prepared and addressed to the commanding, engineering, and medical officers at every station, whether occupied by British or native troops.

Special reports on the matters referred to in these questions were also called for from the principal medical officers of each presidency.

Questions were sent to 42 stations, three of which are exclusively native, in the Bengal presidency. To the Madras presidency there were sent copies of questions to 74 stations, of which 31 were native; and to the Bombay presidency were sent sets to 59 stations, of which 34 were native. Of these 175 series of questions, replies, more or less fully given, have been received from 117 stations; viz., from 35 British and three native stations in Bengal; from 29 British and 20 native stations in Madras; and from 18 British and 12 native stations in Bombay.

The returns do not afford the means of estimating the precise number of troops accommodated at each station; sometimes the accommodation is given numerically, at others, by regiments. Again, the stations had been occupied by the troops there, at the date the returns were made up, for very different periods of time, varying from a few months to several years.

But the questions were so framed as to draw out the largest amount of experience of the different classes of officers, not only as regards the stations they then were serving at, but also as regards those at which they had previously served. In this manner there has been collected together the Indian experience of nearly every regiment there at the time, on every point bearing on the soldiers' health, whether relating to climate, locality, barracks and hospitals, diet, habits, or duties.

These returns will be found to contain perhaps the largest amount of important sanitary information ever brought together, whether regarded simply as bearing on the health of the army, or in reference to the advancement of civilization and of public interests in India.

The nature of the questions, part of which were direct, part cross-questions, has necessarily led to the information being scattered throughout the replies. It has, therefore, been necessary to draw up a short abstract of the reports from each presidency, embodying the more important sanitary results of the inquiry. These abstracts by no means exhaust the information. Nearly every return, on the contrary, will repay careful consideration; and when perused by the light of our present knowledge, they are found to show very clearly the causes which have hitherto decimated the British army in India, together with the local conditions and personal habits which have favoured periodical outbreaks of pestilence among the native population. Although they do not expressly indicate the measures required for protecting health, the information they contain goes a long way towards this result by pointing out the causes of the evils.

PREVAILING DISEASES AMONG THE NATIVE POPULATION, AND THEIR CAUSES.

There are no statistical data whereby the annual ratio of sickness and mortality to the native population at the different stations can be ascertained.

India appears to possess no system of registration whereby the exact state of health of the population can be known. The information, therefore, on this subject, given in the station returns, is of a very general nature, and is the result of inquiries made on the spot; and from nearly all the stations the information is of the same character. Everywhere the miasmatic class of diseases is the one which has attracted the notice of medical officers. Fevers, intermittent, remittent, and typhoid, cholera, dysentery, small-pox, spleen disease, diarrhoea, rheumatism; such is the account of station after station. Epidemics, the result of imperfect civilization and removable causes, prevail in India at the present day as epidemics used to prevail in Europe in the middle ages. The work of civilization and sanitary improvement has yet to be initiated in this great country. The prevailing causes are everywhere the same: filth, stagnant water, damp, foul ditches, want of drainage, bad drinking water, "utter neglect of ventilation and of all sanitary measures," overcrowding of houses, foul air.

There is not a local cause of these epidemic diseases cited by the reporters which does not admit of mitigation or removal.

At almost every station the sanitary condition of the native population is intimately connected with the sanitary condition of the troops. The two are bound up together so closely that the sanitary improvement of the army must involve one of two courses, either the removal of the troops away from the civil population, or the sanitary improvement of stations, as one part of the sanitary improvement of native cities and towns, and of the country.

DISEASES AMONG TROOPS.

The evidence on this subject shows that throughout the whole of India, malaria is the underlying condition of endemic and epidemic diseases. There is no station, either on plains or mountains, entirely free of it. It shows itself in the almost universal prevalence of fevers of the periodic type; generally intermittent in some form or remittent. Malaria is also concerned in the prevalence of dysentery and cholera; but there are other special predisposing causes of these diseases, quite sufficient to account for their existence even without attributing them to malaria.

Diseases of miasmatic origin occasion a very large proportion of admissions to hospital among British troops, and also of current mortality. The means of ascertaining the proportion for each station are

imperfect; and the discrepancies in the mortality returns for Queen's troops and for British troops of the Indian army serving at the same stations, are sufficient to show serious defects in the statistical methods employed. Only from Bombay Presidency are there detailed returns of sickness and mortality; and these show that the miasmatic deaths range from one half to about three-fourths of the entire mortality. The proportions in the other presidencies have been arrived at from other sources, and these afford equally startling facts. In Madras presidency the miasmatic mortality is from one half to three-fourths of the total mortality. In the Bengal presidency the proportions at some of the stations are even higher. At one station 14 out of every 16 deaths are occasioned by these diseases. It follows from the facts, that diseases produced by malaria and by mitigable or removable conditions, local and personal, are in reality the causes of the high death rate in the Indian army. *E.g.*, the mortality at Allahabad is 122.75 per 1,000 per annum; but to this death rate miasmatic diseases contribute to the extent of 82.34 per 1,000. The mortality at Fort William is 102.35 per 1,000, but of this 77.83 is due to miasmatic diseases.

Again, at Poonamallee, in Madras presidency, the total mortality is 89.55 per 1,000, but the deaths from miasmatic disease amount to 69.65 per 1,000.

At Fort St. George, Madras, the mortality is 34.69, and the deaths from miasmatic disease 16.21 per 1,000.

At Belgaum, in Bombay presidency, although the total death rate is as low as 18.33 per 1,000 (a little more than the mortality from miasmatic disease at Fort St. George), miasmatic diseases contribute no less than 10.15 per 1,000 of this proportion.

At Hyderabad (Sinde), miasmatic diseases occasion a mortality of 26.62 per 1,000 out of a total annual mortality of 35.85 per 1,000.

Generally, however, in the Bombay presidency, the miasmatic deaths bear a lower proportion to the total deaths than in the other presidencies.

At Baroda, an unhealthy station, they cause exactly one-third of the mortality.

For the whole of India, the highest total death rate, involving the greatest prevalence of miasmatic diseases, is to be found in Lower Bengal and at stations along the Ganges.

The most fatal of all diseases in India is dysentery. During the 16 years preceding 1845, the deaths among British troops serving in Bengal from this one disease amounted to no less than 15½ per 1,000 per annum. The mortality from cholera during the same years amounted to 13 per 1,000; from remittent fever, 8 per 1,000; from liver disease, 4½ per 1,000; the same mortality as from diarrhoea.

Fevers of the common continued, and typhoid types, generally considered the denizens of colder climates, afforded a mortality of 6½ per 1,000, and ague a mortality of somewhat less than 3 per 1,000.

The deaths from apoplexy and sun-stroke are more than 17 times in proportion what they are at home; and the deaths from delirium tremens are 16 fold what they are among our home civil population. On the other hand, the mortality from consumption, has been little more than one half in the Indian army of what it is in the civil home population, and about one-fourth of what it was, in the home army in the 10 years 1837-46.

The stational returns afford data for the time only during which the regiments have been at the stations; but the facts are of the same nature. Everywhere there is a high prevalence of fever, chiefly intermittent and remittent, the particular type varying at different stations. Dysentery and cholera are much more frequent and severe at some stations than at others. At most of the stations liver disease prevails to a considerable extent, attributed generally to high temperature and variability of climate, combined with excess of eating, the abuse of stimulants, especially spirits, and want of exercise. Throughout India venereal disease is a most serious cause of inefficiency. At some stations upwards of half the sick in hospital are affected with it. Rheumatism is a common disease at many stations. It arises from variable temperature, but in many cases it is said to be the result of venereal disease. Small-pox occurs occasionally, but not to any great extent.

An analysis of the predisposing causes of this high sick and death rate brings out certain prominent facts of great importance, which may be classed under the following heads:—

SELECTION OF SITES FOR STATIONS.

Many of the stations occupy obviously unhealthy sites in low flat districts, having very limited facilities for natural drainage, and surrounded by undrained, badly cultivated, jungly land. Others are situated on river banks, often swampy, and liable to partial overflow of water, especially during the rains. Little complaint is made of the soils; but there is a concurrence of opinion in favour of porous soils, as being more conducive to health than retentive soils.

So far as can be gathered from the returns, mere elevation above the level of the sea appears to have less influence on health than might have been anticipated. Some low stations have a smaller death rate than others at a greater elevation. Elevation is nevertheless a very important element as regards health; but it is only one element out of many, and its advantages may be neutralized by neglecting other conditions. The returns show that many unhealthy stations may be improved by drainage, and by attention to other sanitary requirements. Often the atmosphere over considerable districts is rendered more or less impure by absence or inefficiency of sanitary police, especially as regards bazaars, native towns, and native habits.

Few, if any, of the sites at present occupied by troops appear to have had a fair chance in this respect; and although the evidence shows that abandoning some of the more unhealthy cantonments would be a very advisable measure, nevertheless the removable sanitary defects everywhere existing indicate how much may be done in the way of improving even the worst of them.

CLIMATES.

One of the most striking results of this inquiry is the absence of distinct allegations, against the Indian climates as being special causes of disease. There is a general concurrence as to the fact that certain seasons are less healthy than others. Generally the most unhealthy seasons are the beginning and the end of the rains, at the periods when heat and moisture combine in producing more rapid decomposition and disengaging of malaria. There are complaints of heat, hot winds, damp, fogs, variability; and to these conditions, or to certain of them, a predisposing influence is in many cases attributed. But the more frequent defects in the climate are those of a merely local nature, connected with unfortunate selection of sites for cantonments, and which might, in all probability, be avoided by selecting other sites at no great distance.

The reporters consider the climates at certain stations more conducive to health than others; but, as already stated, so far as medical experience is concerned, there is an absence of general complaint of positive unhealthiness in the climates, *per se*, and apart from malaria and local causes of disease.

The evidence on the meteorological data is, with few exceptions, very incomplete.

Wherever there are Government observatories there are, of course, reliable data, but the other stations are very imperfectly supplied with means of observation, whether as regards instruments or observers.

The majority of the stations appear to have only thermometers, and the observations are not corrected. Only very general conclusions can, therefore, be deduced from them; but such as they are, these observations indicate heat, combined with moisture and heavy rain fall, considerable variability and high sun temperature. Certain of the stations have excessively dry climates, while some of the mountain climates approximate closely to those of southern Europe.

Generally, however, in the less healthy districts, the three elements of heat, moisture, and variability predominate.

The climates along the western coast and those along the outlying Himalayan ranges are marked by excessive rain fall. 100 inches of rain per annum is not an uncommon rain fall. In some districts it is half as much more; and at one station, Chirra Poonjee, it amounts to the enormous quantity of 51 feet. The greatest rain fall takes place where the monsoon strikes the mountain ranges; and a few miles to leeward the rain fall rapidly diminishes, and the climate becomes dry. Fogs are common at these elevations, alternating with high temperature and powerful solar radiation; but there appear to be districts close at hand where the air becomes dry and clear from its excessive moisture having been discharged upon the first mountain ranges.

The difference is remarkable between the eastern and western coast climates; the latter are very wet, the former dry, but close, warm, and sometimes foggy.

BARRACK CONSTRUCTION.

The great majority of barracks throughout India are constructed on one general principle. They consist of one long room, sometimes open from end to end, sometimes partially divided by arches and open to the roof. This room is protected from the sun's rays by verandahs from 8 to 12 feet wide, generally single, *i.e.*, one verandah surrounding the room, in the older class of buildings, but most frequently double, *i.e.*, two verandahs, one within the other, in the more recent constructions. This latter form has the general appearance of a long Gothic church, having a central nave from 200 to 300 feet in length, and from 18 to as much as 40 feet in height, with side aisles opening from the nave by numerous arches. In the double verandah barracks there are, of course, two of these aisles on each side the central nave.

With a few exceptional cases, all Indian barracks consist of one floor only. The foundations are raised from one to two or more feet above the ground level. There is generally a plinth of this height filled in with earth or rubbish, and the floor is laid on the top of the material, either of flags, brick, or composition.

No means are provided for cutting off the ground malaria by ventilation beneath the flooring; and as beds are about 18 inches high, the men generally sleep within 3 or 4 feet of the ground, enveloped in malarious exhalation.

Nearly every barrack room is too large, and contains too many men. In the majority of instances the rooms are made to hold from 40 or 50 to as many as 100 men, and even to a quarter or half a regiment. The new barracks at Fort William have 306 men in a single room. The infantry barracks at Dinapore consist of rooms no less than 826 feet long, with 308 men per room. At Fort St. George, Madras, there is one room 2,124 feet long, which contains above 600 men.

The usual breadth of the centre aisle of a barrack is 24 feet; the side aisles are from 12 to 15 feet, and the outer verandahs from 8 to 12 feet. So that in all, from outer air to outer air the distance is from 50 feet to nearly 80 feet; or, as in the large rooms at Fort William, with 306 men per room, no less than 103 feet.

The idea which lies at the root of this form of construction is a good and simple one, the error is in its mode of application. Wherever a large number of people are brought together under one roof there is always more or less risk to health. But in a country like India the risk becomes a positive danger. The great requirement during sleep is pure air, which it is practically impossible to obtain, where from 100 to 500 or 600 men sleep in the same room. Subdivision is hence absolutely necessary to efficient ventilation.

Barracks for a quarter of a company would be very much more healthy than any larger rooms.

It would therefore appear that subdivision of barracks, to lodge the men under quite separate roofs, is one of the most urgent sanitary improvements required.

It appears that all the barrack rooms are dark. Windows for admitting light in the sense in which we use windows in England scarcely exist. There are doors or windows on opposite sides under the verandahs and small cleristery windows in the centre aisle, but the form of construction renders them insufficient for lighting, and there appears to be a general idea that light and sun heat are synonymous terms. The subject is one, however, of such importance to health and comfort that it is worth while so to plan a building as to light it without heating it.

In the new barracks of Upper India there are glazed windows. But in many of the older barracks, the windows, such as they are, are unglazed and have merely solid shutters or jalousies, which, when shut, render the barrack dark.

A condition in all Indian barracks absolutely essential to health is that the sleeping rooms be raised above the influence of ground malaria. The safest construction would be to raise the whole block 3 or 4 feet with free ventilation below; to raise the barrack two floors above the basement, to devote the lower floor to dining rooms, day rooms, libraries, &c., and to permit men to sleep only on the upper floor, or at all events never to allow men to sleep within from 5 to 10 or 12 feet of the ground level, in proportion as the barrack is situated on an elevated healthy site or on a low unhealthy one.

Sleeping rooms should have only single open verandahs, and these should never be used to eke out the sleeping accommodation.

The external ventilation of many barracks is defective; partly from surrounding buildings, partly from local position, but more frequently from the arrangement adopted.

Sometimes the barrack blocks interfere with each other's ventilation; and there are instances in which the prevailing winds blow against the end of long barrack rooms, driving the foul air onwards among the men. At the best stations the barrack buildings are echeloned in such manner that the prevailing winds blow across the room. This arrangement is always the best for warm climates.

Internal ventilation is generally more or less provided for. Opposite doors and windows are often trusted to—one of the best methods, if properly managed. But we have already seen that the distance between the opposite doors and windows is from two to three times too great to admit of their being depended on. The wall space between the windows and doors is much too narrow, and the men while in bed are exposed to cold blasts passing over them. The arrangement of beds in many barracks renders it impossible to ventilate

efficiently with doors and windows. It can be done with two rows of beds in the breadth of the room, but this is a rare arrangement in India. Generally there are four rows, sometimes even six rows, of beds between the opposite windows.

In the newer barracks ventilation is in some degree provided for by the cleristery windows already mentioned, or by louveres in the roof. Apparently the most efficient of the Indian methods of ventilation is where part of the side wall is filled up to the depth of two or three feet from the slope of the roof by open work, with louveres along the roof to admit of the escape of foul air.

In many instances the ventilation is described as sufficient; in many, it is insufficient. In some barracks there cannot be said to be any ventilation except the casual opening of doors and windows, while in some cases it is described as sufficient if the barracks are not overcrowded.

The cubic space per man in the newer barracks is not often below 1,000 feet. There are instances however in which it is under 600 cubic feet, and at several stations it is between 600 and 1,000 feet. From 1,500 to 1,800 cubic feet is a not unfrequent allowance of space in the newer barracks, and there are individual rooms in which the cubic space is as high as 2,000 feet per man. Compared with the regulation allowance of space at home, the Indian amount is apparently magnificent. But the rooms of Indian barracks are generally so high that the cubic space is above the men's heads, and the surface overcrowding, a more important point, is often excessive. From 50 to 60 square feet of floor space is a not uncommon allowance for each man. In a number of instances it is from 60 to 80. In a few rooms it is about 100, but there are instances in which it is under 50. It sometimes does not exceed 40. The extent of superficial area usually allowed, in relation to the manner of arranging the beds, the occupation of the verandahs as sleeping accommodation, and the large number of men per room, result in what is really, as regards health, great overcrowding and impossibility of sufficient ventilation.

Lavatories.—Almost every barrack is provided with one or more ablution rooms. They are small square apartments detached from the barrack, often without fittings of any kind, never properly drained, sometimes connected with cesspits into which the waste water runs, to be absorbed by the soil or to be lifted out again and carried away by hand. Except in one or two recent barracks the ablution rooms are destitute of water supply unless carried by *bheesties*. Basins or tubs are usually supplied for washing. There is no proper bathing establishment anywhere, except at Fort St. George, Madras. At a number of stations plunge baths have been recently constructed, but at the majority of stations there are no means of bathing. Hence the appliances for personal cleanliness are almost everywhere deficient, especially when the nature of the climate is taken into account.

Cook-houses.—The cooking arrangements are quite peculiar to India. There is no cooking apparatus in the proper sense of the term. The kitchen is an out-building with a row of small fire-places, over which native cooks prepare the messes in copper pans. There is no water laid on, all has to be carried by hand. There is no drainage, the whole of the foul water either runs away on the surface or is led into open gutters or cesspits. The means of cooking are generally described as "sufficient," but it is satisfactory to know that at one or two stations improved apparatus has been constructed.

WATER SUPPLY.

Except at the new station at Wellington, and Fort St. George, Madras, there is no water supply for sanitary purposes in India, as it is understood in England; and Bombay is the only town to which water has been conveyed from a distance. Almost all the stations are supplied from shallow wells. At several, tank or river water is used. It seems rarely to be suspected that the water is unwholesome; but the sources of supply ought to excite grave suspicion as to the purity of the water. Wherever anything like an account of the quality is given, the water is unquestionably bad and dangerous.

Water sources have been very rarely submitted to chemical analysis; but where they have been analysed, there is hardly one of them that would not be rejected for sanitary purposes at home.

There is scarcely such a thing as a pump or a water pipe in India. Water is usually raised in skins or buckets, and carried by water carriers sometimes a considerable distance, in one case two miles, to the place where it is to be used. It is poured out of the skin into earthen or wooden vessels, from which it is again drawn for drinking, cooking, or washing.

The whole arrangements are those of an infant state of society, and the quantity of water delivered for use, even if the quality were unobjectionable, would never, under such a system, be sufficient either for health or cleanliness.

The water supply of towns is derived from similar sources, tanks, wells, or rivers. It is drawn for use and distributed in the same manner as at stations.

As there is no drainage, all the water carried into stations or towns must necessarily stay there; i.e., in the subsoil, unless it be removed by hand labour.

Many of the wells are polluted with sewage, a natural result of the state of the water supply and drainage.

It is now known that water drawn from shallow wells, in undrained inhabited areas, is one of the most common causes of epidemic diseases, especially cholera and dysentery. And beyond a doubt the condition of the water supply of towns and of stations exerts a powerful influence on the origin and progress of these diseases. In India, as elsewhere, there can be no drainage without extended water supply, extended far beyond the possibilities of mere labour to afford. And it would be a very questionable measure, indeed, to bring in more water without a complete system of drainage to carry it away.

Water pipes and drain pipes are but the two extremities of one mechanism. One of them would be useless or injurious without the other.

The present system of water supply and drainage throughout India, for barracks, hospitals, cantonments, cities, and towns, is nothing more than that usually adopted in moveable camps, and which in the middle ages led to such disastrous loss of life from pestilence in Europe.

DRAINAGE.

In the sense in which drainage is used in this country, for protecting the public health by removing filth and subsoil water, there is none whatever in India. The most that is aimed at is surface guttering, always a very imperfect expedient, even for the removal of surface water; and unless very carefully executed and well attended to, always a dangerous expedient. At many stations the whole of the rainfall either evaporates, runs off on the surface, if there be fall enough, or sinks into the subsoil. It appears to be generally presumed that because a soil is porous, therefore it requires no drainage, whereas a porous subsoil is the one which stands most in need, while it most readily admits, of efficient drainage. Once allow a porous subsoil to become saturated with the filth of a population, the sooner the site is abandoned the better. Only by very careful drainage can the public health be protected from this contingency in such a climate as that of India.

There appears to be no paving, and without paving even surface drainage is impossible. In the vicinity of many stations there are large surfaces of what are called tanks, but which, in sanitary language, mean stagnant water. Many of these ponds become partially dry in summer, exposing large surfaces of putrescent mud, very often the result of filth and foul drainage thrown into them. Some stations are placed in the vicinity of unwholesome nullahs (watercourses which become partially or entirely dry when the rains are over), often used as public necessaries by the native population. The surface is frequently excavated into hollows and water pits, producing malaria. Not a single barrack or hospital appears to be drained. The privies are either connected with cesspits or their contents are removed daily by sweepers. The refuse water from kitchens, lavatories, &c., is either received into cesspits or allowed to run away upon the surface. Usually these cesspits are shallow, and their contents are removed by hand labour, or they are simply soak wells to allow the foul water to saturate the subsoil. The smell from these arrangements sometimes pervades the air to a considerable distance, even into the barrack rooms. If such be the condition of the station drainage, what must be that of the native towns? In these the bad state of the drainage is simply an exaggeration of the state of things about the barracks. There are holes and gutters full of filth and foul water, close to the houses. No domestic conveniences; often cesspits within the houses and compounds; few public necessaries, the mass of the population generally resorting to the fields and open spaces about the town.

Generally, as regards drainage, the description applicable to the condition of the drainage in districts in Europe where cholera and other epidemic diseases usually prevail, would apply to the state of the drainage in and around Indian stations, with this important difference, however, that the defects are far more serious in degree in India than ever they are in our colder climates, while defects much less serious in degree would have a much more fatal effect in the higher temperature and moisture of India.

INTEMPERANCE.

In England the canteen regulations forbid the sale of ardent spirits in canteens. But in India, as in other warm climates where there are stations of the British army, spirits are allowed to be sold to the extent of six ounces per man per day to all applicants. And the profit made on it goes to what is called the canteen fund, spent in providing the soldiers with certain conveniences and amusements, which there are at present no other means of supplying. Malt liquor is also very generally sold in the canteens. And there is a system of interchange, whereby a man may obtain all spirits or all malt liquor; or part one, part the other, in varying proportions.

On the voyage out to India spirits are issued to the soldier. So that, what with the habit thus acquired and the subsequent facilities and encouragements to the use of intoxicating liquors held out in India, the British army in that country presents the largest amount of drunkenness of, perhaps, any body of men in existence, as it certainly does of disease produced directly or indirectly by intemperance.

Take, *e.g.*, the single disease of delirium tremens. The Bengal mortality statistics show that for the same numbers the deaths from this disease have been 16 times more numerous among British soldiers serving in that Presidency than among their civilian countrymen at home.

The station returns from all parts of India show a large amount of disease constantly in hospital, the direct or indirect result of this system of dram drinking. The poisonous effects of ardent spirits appear to be more powerfully developed in India than in colder latitudes, producing in that country a marked predisposition to several diseases, popularly considered incident to the climate. Some medical officers indeed appear to consider that spirit tipping and drunkenness are the main causes of inefficiency and excessive mortality in the Indian army. Almost all attribute the marked prevalence of hepatic disease among British troops to this habit; and there is an all but unanimous concurrence of opinion, both among commanding and medical officers, that it would be a great public good to prevent the sale of spirituous liquors altogether.

The reporters consider that it would be difficult to carry out such a reform as the prohibition of the sale of spirits in canteens without incurring what they consider the greater risk of driving the soldier to the use of poisonous bazaar spirits to satisfy his craving. But on the other hand some of the reporters are of opinion that this very craving is the result of the systematic encouragement of dram drinking, held out by the Government.

The soldier considers that what the Government permits him to do cannot be wrong. And when his daily allowance of spirits from the canteen does not suffice him, he ekes it out by going to the bazaar. Whatever difference of opinion there may be on the practicability of the reform, the verdict is all but unanimous that the present system is ruinous to the soldier both morally and physically. And it is for the Government to find a way of making practicable that which all are agreed to be necessary.

DIET.

The diet of the European soldier in India consists of:—

- 1 lb. meat.
- 1 lb. bread.
- 1 lb. vegetables.
- 4 oz. rice.
- 2½ oz. sugar.
- ½ oz. tea or 1½ oz. coffee.

The vegetables usually consist of potatoes, carrots, onions, cabbages, turnips, cauliflower, pumpkins, according to season. There appears to be a very general deficiency of potatoes. This diet is issued to the soldier at all the stations in India, irrespective of climate, altitude, or season.

The men not unfrequently supplement this ration by additions of unwholesomely fed pork, &c., and they generally eat meat two or three times a day, taking their heaviest meal in the hottest period. Not only so, but they are allowed to draw porter with it and spirits after it. The regimen as a whole is what would be prescribed for healthy men, doing hard out-door work in a temperate climate. But there cannot be a doubt of the great risk to health likely to arise from it in such a country and climate as India, especially when we at the same time know that the soldier's life, at least in infantry regiments, is one not of hard work in the open air but of inaction and lounging in his hot close barrack room.

In short the men are not dieted in accordance with sound physiological principle. And as one result, liver engorgement and functional diseases of other organs ensue. Observation of native habits in warm climates would show that the bulk of their diet consists of farinaceous and vegetable food; and a change to this kind of food is no less necessary for Europeans living in tropical climates. In India, the soldier should be encouraged by all means to increase the proportion of vegetable material in his diet, and to diminish the amount of animal food in proportion to the requirements of the climate. And while this is done, work should at the same time be found for him to enable him to digest what he eats.

MEANS OF INSTRUCTION AND RECREATION.

In India there is no correspondence between the soldier's diet and drink and his means of exercise. The regimen usually adopted is as follows:—

After early drill the men return to barracks, where they are confined the whole day till evening in their hot, close, crowded rooms; and during this period of confinement all or nearly all their food is eaten. At the great majority of stations they have nothing whatever to do in the heat of the day. There are no workshops in which they can employ themselves, and there are no sheds or other covered spaces in which they can play at games or take exercise. Such a thing as a covered gymnasium is unknown. There are ball courts and skittle alleys, more or less numerous; but most of them useless in the heat of the day. Libraries and reading rooms have been generally provided; but for the soldiers who cannot read, there is no corresponding resource to occupy their vacant time. At one station it is stated that as soon as the 12 o'clock gun fires the men rush out of their barrack rooms to get at the canteen to break the monotony of their day, adding the stimulus of drink to the other unhealthy conditions naturally resulting from the system of diet and confinement in use. It is important to remark that the most healthy arms of the service, the cavalry and artillery, have some exercise, and that where men have been allowed to go out shooting no injury to health has followed. The evidence all points in one direction, viz., that the Indian army must be managed more in accordance with sound physiological principle. The men must be dieted according to climate and season, and not on one general inflexible rule, as at present. They must be provided with rational means for occupying their time, by supplying them with workshops, gardens to cultivate vegetables, covered spaces for games and exercises, gymnastics, which ought to be made a parade, and soldiers' clubs, with coffee rooms, on the plan now being introduced at home stations. Complaints of the want of sufficient means of occupying the men are all but universal from every station in India.

DRESS.

The soldiers' dress in India has of late years undergone great improvement, and is now generally considered well adapted to the season, climate, and duties. There are suggestions from certain stations regarding improvements in head-dress, boots, &c.; but these relate to points of detail. The opinion appears to be general that flannel worn next the skin would be preservative of health, especially in variable climates.

DUTIES.

Drills, parades, and marches take place in early morning, and are over for the day soon after sunrise. Sometimes there are short drills in the evening. Guards are mounted, as at home, for 24 hours. Except at one or two unhealthy stations, there is a concurrence of opinion that night guards are not prejudicial to health. All are agreed that young soldiers should not learn their drill in India (for this can only be done at a large sacrifice of health and life)—that drill should be perfected either at home, at some intermediate station, or on the hills.

PERIOD OF SERVICE.

The reporters state that from 20 to 25 years of age are the most suitable ages for young soldiers to proceed to India; that they should arrive in India in the cool season (November till February). From 10 to 12 years is considered a sufficient period of efficient service; but certain of the returns state that, under improved sanitary conditions, a soldier may serve as long in India as anywhere else.

HILL STATIONS.

Very few of the reporters have had experience of the effect of hill stations on the health of troops, and no satisfactory evidence of advantage having been derived from residence at them is adduced; but at the same time the sanitary condition of hill stations, as described, is by no means such as to conduce to health anywhere. There is evidence as to improvement in health of certain classes of invalids by hill residence; but other classes are not only not benefited, but their health is injured by it. The reporters, however, with few exceptions, are strongly in favour of selecting hill stations, either as head-quarters of regiments or as places to which detachments could be sent in rotation from the plains for recovering their stamina. The evidence, at the same time, proves the absolute necessity of placing all hill stations in the best possible sanitary condition.

HOSPITALS.

Every station has one or more hospitals, generally one for each arm of the service. The sites on which they are placed partake of the general characteristics of the locality; but the best positions appear to have been selected for the hospital. With few exceptions, the hospital sites are described as being well exposed to prevailing winds, and as having sufficient fall for drainage, as far as the general levels admit of. At two or three stations the hospital sites are bad, but perhaps not more unfavourable than those of the barracks.

The general construction is similar to the barrack construction. Almost all the hospitals are on one floor, raised a few feet above the ground, without ventilation beneath. There is a foundation wall and plinth filled in solid, and on this the ward floor is formed. The older class of hospitals resemble huts, each hut containing a ward with two or three smaller rooms, surrounded outside by an open verandah to keep off the sun. The newer class of hospitals are built like the recent barracks, with a centre aisle and two side aisles, with verandahs outside. The materials used are burnt or sun-dried brick, wattle and daub, or stone. The floors are flagged, or of brick, or of a species of lime concrete (called *chunam*). The roofs in the older class of hospitals are sloped and constructed of thatch and tile. In the newer class the roofs are terraced and flat. In most instances the material is considered good, and the walls and the roofs, together with the verandahs, sufficient to keep the interior of the hospital cool.

The ward dimensions do not appear to have been laid down on any general principle, either as regards health or administration. They vary in length from 30 or 40 feet up to 200 feet and upwards. In one case, at Dinapore, the hospital ward is no less than 633 feet long. The central aisle is usually from 20 to 25 feet wide. If there be single verandahs, these are usually from 10 to 12 feet wide, making the whole width of the hospital, from outer air to outer air, including walls, between 40 and 50 feet. If the verandahs are double, this dimension will be increased by 25 feet, making the entire width of these double verandahed wards from 65 to 75 feet. The length of the building is sometimes divided by cross arches into what are called separate wards, which form, however, in reality only one ward, with the ventilation partially interrupted by cross walls. The height of the wards varies from 15 to 24 feet and upwards; but there are wards, as at Trimulgherry, as

high as 42 feet. The practical result of this great height is not that the sick have the benefit of large cubic space, but that the beds are overcrowded on the surface. The Trimulgherry hospital contains 486 sick, with only 24 square feet per bed.

The number of beds per ward varies from 15 to 20, up to 80, 100, and in several cases to 150 and upwards. While in the Trimulgherry hospital there are two wards with 228 sick each : tenfold too many.

The cubic space per bed is large for a military hospital ; but it scarcely exceeds the amount allowed in some wards of the larger London hospitals. Sometimes it is under 1,000 cubic feet per bed, but more generally it is from 1,000 to 1,500 or 1,700 cubic feet, or even more per bed. But on the other hand the ward proportions are such that, in nearly every instance, there is considerable surface overcrowding for the climate. The superficial area is sometimes as low as 24 square feet. Generally it is from 40 to 60 or 70 square feet. In a few instances the area is 100 square feet or a little over.

But there is scarcely a ward which gives the superficial area required for the more serious cases of disease in such a climate as India.

So far as the evidence goes the ventilation provided would appear to be generally better in hospitals than in barracks. There are the usual opposite doors and windows, with ventilators in the ridge, openings in the walls, and cleristery windows in the double verandahed buildings.

The structural arrangements are the same as those for barracks. But the state of the hospital ventilation is less complained of, apparently because more attention is paid to it. But, considered in relation to the construction of the buildings, the size of the wards, and the number of sick in one room, it is very doubtful whether these hospitals are ever free of a "hospital atmosphere."

Their construction shows that the wards must be dark ; and we know that light is an element, second only in importance to air, in the course of disease.

The structural arrangements for administration are very deficient. There are no properly placed nurse's rooms or sculleries, without which there can be no ward discipline or real administration. The medical offices are also frequently defective ; and there do not appear to be any means of performing operations more than are found in field hospitals.

There is no hospital drainage in India. In many cases even the roof water is allowed to sink into the ground, close to the wards. Any attempt at drainage is merely by surface gutters, leading outside the hospital wall, or to a ditch or nullah. There are no water-closets, only open privies in the back yard of the building, the contents of which are removed by sweepers. Sometimes the privies are over cesspits. All the arrangements are offensive ; and during the prevalence of epidemic disease, especially of dysentery or cholera, they must be in the highest degree prejudicial.

There is no hospital water supply, except what is carried by hand labour, sometimes from a distance of one or two miles. Little or nothing appears to be known of the quality of the water, and the means of distribution ensure the supply being limited, instead of being unlimited, the only safe condition of all hospital water supply.

The means of cleanliness as described are very deficient. There are few properly fitted lavatories, and few or no suitable baths. Washing the hands and face in any way, sometimes (indeed not unfrequently) in a little damp square room, with nothing but earthenware basins on the floor, or tin pots with wooden tubs instead of baths, and vessels for storing water, out of which the sick can help themselves ; this appears to be considered sufficient for cleanliness in Indian hospitals. The improvements in these matters being introduced into civil and military hospitals in England appear to be unheard of in India.

The hospital kitchens are on the same plan as the barrack kitchens. They are in out-houses behind the hospital, and are provided with low fire-places, on which the diets are cooked in the native fashion. The cooking is generally stated to be sufficient, but occasionally complaints are made of the cooks, and opinions expressed in favour of the whole system of hospital cooking being improved.

In all cases hospital linen is washed (and torn) by native washermen (dhobies) away from the building.

The sanitary condition of the hospitals is generally described as satisfactory. In some instances it is the reverse ; and it is not a very favourable sign that the sick in hospital should suffer from epidemic diseases prevailing in the vicinity.

None of the hospitals contain convalescent wards. Convalescents appear generally to be sent to barracks, or they are kept in hospital with the sick until able to return to duty. Wherever there is serious disease there should be separate accommodation for convalescents. In a climate where dysentery, cholera, and fever are the prevailing diseases, it is a certain method of delaying recovery to associate convalescing and sick men in the same wards ; and Indian barracks with their dieting and facilities for obtaining drink, are not the best places to send convalescents for the purpose of avoiding this risk.

Attendance on sick is provided for in India by a subordinate medical department, and by ward coolies and by ward servants acting under the orders of the medical officers. There is a great subdivision of labour in the hospital duties, and consequently a very large number of attendants and servants in proportion to the sick. The hospital of an entire regiment has an ordinary establishment of 79 persons, increased in hot weather to no less than 240. In this are included water-carriers and mehters for removing hospital filth and refuse.

The sick are attended by native ward boys, and severe cases by comrades, obtained on requisition of the medical officer. There is a regimental hospital serjeant for discipline. No training appears to be given to the attendants for ward duties. At one station (Allahabad) there are female nurses in the general hospital, stated to be a great comfort and benefit to the sick.

Notwithstanding the large staff attached to these hospitals (larger at times than the number of sick) there is strong evidence that the hospital administration is not good, and requires much improvement.

Nearly every station has one or more female hospitals, many of which have been specially constructed. But at some stations the female hospital accommodation is under the same roof with the male hospital ; and sometimes it consists of a male ward misappropriated for the purpose. At a few stations the sick wives and children of soldiers have to be attended in their own quarters. The specially built female hospitals have the same general structural defects as the male hospitals ; but the accommodation generally is described as "sufficient."

NATIVE LINES.

The sanitary defects of native lines are the same as those in British cantonments ; but in a much more aggravated degree, from the general neglect of all sanitary precautions among natives.

Native troops generally receive hutting money, and hut themselves on the ground appropriated to them, without regard to order or regularity.

The ground is undrained, or it is merely trenched, and full of excavated holes, the receptacles of all sorts of filth.

The sanitary police is extremely imperfect.

A considerable extent of the surrounding ground is often covered with filth. The bazaars are very bad, the streets sometimes used as privies. Bad water, no drainage, overcrowding, dung-heaps and filth, appear to be their normal condition. No person can read these native returns without being convinced that the most virulent causes of local diseases and pestilences are in continual activity in and around the stations.

Although the system of hutting native troops could be so applied as to possess great sanitary advantages, these advantages are by no means realized.

The men are sometimes hutted separately in huts constructed of bamboo and matting. But sometimes the huts are merely long open sheds divided (pendals). Generally there is bare ground for the floor, and the men frequently sleep outside in hot weather. Native troops are always exposed to ground malaria in a concentrated form during sleep; and their huts can never be otherwise than damp, especially during the rainy season. When more permanent materials are employed, such as sun dried bricks, ventilation is effected by a door and an opening in the wall, instead of a window. The ventilation could be materially improved by roof openings.

With all their disadvantages, these native huts and barracks are possessed of sanitary advantages of a most important kind. There need be no overcrowding, either in cubic contents or in superficial area, except, perhaps, where the soldier is married, in which case his wife and family live with him, but in which case he does not always build a larger hut. There are abundant means of natural ventilation; and the huts are not exposed to the great evil of European barracks, viz., crowding perhaps a quarter of a regiment in the same room. The water supply is the same as for European barracks, viz., wells, tanks, and rivers. Natives are said to be generally more particular about the quality of the water than are Europeans; but the reports nevertheless furnish sufficient evidence of unwholesome water being extensively used. At many stations where there are native troops, tank water is used, always more or less polluted with surface drainage and filth washed in by the rains. Sometimes the same tank is used for drinking and bathing. The well water is often polluted by infiltration of putrid organic matter from a foul undrained subsoil. There are neither lavatories nor baths. There are no cook houses. Where there are privies, these are of the most offensive character, and sometimes they are cleansed by merely throwing the contents over the adjacent surface. But often there is no provision whatever made. The arrangements of a native station are those of an oriental camp, and entail great liability on the part of their occupants to periodic fevers and to any epidemics, especially those of bowel diseases, which may happen to prevail.

Native troops enjoy a remarkable exemption from liver disease, which is attributed to their temperate habits in eating and drinking. They suffer from venereal disease in a very low ratio, from a tenth to a twentieth part of the ratio of European troops. Rheumatism is frequent among them, arising apparently from damp, want of care in clothing, and rapid change of temperature. Intermittent fever is one of their most common diseases.

The condition of the air, over some of these native stations, in still, warm, moist weather, is extremely offensive and unwholesome, and nuisance from it is experienced to some distance. This is the result of filth and want of drainage.

Native troops are allowed to diet themselves, a system which is attended with serious disadvantage in cases where the men stint themselves of proper food to save money. Their cooking is frequently very imperfect and unwholesome.

At a number of stations there are native schools; but with these exceptions there are no means provided, either for instruction, recreation, or exercise. In this respect the men appear to be left wholly to themselves, without interference on the part of their officers.

Native hospitals are of more permanent construction than the barracks. They consist essentially of a single hut ward, with sometimes two or three smaller wards, built on the same general plan as British hospitals, but affording considerably less cubic space per man. This is generally from a third to a half of that allotted in British hospitals, and hence, as a rule, all native hospitals are overcrowded. The usual means of ventilation are doors and windows, often not glazed. It can never be enough, with so small a cubic space. Except this ward or wards, it cannot be said that the native sick accommodation has any other hospital characteristic. In all the other conveniences required for the treatment of sick there is entire deficiency. There are no suitable nurses' rooms, no ablution nor bath accommodation, patients being allowed to go home to wash or to bathe themselves in the nearest tank. There are no waterclosets or proper latrines. The substitutes for these are indescribable, offensive, and injurious to health. There are no hospital kitchens, and no cooks. The patient or a friend does the sick cooking. There are no hospital diets. The sick diet themselves according to their own fancy. The attendance consists generally of an officer of the subordinate medical department, a serjeant, and comrades from the ranks. A native station hospital is simply a very inferior form of European camp hospital, in which the sick can be more conveniently visited than in their own lines, and where the medical officer has the power of giving them medicine. So far as can be learned from these returns, the present native hospital system contemplates nothing more than this.

The sick wives and children of native soldiers present themselves to the medical officer for advice, or are attended in their own huts when too ill to come to him.

Considered as a whole, this native hospital system resembles nothing to which the name of hospital system can be applied.

BURIAL OF THE DEAD.

There are burial grounds at all stations occupied by British troops. These grounds are placed outside the cantonments, at a sufficient distance to prevent injury to health.

The surface area allowed, and the general method of conducting interments, is the same as in this country.

Native dead are disposed of according to religion and caste. Mohammedans bury their dead in separate grounds, often at a considerable distance from human dwellings. Their method of burial is objectionable, and would give rise to nuisance if close to towns.

In certain cases, there are burial grounds within cities, which are complained of as being injurious, and a practice is mentioned of burying within compounds or in houses.

Hindoos burn their dead, often very imperfectly, and throw the remains into rivers.

There is no complaint of injury to the health of British troops from any of the existing practices, although occasionally nuisance arises from them.

BENGAL PRESIDENCY.

ABSTRACT OF SANITARY DETAILS IN RETURNS FROM PRINCIPAL STATIONS WHERE THERE IS ACCOMMODATION FOR BRITISH TROOPS.

Returns have been made from 35 stations in Bengal presidency, where there is accommodation for British troops. Of these stations 34 are included in the following abstract.

The stations least elevated above the sea level are Fort William and, farther up the river, Dumdam, which are only 18 feet above the sea. At these two stations there is accommodation for above 3,000 troops, in positions so low that the tide washes into all the neighbouring ditches, and more or less saturates the subsoil with water.

Along the valley of the Ganges, from Fort William as far as Lucknow, and close upon the river, there are upwards of 15,000 British troops located at elevations above the sea level varying from 80 feet to 368 feet. With scarcely an exception, these stations are on the same level as the surrounding country. Allahabad is partly 40 feet above the Ganges, but a third of the station is actually below the river. Berhampore is 3 feet below the level of the river Bhagirutty, which skirts the station.

The N.W. stations are on higher ground; Ferozepore, the lowest of them, is 720 feet above the sea level, and Rawul Pindi is 1,500 feet.

Between these two elevations there is accommodation for above 20,000 troops.

Hazareebaugh, one of the best stations of the Presidency, is situated on a table land in Lower Bengal, 1,900 feet above the sea. There are above 1,100 troops barracked at this station. The cantonment site has the advantage of being 200 feet above the level of the adjacent country.

Meerut and Agra are, one 100, the other 50 feet, above the surrounding levels; but with these exceptions the stations generally are little, if at all, raised above the adjacent country.

There are four returns from hill stations at elevations from 7,000 to 7,800 feet above the level of the sea, but the accommodation provided at these is for not more than 1,200 men. The highest of these stations is Murree. They are all situated in the Himalayas, and are at present used as sanitarium.

There are 11 considerable stations on the banks of the river Ganges.

The subsoil is chiefly alluvium and clay, more or less wet or marshy during the rains. The surrounding country is generally undulating or flat, and in several instances the means of natural drainage are deficient.

The majority of the N.W. stations are situated on flat sandy ground, with more or less alluvium mixed with limestone nodules or conglomerate. In some districts the underlying rock is sandstone. The country round several of these stations is imperfectly cultivated, and there is not much wood for shade. The hill stations rest on mountain masses of gneiss, sandstone, and limestone. They are generally on ridges, with steep slopes or ravines falling from them, and have ample means of natural drainage and water supply, but they are subject to very heavy rain-fall and great dampness at certain seasons.

I. TOPOGRAPHY.—MORTALITY.

Stations.	Elevation above		Accommodation for British Troops.	Actual Occupation.	Mortality per 1000 per annum (Queen's) British Infantry.*		Topographical Remarks.
	Sea. Feet.	Country. Feet.			Total.	Miasmatic Diseases.	
Fort William	18	0	1,465		102.35	77.83	Plain; swampy; alluvial; sand; clay; numerous tanks.
Dinapore	212	+	910		62.55	48.02	On bank of Ganges; flat; flooded during rain.
Cawnpore		0	1,402		91.48	71.58	Flat; sandy; arid; no jungle; alluvium on kunkur; 60 feet above Ganges.
Meerut	900	100	4,227		45.12	30.41	Sandy; flat; dry; loam on calcareous conglomerate.
Agra	800	50	1,776	1,400	42.48	20.58	Flat; dry; sandy; ravines; unhealthy; alluvium; clay; sand; lime.
Umballa	1,050	0	2,162	2,162	55.24	38.27	Flat; sandy; cultivated.
Loodiana	900	0					Sandy plains, with clay; cultivated.
Ferozepore	720	0	948	1,148	56.05	36.77	3½ miles from Sutlej; flat; sterile; sand and clay.
Jullundur	937	12		1,200	36.62	21.33	Flat; sandy; hollows with water.
Lahore	1,128	8			81.42	58.23	Flat; arid plain; alluvial clay; loam and sand; last on surface.
Mean Meer							
Peshawur	1,056	68		2,651	61.23	41.81	Flat; partially irrigated.
Sealkote	900	0	1,200		26.79	13.17	Flat; alluvial; sandy subsoil.
Murree	7,800	2,500			91.76	47.06	Mountainous; sandstone; indurated red clay and black soil.
Ghazepore		0	830	848	47.03	42.08	On bank of Ganges; alluvium with calcareous conglomerate.
Berhampore	76½	-3	1,196				Alluvial; many water holes; 3 feet below river level.
Hazareebaugh	1,900	200	1,120	1,080			Undulating; dry; gravel and loam on clay.
Allahabad	368	40	4,280	2,515	122.75	82.34	At junction of Ganges and Jumna; sandy; country under water from July to November; clay subsoil.
Dumdam	18	0	1,649		76.57	64.79	Alluvium and clay; swampy during rains.
Benares	270	0	1,377	876			Undulating; alluvial; resting on calcareous conglomerate.
Landour	7,000	4,000	900	228	60.71	29.01	Mountainous.
Muttra			424	400	37.26	23.45	Subsoil kunkur; flat; sandy; dry; close to Jumna; water lies on surface.
Raneegunge	370	0	1,424	1,120			Undulating; sandy; swampy; gravel and sandstone.
Umritsar	900	0	1,650	620			Flat; sandy, with clay; kunkur.
Nynce Tal	7,609	1,200	840	740			Mountainous; limestone.
Rawul Pindi	1,500	+	200		28.86	14.29	Alluvial plain; loam and clay resting on limestone conglomerate.
Lucknow	360	+	124		169.29	148.73	Site open.
Chanar	250	-	268				Close to Ganges; sandy; swampy from overflow; sandstone.
Roorkee		+	630	487			Dry sandy plain.
Jhansi	700		189				Rocky; hilly; barren; ravines; granite and quartz subsoil.
Barrackpore	23	0	1,080				Flat, alluvial, marshy jungle, on bank of Hooghly; alluvium, with sand and clay.
Delhi	800	0		959			Rocky; ravines; flat; dry; sandy; some swamp; jungle and wood.
Morar Gwalior	800	0	1,594				On bank of river Morar; stony, barren hills; open, undulating country; argillaceous soil; kunkur subsoil.
Jubbulpore	1,250	+	1,000	827			Hilly and flat; jungle and water in vicinity; cultivated in parts; sand; black cotton soil, with black trap or laterite.
Darjeeling	7,000	6,000	120		38.95	23.37	Mountainous; gneiss rock; subsoil clay, covered by sand and vegetable soil; forest at a short distance.

* From the Statistics of Sickness and Mortality among Queen's Troops in the Appendix.

STATIONS.	REPLIES.
II. LOCAL CLIMATES.	
FORT WILLIAM.	1. Mean maximum varies from 71°·4 in December to 93°·8 in May; mean minimum varies from 59°·3 in December to 80°·8 in June; mean daily range varies from 7°·5 in August to 18°·1 in December; mean sun temperature from 124°·3 in December to 135°·9 in October. Mean rainfall 64 inches; temperature high; atmosphere generally moist, at times very offensive and impure from malaria and effluvia near Calcutta, less so in Fort William. Healthy months, November to March; unhealthy, April, May, September, October, when prevailing diseases are fevers, intermittent, remittent, cholera, small-pox, dysentery. Climate affects health and constitution of troops in garrison. Change from cold to heat, extreme humidity, drying of country after rain, precede or accompany miasmatic disease.
DINAPORE.	2. No meteorological observations; climate a medium between damp and drought of N.W. Damp in rains; tolerably free of dust; morning fog November and December; bronchitis and bowel disease and dysentery caused by cold nights; warm clothing required in winter, flannel in all seasons; men allowed to go out in cloudy weather; December to March most healthy months. Prevailing diseases, heat, apoplexy, fevers, dysentery, bowel and hepatic diseases. Fever follows drying up of country after rains.
CAWNPORE.	3. Records destroyed during mutiny. Great fluctuations of temperature, humidity and pressure. Temperature extremely high during hot winds, and mortality occurs from heat apoplexy, sunstroke, &c.; most unhealthy months, April to September, when prevailing diseases are fevers, cholera, dysentery, rheumatism.
MEERUT.	4. Mean maximum temperature, 69° in December, 103° in May; mean minimum 49½° in January, 84½° in July; mean daily range, 9° in September, 31° in November; mean sun temperature 84° in December, 118° in May. Rainfall 17·89 inches. Climate good; dry a great part of year; not variable; fogs very rare; much dust in dry seasons; no bad influence on health; most healthy months, December till March; most unhealthy months, August to October, when fevers intermittent, remittent, and continued; catarrh, diarrhoea, dysentery, and hepatitis prevail. Fevers most prevalent at end of rainy season; small-pox in March and April. Great variation of temperature produces influenza, sometimes cholera.
AGRA.	5. Mean maximum temperature varies from 73°·3 in January to 112°·7 in June; mean minimum temperature varies from 42½° in January to 83°·3 in June; mean daily range 18°·4 in July to 38°·1 in April; mean daily temperature 66°·9 in January to 97°·1 in June. Rainfall about 10½ inches. Climate from end of October to beginning of April cool, clear, and healthy; very hot and dry, but not unhealthy till end of June; hot and moist till end of September, when fevers prevail; much dust in hot season; much animal food not required; exposure to sun to be avoided in hottest season; flannel belt required. Healthiest months, November to April; unhealthiest, August to October. Miasmatic fever, with dysentery, prevails; sunstroke frequent in May and June; liver complaints prevail in hot and rainy season; chest affections in cold season.
UMBALLA.	6. Mean maximum temperature varies from 76° in December to 113° in June; mean minimum temperature 37° in December and January to 76° in June; mean temperature 59°·8 in January to 96°·6 in June; maximum sun temperature 89° in December and January to 128° in October. Rainfall 26·3 inches. Climate generally healthy; dry and hot for three months; moist and hot for three months; temperate for two months; cold and bracing four months; neither variable nor foggy; more or less dusty from April till July; debilitating from April till October, during which less animal food and light clothing should be used; flannel required during rains. February most healthy, July most unhealthy month; prevailing diseases, fevers, rheumatism, bowel and liver complaints.
LOODIANA.	7. No meteorological instruments. Climate very dry; heat very great April to October. Rainfall very variable; nights cold in cold season, sometimes freezing; fogs rare; dust frequent in hot weather; healthiest months, November till April; unhealthiest, August to October. Prevailing diseases; fevers, intermittent and remittent; spleen; dysentery; diarrhoea.
FEROZEPORE.	8. Mean temperatures vary in different years; lowest mean maximum in 5 years, 62° in January; highest mean maximum 115° in June; lowest mean minimum 41° in January; highest mean minimum 96° in May. Mean daily range varies remarkably in different years, 7° to 44° in same month; highest observed mean daily range 46° in November 1856; highest mean sun temperature 130° in July. In five years total rainfall, in October, November, December, 0·2 inch (in December 1858). Monthly rainfall varies in different years, from ¼ to above 13 inches in same month. Climate dry, "free from any great variation" or miasma. Rainfall has been increased by tree planting; climate particularly favourable to health; most healthy, December to March; most unhealthy, August and September; prevailing diseases, intermittent fever, liver disease, "produced by exposure to heats and chills from sudden change of temperature."
JULLUNDUR.	9. No meteorological instruments. Climate said to be good. July, August, September rainy season. Other months dry, with occasional dust and thunderstorms. September, October most unhealthy months. Prevailing disease, intermittent fever. Climate most healthy. Zymotic disease connected with a hot sun and cold damp nights.
MEAN MEER.	10. No proper instruments. Mean temperature varies from 51° in January to 91° in August, the highest observed mean. Rainfall varies in different years: 9·1 to 21·4 inches. Climate dry. Wet bulb falls 19° in a room in hot weather; wet bulb falls 20° to 24° after rains. Fogs rare. Cold easterly winds in cold weather. Atmosphere dusty. Unhealthy, May to July. Fevers, hepatic, and bowel disease prevail. September, October also unhealthy. Malarial fevers prevail. Fever begins with hot weather. Heat brings hepatitis; extremes of temperature, dysentery.
PESHAWUR.	11. Mean maximum temperature varies from 54½° in January, 106° in June. Mean minimum, from 41½° in January, 89° in June. Mean daily range, from 4° to 38° in March. Mean sun temperature, from 68½° in January, 113½° in July. Rainfall varies from 7 to 14 inches. Climate exceedingly trying, great alternations from heat to cold, from dryness to moisture. Tree planting appears to have equalized the temperature. Variableness chief element affecting health. Healthy, December to April. Most unhealthy in September and October, when fevers and bowel complaints prevail.
SEALKOTE.	12. Mean maximum temperature, from 63° in January, 98° in June. Mean minimum, from 51° in February, to 81° in June. Mean sun temperature, 72° in January, 124½° in July. Climate remarkably healthy. Air generally dry, notwithstanding heavy rainfall. Climate variable. June to August very hot. Cold very great December to February. No dust or impurities.

STATIONS.	REPLIES.
GHAZEEPORE.	<p>A great coat or cloak should be ready at all times. Flannel particularly required. Unhealthy, August to beginning of October. Rest of year healthy.</p> <p>13. Mean maximum, varies from 73½° in December, 105° in May. Mean minimum, 56° in December, 82½° in July. Mean temperature, 64½° in December, 93½° in May. Mean daily range, 14° in July, 28½° in March. Mean sun temperature, 90° in December, 125½° in May. Rainfall, 47·32 inches. Climate not very variable. Cold season very bracing. Much dust in hot season. September, October, unhealthy from fevers of all kinds, dysentery, and chest affections. January to April most healthy. This applies to natives. No experience of European troops.</p>
BERHAMPORE.	<p>14. Mean maximum varies from 75° in December to 100° in June. Mean minimum, from 51° in January to 78° in December. Mean temperature, 64° in January to 87° in June. Mean daily range, from 13° in August and September, to 30° in March. Rainfall, 39·75 inches. Climate damp. Frequent fogs during cold weather, until 9 or 10 a.m. Heat very oppressive April to beginning of June. N.W. winds healthy. Healthy, December to February. Unhealthy, August to November. Fevers intermittent, remittent, spleen, diarrhoea, dysentery, liver and rheumatic affections then prevail. Endemic disease, with rapid prostration of strength, accompanies damp air and powerful sun acting on vegetable matter.</p>
HAZAREEBAUGH.	<p>15. No proper instruments; only a thermometer. Mean temperature, 64°·85 in December, 87°·3 in July. Rainfall, 72½ inches. Climate, medium between Bengal and upper provinces. Air free of dust. Temperature, 8° or 10° cooler than most Indian stations. Climate variable, but excellently adapted for European troops, especially recruits. Flannel belts required in rainy season. Air cool, sun hot. September to November unhealthy; typhoid, remittent, and intermittent fevers, and bowel complaints then prevail. December to April healthy.</p>
ALLAHABAD.	<p>16. No records; all destroyed in mutiny. Climate dry, March to June; wet, July to November; cold, October to March. Rains regular. Dust storms in dry weather. Climate requires generous and varied diet, and clothing according to season. April to June, fever, dysentery, sunstroke, cholera. During rains, dysentery and cholera. In cold, fevers, chiefly intermittent, November to March, most healthy. East winds increase severity of cholera.</p>
DUMDUM.	<p>17. No proper instruments. No observations. Temperature, 1° or 2° lower than Calcutta. Climate very moist. Thick mist nearly every morning for a month before hot season. Climate not ordinarily unhealthy, with proper precautions; healthiest months, November to January; unhealthiest, June to August, when cholera, dysentery, and fevers prevail.</p>
BENARES.	<p>18. Mean maximum temperature, 68°·2 in December to 98°·8 in May. Mean minimum, 58½° in December, to 87°·8 in May. Mean temperature, 65°·4 in February, 92°·2 in May. Mean daily range, 1°·6 in July, 13°·3 in January. Mean sun temperature, varies from 89°·9 in January, to 127°·5 in May. Rainfall, 37·35 inches. Climate, intermediate between Bengal and north-west provinces. Not subject to sudden change of temperature, but to considerable diurnal alternations. Atmosphere generally loaded with dust in hot winds. Climate on the whole salubrious. November to March healthiest; August to October unhealthiest; malarious fevers, dysentery, hepatitis then prevail. High temperature and moisture in rainy season. Great dry heat, with still atmosphere, accompany these diseases.</p>
LANDOUR.	<p>19. No instruments. Mean temperature varies from 44½° in January, 73°·18 in June. Rainfall, 92·7 inches. Climate very moist for some months, due to elevation. Diarrhoea (obstinate), dysentery, chest affections of children prevalent.</p>
MUTTRA.	<p>20. No instruments or records. Climate produces heat apoplexy, hepatitis, continued fever. "Just now air over entire district a mass of dust, sometimes obscuring the sun." Diet of troops ought to be lighter; less meat, light puddings, plenty of fruit and vegetables. Healthiest months, October to March; sickliest, April and May, from continued fever and hepatitis.</p>
RANEEGUNGE.	<p>21. No proper instruments. No satisfactory observations. Highest mean maximum temperature, 96½° in May. Highest mean temperature, 91° in May. Climate generally healthy, but subject to heavy dust storms.</p>
DELHI.	<p>22. No records. Mean temperature varies from 92° in June, to 56° in January. Rains continue with intermissions from end of June to end of September. Rainfall, 10 inches and upwards. Hot winds, dust storms, April to June. Climate unusually dry; favourable to Europeans. Unhealthy months, September, October; from low fever.</p>
UMRITSIR.	<p>23. No proper instruments. Mean temperature varies from 54° in January to 88° in August. Mean sun temperature, from 76° in January, to 109° in May and August. Rainfall, 44·36 inches. Climate, comparatively very healthy; very dry for many months. Rain, July to September. Heat from middle of April to October intense. In winter, thermometer falls to freezing point. Ice is formed in December and January, sufficient for six hot months. Fogs very rare. No damp, except after rain. Dust storms in hot weather render candles necessary to see with. Sickness increases after first rains. In hot months, animal food once a day only should be given; no spirits and no malt liquor in heat of day. Light clothing, with flannel next skin. December and January healthiest; September and October unhealthiest months, when intermittent fevers, diarrhoea, dysentery, liver disease, and occasionally Asiatic cholera prevail.</p>
NYNEE TAL.	<p>24. No proper instruments. Average temperature, from 48½° in January, to 68° in June. Rainfall varies in different years from 68 to 144 inches. Climate excellent; damp in rains but dry and pure at other times. Too many trees. Residents have good health. Sun powerful in summer. Winter months most healthy, and best adapted for invalids. No endemic diarrhoea.</p>
LUCKNOW.	<p>25. No complete observations. Mean temperature from 58½° in December, to 91° in April and June. Cold weather begins in October. Water freezes in December and January, sometimes in February. Often heavy dews and showers of rain in winter. Hot weather from end of April till June. Dust storms frequent. Climate of Oude better than south of Ganges. Cold and hot seasons healthiest; unhealthiest, breaking up of rains. Most fever in June; least in January. Bowel affections in heat and rain; catarrh in cold season. Heat apoplexy in May and June; 500 cases occurred in Lucknow field force in May 1858.</p>
RAWUL PINDI.	<p>26. No records. Climate decidedly finest in plains of India. Winter clothing, generous diet necessary for seven months; light clothing, less stimulating food necessary for other five, with plenty of vegetables.</p>
CHUNAR.	<p>27. Instruments imperfect. Mean temperature, from 65° in December and January, to 92° in June. Mean sun temperature, from 84° in January, to 120° in June. Rainfall, 47</p>

STATIONS.	REPLIES.
ROORKEE.	inches. Climate hot and healthy; hot and dry in hot winds; hot and moist in rainy season; pleasantly cold in cold season; no great variation; little subject to fog and dust. October to half December unhealthiest. Intermittent fever.
JHANSI.	28. Climate very healthy, quite equal to that of England. September, October unhealthiest, from fever intermittent and mild continued.
BARRACKPORE.	29. Records destroyed during mutiny. Climate healthy and bracing, except in hot weather. Cold season healthiest. Intermittent fever in August and September.
MORAR GWALIOR.	30. No proper instruments. Temperature in hot season, 82° to 104° in shade; in rains, 80° to 96°; in cold season, 54° to 80°. Climate moist, warm, little variation; moderately healthy. Evenings in hot weather sultry and oppressive. Heavy dews in mornings in cold weather. August to October unhealthiest. Diarrhoea, dysentery, cholera, fevers, remittent and intermittent then prevail.
JUBBULPORE.	31. Mean maximum temperature, from 70½° in December to 106° in July. Mean minimum, from 56½° in December, to 86° in May. Mean temperature, 61½° in December, 96° in June. Mean daily range, from 3½° in September, to 18½° in February. Rain fall about 25 inches. Climate salubrious, dry and hot. Too many trees. Air often loaded with dust. Healthiest, at end of cold weather. Unhealthiest, at end of hot and wet weather. In May and June, head and bowel affections and fever prevail. After rains fever and bowel complaints.
DARJEELING.	32. No information. No instruments. 33. Mean maximum temperature, from 50°-39 January, to 64°-97 August. Mean minimum, 38°-68 January, 57°-97 July. Mean temperature, from 45° January, to 61°-35 August. Mean daily range, between 2°-9 July, and 5°-8 November. Mean sun temperature, between 90° in December, and 104° in July. Average annual rain fall in 7 years 124 inches. Climate, temperate and damp; beneficial in debility after fever, or in simple debility. Not beneficial for serious organic disease or rheumatism. Spring water percolating the decayed vegetable matter produces diarrhoea after first rains.

III. PREVAILING DISEASES AMONG NATIVE POPULATION, AND THEIR CAUSES.

FORT WILLIAM.	1. Native population comparatively unhealthy. Prevailing diseases, intermittent, remittent, typhoid fevers; cholera; dysentery; small-pox; enlarged spleen, and fatal diarrhoea, remarkably prevalent. Causes.—Rank jungle; filth; stagnant water; damp; foul drains; bad drainage; bad, unwholesome, brackish drinking water; bad overcrowding; dirt, and bad diet.
DINAPORE.	2. "Generally healthy, especially the natives." Prevailing diseases: fevers, small-pox, cholera, bowel complaints, palsy of the lower limbs. Causes.—Too much or too little rain; bad drainage; "holes near all native houses;" some native towns "disgracefully filthy."
CAWNPORE.	3. "Generally healthy." Cholera; small-pox; occasionally aggravated by overcrowding, want of ventilation &c. prevail.
MEERUT.	4. "Considered healthy." Diseases: fever, diarrhoea, dysentery, small-pox, spleen, cholera, not so frequent as elsewhere. Comparative healthiness attributable to porous soil, cultivation, and few sources of malaria, free ventilation.
UMBALLA.	5. "Generally healthy." Prevailing diseases: endemic fever, spleen disease; epidemics rare. District well drained by rivers; porous subsoil; few swamps.
FEROZPORE.	6. "Particularly healthy." Prevailing diseases, venereal, giving rise to ulcers, cancers, diseased bones, leprosy, intermittent fevers, calculi. Healthiness attributable to dry atmosphere; absence of surface water and vegetation; pure drinking water; living much in open air.
JULLUNDUR.	7. "Native population most healthy." Prevailing diseases, fevers; intermittent; dysentery; spleen rare. Healthiness attributable to regularity of rains.
MEAN MEER.	8. Prevailing diseases, fevers, mostly intermittent; lung diseases; bowel complaints; dyspepsia; acute and chronic ophthalmia; ulcers and boils; rheumatism; venereal. Cheap food and fine climate favourable conditions. Dry seasons most healthy.
PESHAWUR.	9. Prevailing diseases, fevers, intermittent; bowel complaints; rheumatism; epidemic small-pox; typhoid remittent fever (severe and fatal) epidemic, in certain districts. Spleen disease not common. Streets dirty, houses densely crowded, ill ventilated.
SEALKOTE.	10. "Healthy." Prevailing disease, rheumatism. Except small-pox, epidemics unknown; spleen disease not common. Healthiness attributable to absence of malaria and open dry country.
GHAZEEPORE.	11. Prevailing diseases, fevers, intermittent, remittent; dysentery; diarrhoea; small-pox; lung disease; spleen; attributed to "malarious nature of climate;" want of sanitary arrangements; poverty of food. October to December 1859, "fearful" fatality from "fevers."
BERHAMPORE.	12. Unhealthy. Prevailing diseases, rheumatism; "fevers of all types;" diseases of bowels; liver; spleen; lungs; cholera; small-pox. Causes.—Damp climate; rank vegetation; "holes full of stagnant foul water, close to almost every house; forming the usual cess-pool of the neighbourhood." "Utter neglect of ventilation, and of all sanitary measures;" low level of country.
NYNEE TAL.	13. Generally healthy. Prevailing diseases, fevers, intermittent with spleen, and small-pox. Causes.—Sudden variations of temperature; dense underwood; living in hollows; want of free ventilation.
HAZAREEBAUGH.	14. Natives, a poor puny race. General health, average. Prevalent diseases, fevers, intermittent; spleen. Cholera; small-pox; most common and fatal epidemics. Causes.—Jungle; malaria; rice cultivation; poverty; insufficient food.
ALLAHABAD.	15. On the whole healthy. Prevailing diseases, fever, intermittent, remittent; cholera; dysentery; paralysis of loins, caused by eating lathyrus sativus. "Comparative healthiness due to full occupation; abundant food and water."
RAWUL PINDI.	16. Generally healthy. Epidemic small-pox almost every year at beginning of hot season; measles common, and calculus. Causes.—Objection to vaccination; want of cleanliness in person, house and village, hard water.
DUMDUM.	17. Sickly in hot weather. Prevailing diseases, small-pox; cholera, in hot weather; fever with spleen disease, at end of rains; cholera endemic in the district. Causes.—"Defect of vaccination;" lowness and dampness of native huts; bad food and vegetables; putrid fish.
BENARES.	18. Generally healthy. Prevailing diseases, malarious fevers; affections of spleen and bowels; "epidemics of small-pox, caused by inoculation, common in February and March." Healthiness attributable to dry climate; not much marshy ground; sufficient food and clothing, and efficient sanitary regulations enforced by city magistrate.

STATIONS.	REPLIES.
LANDOUR.	19. Undoubtedly healthy. Small-pox occasional; bad fever, or spleen, only in mountain valleys at a distance; goitre common. Healthiness attributable to pure bracing climate. Natives have inveterate filthy habits; seldom wash or change their clothes.
RANEEGUNGE.	20. Generally healthy. Prevailing diseases, fevers, cholera in outbreaks. <i>Causes.</i> —Mode of living; neglect of all sanitary precautions in cases of sickness.
UMRITSIR.	21. Generally healthy. Prevailing diseases, small-pox; chicken-pox; measles; cholera; intermittent fever. <i>Causes.</i> —“Utter ignoring of all sanitary arrangements in city and country;” dirty habits; close, overcrowded, ill-ventilated buildings; exposure to night air; moisture and malaria in rains.
LUCKNOW.	22. Health above average. Prevailing diseases: fevers, bowel, liver and spleen diseases; cholera at times. “Climate and good feeding” keep the people in health.
CHUNAR.	23. Generally healthy. Fevers, intermittent; small-pox; cholera; spleen. General healthiness attributable to good water; equality of temperature.
ROORKEE.	24. Population healthy. Small-pox, very common and destructive in spring, when inoculation is practised; cholera, occasional; spleen, rare. Healthiness attributable to dry sandy soil and mild climate.
JHANSI. BARRACKPORE.	25. Generally healthy. Fevers and venereal; small-pox, occasional; cholera, almost unknown. 26. Moderately healthy. Intermittents; dysentery, acute and chronic; spleen; epidemic cholera; elephantiasis.
DELHI.	27. Generally healthy. Fevers; spleen; ulcers; small-pox, less frequent from dry weather of late, more frequent after heavy rains; ulcers, prevalent, supposed to be caused by water.
MORAR GWALIOR.	28. Very healthy. No epidemics since 1858; attributable to dry climate and soil; abundant and cheap food.
JUBBULPORE.	29. Healthy. Fevers, intermittent; spleen; bowel complaints; rapid chest disease: attributable to frequent change of temperature; numberless tanks; large tracts of jungle.
DARJEELING.	30. Natives generally healthy and strong, living much in open air. Prevailing diseases: small-pox, the scourge of the hill population; fever; sometimes spleen; goitre, also common. <i>Causes.</i> —Native houses surrounded with all kinds of filth; atmosphere quite sickening in walking through the villages.

IV. PREVAILING DISEASES
AMONG EUROPEAN TROOPS,
AND THEIR CAUSES.

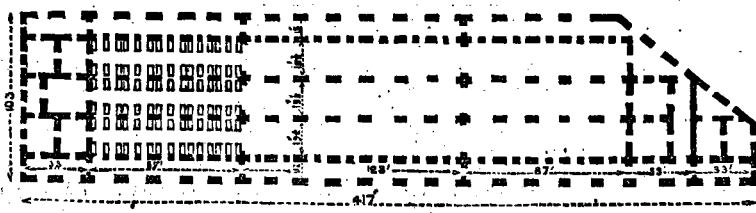
FORT WILLIAM.	1. Fevers, intermittent, quotidian, quartan, tertian, double tertian, remittent, continued; dysentery, acute, chronic; cholera, bilious, spasmodic; small-pox, benign, confluent; rheumatism acute, chronic. These diseases occasion from 60 to 65 per cent. of total sick, and from 75 to 80 per cent. of total deaths. Causes stated to be exposure and drink, bad drainage, and water supply. Soldiers' duties do not predispose to disease. About five per cent. of the sick in hospital are venereal cases, “might be lessened by police regulation.” Hepatic disease nine per cent. of total sick. Cause, high and variable temperature and spirituous liquors. Moderation in diet, cleanliness, mental amusement, and exercise recommended as prophylactics.
DINAPORE.	2. Fevers, remittent, quotidian, tertian; dysentery, “prevalent and severe;” cholera almost every year; rheumatism. Worst ventilated part of barrack most liable to cholera. To mitigate epidemic disease, bazaars should be cleared away. Draining, filling up holes, and preventing flooding of station required. Venereal disease occasions 53 per cent. of total sick. Lock hospital would be advantageous. Increase of marriages greatly preferable. Hepatic disease causes 6½ per cent. of total admissions, and 24 per cent. of total deaths: attributable to exposure and too full diet.
CAWNPORE.	3. Fevers, intermittent, remittent; dysentery; cholera; small-pox; rheumatism of miasmatic origin occasion about three-fifths of the admissions and four-fifths of the deaths. Admissions from hepatic disease about 35 per 1,000 of admissions. Cause, intemperate eating and drinking. Venereal cases form one-third to one-half the sick. Lock hospitals would be of little if any use.
MEERUT.	4. Fevers, intermittent, remittent, continued, occasion 56 per cent. of total admissions, and 25 per cent. of total deaths; dysentery; cholera; small-pox; rheumatism. Hepatic disease, occasions 18 per 1,000 of total admissions. <i>Causes.</i> —Intemperance; exposure; long residence; malarial fever. Eight per cent. of total admissions are venereal cases. Lock hospitals “decidedly advantageous, if combined with police supervision.”
AGRA.	5. Fevers, continued and miasmatic; small-pox; cholera; rheumatism; sun-stroke. <i>Causes.</i> —climate; drinking spirits; sleeping close to ground. Liver disease. <i>Causes.</i> —Heat; exposure; alcoholic liquors; excess of diet. 877 per cent. of admissions are venereal cases. Lock hospitals, with inspection, recommended.
UMBALLA.	6. Fevers, quotidian, tertian, remittent; dysentery; rheumatism. Proportion of hepatic cases two to three per cent. of the constantly sick. <i>Causes of hepatic disease.</i> —Fevers; exposure; intemperance; too high living; “too much animal food without exercise in hot weather.” Proportion of venereal disease to constantly sick 27-38 per cent. Increase of marriages, lock hospitals, and inspection recommended.
LOODIANA.	7. Fevers, intermittent, quotidian, remittent occasion 28 per cent. of admissions. Dysentery, acute; rheumatism. <i>Causes.</i> —Exposure to sun; lying on damp ground. Venereal disease 16 per cent. of total sick.
FEROZEPOR.	8. Fever, intermittent; dysentery; rheumatism. <i>Causes.</i> —Intemperance; exposure; and not soldier's duties. Hepatic disease not very prevalent. <i>Causes.</i> —Exposure to heat; chills; intemperance; dysentery; and fever. 16 per cent. of admissions are venereal cases.
JULLUNDUR.	9. Fevers, intermittent; dysentery; last year 16 per cent. European, 7½ per cent. native troops constantly sick from syphilis. Lock hospitals and inspection recommended.
MEAN MEER.	10. Fevers, continued, intermittent, with spleen disease, remittent; dysentery, acute, chronic, hæmorrhagic; cholera, sporadic, epidemic; rheumatism; small-pox. <i>Causes.</i> —Heat and extremes of temperature; want of exercise; ennui; sanitary defects in bazaars. Soldier's health always better under exertion in the field. Average occurrence of hepatic disease in proportion of 3.9 per cent. of total strength. Hard drinkers undoubtedly predisposed to it. Venereal disease 1 in 13 of other diseases. Lock hospital, registration, and inspection have been established. Returns show a diminished per centage of cases. Another report of later date states that this procedure diminishes the severity, not the number of cases. It is “considered advantageous,” but supervision is difficult. It has been “constantly tried in India.”

STATIONS.	REPLIES.
PESHAWUR.	11. Fevers, intermittent, quotidian, tertian, remittent, continued, occasion 44·9 per cent. of total admissions, and 22·8 of total deaths; dysentery, acute, chronic; cholera; small-pox; rheumatism. Zymotic diseases occasion 51½ per cent. of total deaths. Fevers attended with extreme prostration. Hepatic disease not very prevalent. Abstinence from spirits the best prophylactic. Amount of syphilis varies from 1 to 28½ per cent. of strength. Lock hospital, recommended.
SEALKOTE.	12. Fever, ephemeral; dysentery; rheumatism. Typhus or typhoid fever, cholera, small-pox, exanthemata, almost unknown. Less than 3 per cent. of admissions; less than 1 per cent. of deaths due to epidemic and endemic disease. 2 per cent. of cases due to hepatic disease, caused by intemperance or climate. Syphilis occasions a quarter of the admissions. Lock hospitals and inspection recommended.
GHAZNEPORE.	13. Fevers, quotidian, tertian, quartan, remittent, ephemeral; dysentery, acute, chronic; cholera, "severely" in 1860. Causes.—Total want of healthy occupation; sanitary arrangements required.
BERHAMPORE.	14. Fevers, quotidian, tertian, quartan, remittent, continued; dysentery; cholera; rheumatism. Causes.—Humidity and heat, acting on decaying vegetable matter; want of drainage; want of cleanliness and ventilation in bazaars; stagnant water. Hepatic disease, 10 per cent. of admissions. Causes.—Intemperate habits; exposure to sun; malaria. Syphilis, 16 per cent. of admissions. No precaution can be suggested. Lock hospitals unnecessary.
ALLAHABAD.	15. Fevers, intermittent, remittent, continued; dysentery; small-pox; rheumatism; diarrhoea; cholera. 50 per cent. of the admissions are from fever. Admissions from hepatitis 5 per cent. of strength. Causes.—Climate; intemperance; quality of food; prophylactics, abolishing use of spirits; strict attention to cleanliness; clothing; duty; food; housing; recreation. 9 per cent. of sick from syphilis. Much might be done by lock hospitals, registration, police regulation.
DUMDUM.	16. Fevers, remittent, intermittent, continued; dysentery, acute, chronic; cholera; rheumatism occasion 57 per cent. of total treated; 99 per cent. of total deaths. Causes.—Season and rainfall. Keeping from sun and spirits best preventive of hepatic disease. Little venereal disease. Lock hospitals recommended.
BENARÉS.	17. Fevers, intermittent, remittent, occasion 31 per cent. of the admissions, and 13 per cent. of the deaths; dysentery occasions 6 per cent. of admissions, 17 per cent. of deaths; cholera, ½ per cent. of admissions, 17 per cent. of deaths. Causes.—High temperature and moisture. Hepatic disease occasions 7 per cent. of admissions. Causes.—Alternation of temperature. Prophylactics, temperance; proper clothing; non-exposure to night air. Syphilis occasions 23 per cent. of admissions. Recommendations: prostitutes to be turned out of bazaars, general native hospital at each station. Lock hospitals objectionable as leading to licensed prostitution.
HAZAREEBAUGH.	18. Fevers, continued, remittent, intermittent; dysentery; diarrhoea; rheumatism, these occasion 48 per cent. of total admissions, and 60 per cent. of total deaths. Causes.—Powerful sun; humidity; rank vegetation; malaria from decaying vegetable matter; listlessness of mind. Hepatitis not common. One fourth of cases in hospital are syphilitic. Inspection (not by army medical officers) beneficial but immoral. Would refuse to sanction it. Not much gained by lock hospitals. They would not use them, unless compelled.
LANDOUR.	19. Hill station. Diseases: relapses of fever, intermittent, quotidian, and tertian, contracted in plains. Continued fever from exposure; dysentery seldom, except from relapse; rheumatism occasional; no cholera or small-pox; 12 per cent. of cases sent up are hepatic. Causes.—Climate; exposure; dram-drinking. Remedies: plenty of healthy exercise, athletic games, &c.
MUTTRA.	20. Hepatic diseases 2·84 per cent. of admissions; much more in hot weather. Preventives: avoiding exposure and chills, wearing flannel belts. Venereal disease is 14·1 per cent. of total sick; to diminish it, no cantonment to be nearer than four miles to a city. Lock hospitals would then be advantageous. One in 3·7 admissions occasioned by fever, continued, intermittent, by dysentery, small-pox, and rheumatism.
RANEONGKE. UMRITSIR.	21. No information. 22. Hepatic disease occasions 4·66 per cent. of total admissions, attributable to intemperance and dysentery; complete withdrawal of spirits from canteens the best prophylactic. Venereal disease is 7 per cent. of constantly sick; increase of marriages suggested; lock hospitals not recommended. Prevailing diseases: fevers, continued, quotidian, tertian, quartan; dysentery, sub-acute, chronic; cholera; small-pox; rheumatism. Admissions from which are 40 per cent., deaths 44 per cent. of total admissions and deaths.
NYNEE TÄL.	23. Hill station. Fever, quotidian; dysentery (from plains); rheumatism, acute; hepatic disease (from plains).
RAWUL PINDI.	24. Hepatic disease about 4 per cent. of admissions, produced as readily by habitual free living and excess of animal food as by intemperance. Syphilis 16 per cent. of admissions; inspection recommended. Prevailing diseases, fever, common, continued; dysentery; cholera; rheumatism.
LUCKNOW.	25. Hepatic disease 4 per cent. of total admissions. Preventives; good shelter and food, healthy exercise and amusement, steady habits, and avoiding exposure. Syphilis, from 25 to 33 per cent. of total sick; lock hospitals recommended. Prevailing diseases; fevers, intermittent, remittent, continued; dysentery; small-pox; rheumatism, which occasion upwards of 50 per cent. of the admissions, and 59 per cent. of the deaths. Causes.—Hot weather with rain, want of employment leading to debauchery.
CHUNAR.	26. Hepatic disease one in 31. Causes.—Intemperance and exposure to sun; preventive, discontinuance of spirits. Syphilis one in 31; inspection better than lock hospitals. Prevailing diseases, intermittent fever, mostly quotidian and tertian; dysentery (no small-pox); cholera occasional; intemperance, exposure, are the predisposing causes.
ROORKEE.	27. Hepatic disease 1 per cent. of cases. Causes; spirit drinking, malaria. Syphilis more than 50 per cent. of sick; inspection recommended. Troops suffer slightly from fever, intermittent and continued (not from dysentery), cholera, small-pox occasional, rheumatism common. These diseases occasion about one-third of the admissions; and about three-fourths of the deaths.
JHANSI.	28. One case in 15 from hepatic disease. Syphilis not prevalent. Prevailing disease; fever, intermittent; a few cases of dysentery.
BARRACKPORE.	29. Hepatic disease 2 per cent. of cases. Causes.—Alternations of temperature, intemperance, exposure. Prophylactics: use of flannel, temperance in eating and drinking, avoiding exposure. Syphilis 13 per cent. of total sick; lock hospitals not nearly of so

STATIONS.	REPLIES.
DELHI.	much use as in Europe. Prevailing diseases; fevers, continued, remittent, intermittent (most frequent); dysentery (frequent and dangerous); cholera; small-pox, rare; rheumatism, frequent. These diseases occasion about 38 per cent. of admissions, and 75 per cent. of deaths. Most frequent in great and close heat. Causes.—Crowding in barracks, bad ventilation, intemperance in eating and drinking, exposure, want of occupation.
DARJEELING.	30. Hepatic disease. Causes: climate, excessive eating and drinking, exposure, want of exercise of body and mind. Syphilis one-third of total sick; inspection and lock hospital recommended. Prevailing diseases; fever, intermittent, remittent, continued; dysentery, acute, chronic, hæmorrhagic; cholera; rheumatism. Cause; "exposure to night duty."
MORAR GWALIOR.	31. Ague; fever, remittent; rheumatism; and dysentery occur, but imported from plains. Never cholera or small-pox. Causes of soldiers' diseases in India; monotony, harassing duties, want of exercise, and incentives to it, discomfort of overcrowded unhealthy barrack rooms, his condition, generally, leading him to drink; all making him liable to any epidemic or other morbid influence. Means of promoting health, although quite within our reach, have been sadly neglected.
JUBBULPORE.	32. Hepatic disease not unusually frequent. Causes.—Hot dry climate, too much animal diet, too few vegetables, ardent spirits. Prophylactics: malt liquor, potatoes, instead of native vegetables. Syphilis has been as high as 80 per cent. of the sick; seldom under 12 or 20; lock hospitals and police regulation recommended. Prevailing diseases: fever, chiefly intermittent; dysentery; rheumatism occasion 44 per cent. of admissions. No cholera or small-pox.
	33. Hepatic disease 2 per cent. of cases. Causes.—Intemperance, excessive heat, overcrowding, bad ventilation. Syphilis 34 per cent. to 50 per cent. of cases; impossible to guard against it near large bazaars or cities; lock hospitals and police regulations recommended. Prevailing diseases: fevers, ephemeral and intermittent; dysentery; rheumatism; no cholera or small-pox.

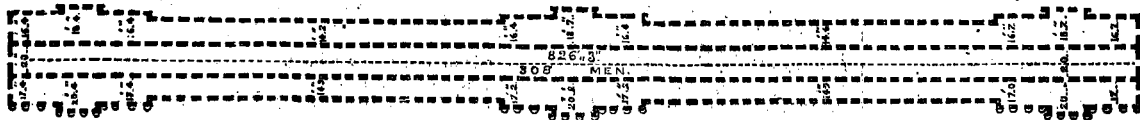
V. SANITARY CONDITION OF BAZAARS AND NATIVE TOWNS.

FORT WILLIAM.	1. Surrounded on all sides by large and populous villages. Estimated population of Calcutta, 500,000. Water and drainage bad. Rainfall flows slowly away or evaporates, causing humidity: filth, foul drains, stagnant water, jungle, and nuisances.
DINAPORE.	2. Bazaars overcrowded, badly drained, and filthy. Last year some streets were impassable dunghills until cleared; elephant sheds and all the south of the station in a state disgraceful to any cantonment. Meat market very bad in rains; drainage very deficient; no regular system. Drains in some places choked up; in others forming deep holes of festering mud. Ventilation very bad. No latrines, although the "population is as thick as can be," compelled to sweep in front of their own houses; only one filth cart until lately, now three; paid for by inhabitants. Dead bodies sometimes buried within huts at Dugah. Some of the native towns are disgracefully filthy.
CAWNPORE.	3. Large native town, $\frac{1}{2}$ mile distant. Bazaar drains generally good. Ventilation and water supply sufficient. Many parts crowded and ruinous. People compelled to keep space in front of premises clean. No dungpits or cesspools allowed.
MEERUT.	4. Town a mile distant from lines. Bazaar drained, well ventilated, and supplied with water from wells. Cleanliness strictly enforced. Public latrines. Native houses generally filthy. Dungheaps frequent. Pits for all kinds of refuse common.
AGRA.	5. City, 152,000 inhabitants, a mile distant. Bazaar open, clean, ventilated, not crowded. Water from wells abundant, but rather saline. Native houses clean, but villages low, with narrow and irregular streets; dunghills at the outskirts; the "more respectable" houses have cesspools. Inhabitants generally resort to the fields.
UMBALLA.	6. Large native city, 3 miles from station. Station bazaar regularly laid out in squares. Drainage might be improved. Clean on the whole, but crowded in parts. Defective water supply. Two public latrines; more required. 28 sweepers, paid by inhabitants. Native houses never perfectly clean. Fines levied for nuisance.
LOODIANA.	7. Town of Loodiana, with 50,000 inhabitants, adjoining station.
FEROZPORE.	8. City, 14,000 inhabitants, 2 miles distant. Bazaar not drained; all refuse removed. Water from wells. Latrines only partly used.
JULLUNDUR.	9. City, 3 miles from cantonments. Bazaars generally clean and well drained. Free circulation of air; no overcrowding. Latrines.
MEAN MEER.	10. City of Lahore, 6 miles off. Suddur bazaar, 7,538 inhabitants, nearly 2 miles from centre of cantonments. Four or five other bazaars within cantonments, arranged with broad roads at right angles; kept clean. Drainage about to be improved. Plenty of good water from wells. Three latrines for bazaar, and ten others in different parts of cantonments.
PESHAWUR.	11. Large city, $1\frac{1}{2}$ miles from station. Drainage of bazaar like that of station. Ventilation free. Water supply ample. Cleanliness strictly enforced; little crowding; drains not good, but kept clean. Villages round station not dirtier than usual; probably have dungheaps within their enclosures.
SEALKOTE.	12. City $2\frac{1}{2}$ miles from station. Bazaar well laid out. Good natural drainage. Plenty of good water. No crowding. Kept clean by sweepers. Native houses of dried mud. Public latrines provided.
GHAZEEPORE.	13. City a mile from station. Bazaar like all native villages. Surface drains. Streets moderately wide; kept clean. No latrines. Water supply good. Houses good and bad.
BERHAMPORE.	14. Town contiguous to station. Nothing can be worse than sanitary condition of bazaars; conservancy establishment far too limited. Native houses dirty in the extreme; dungheaps or deep holes full of stagnant water close to them, the common cesspit of the house. Nuisance in barracks from holes full of dirty water and filth, and from elephant and bullock sheds. Bad drainage.
HAZAREEBAUGH.	15. Town, 5 to 6,000 inhabitants. Bazaar open, well ventilated, clean. Sufficient water supply. No more than ordinary crowding. Good natural drainage. No latrines, and much nuisance along one road in consequence.
ALLAHABAD.	16. Town 73,000 inhabitants, 3 miles distant. No military bazaars, except for regiments; these are generally kept clean.
DUMDUM.	17. Bazaar not crowded. "Nothing to complain of" as to drainage, ventilation, cleanliness, or water supply. A cart and six sweepers kept. Native houses generally pretty clean.
BENARES.	18. 186,000 inhabitants, between Ganges and cantonments. Bazaar tolerably clean. Many huts in rear, much crowded. "Well drained (surface)." Public latrines.
LANDOUR.	19. Small sweeping establishment, paid for by house tax; native houses in cantonments clean; those in the neighbourhood not remarkable for cleanliness.

STATIONS.	REPLIES.
MUTTRA.	20. City three-quarters of a mile off. Bazaar an accumulation of huts, without order. "Drainage bad; ventilation worse; water supply execrable." "All the wells brackish, from nitre," the earth being contaminated with all sorts of impurities. Latrines "hardly known." "In short, the bazaar is a mass of filth."
DARJEELING.	21. Bazaar well drained; houses too close, mostly built of mats and bamboos; generally surrounded by all kinds of filth. They are at a distance from depôt; but the medical officer says, they are the most filthy villages he has ever entered, and it is quite sickening to walk through them.
RANEEGUNGE.	22. Bazaar not drained; kept clean; water from tanks, carried by water carriers; latrines (at a distance); native houses near station indifferent; pits and dirt heaps abound.
UMRITSIR.	23. City $1\frac{1}{2}$ miles distant; population 120,000; station bazaar tolerably clean; native houses small; no dung hills or cesspits.
NYNEE TAL.	24. (Hill station.) Both bazaars in a filthy and crowded state; no proper drainage, nor latrines; stench at times overpowering; no means of preserving cleanliness; native houses small and badly ventilated; want of public latrines causes nuisance in barracks.
RAWUL PINDI.	25. City a mile from station; three villages immediately on outskirts; a new station; bazaar well laid out, free ventilation; surface drains kept clean by sweepers; latrines (at a distance); no dung pits or cesspools.
LUCKNOW.	26. City of Lucknow, population 400,000 to 500,000, and four other cities, from a mile to two miles from cantonments; bazaars only being formed, but with due regard to plan, drainage, &c.
CHUNAR.	27. Town, 14,000 inhabitants, close to station; many native houses ruinous; bazaar in city kept clean and in good order.
ROORKEE.	28. Bazaar $1\frac{1}{2}$ miles from barracks; no information as to its state.
JHANSI.	29. City a mile off; bazaar new and incomplete, but well drained; public latrines, but police insufficient at present.
BARRACKPORE.	30. Bazaar clean, tolerably drained and ventilated; not overcrowded; water supply from tank; establishment of sweepers paid by tax on occupiers.
DELHI.	31. Station inside city walls; bazaar being established.
MORAE GWALIOR.	32. Town $2\frac{1}{2}$ miles distant; bazaar well drained and ventilated; water from wells; latrines constructed; five sweepers attend to cleanliness.
JUBBULPORE.	33. Town 2 miles from station; drainage of bazaar insufficient; ventilation very bad; water supply good; cleanliness almost impossible; no latrines; every hut crowded; ruinous mud huts, with tiled roofs; no native will keep his house drains clean, unless obliged.
VI. BARRACK CONSTRUCTION.	
FORT WILLIAM.	1. Fort William, 18 feet above sea level, 67 miles distant from the sea, contains five barracks occupied by soldiers.
	<i>Site.</i> —Comparatively open, but ramparts, being 25 feet high, interfere with free ventilation; temperature considerably raised by reflected sun heat.
	(1.) <i>Dalhousie barracks.</i> —36 rooms for 631 non-commissioned officers and men; have held 900. There are 3 floors of barrack rooms, over a basement. Each floor consists of 3 long parallel rooms, from $81\frac{1}{2}$ to 124 feet long, $64\frac{1}{2}$ feet wide, 19 feet high, giving from 1,500 to 1,600 cubic feet, and from 79 to 85 square feet per man. The long rooms communicate by arches; each has two rows of beds; thus there are six rows of beds between the opposite windows, $64\frac{1}{2}$ feet distant.
	The following Fig. 1 is a ground plan of a floor of the barrack, showing an arrangement of cots for 306 men in one room.
	<p style="text-align: center;">FIG. 1.—PLAN OF FIRST STORY DALHOUSIE BARRACK, FORT WILLIAM, Showing the arrangement of cots in a portion so as to accommodate 900 men in all.</p>
	
	It is stated that this accommodation may be considered "perfect."
	(2.) <i>South barrack.</i> —Thirteen rooms; 210 non-commissioned officers and men; at from 1,183 to 1,938 cubic feet, and from 64 to 109 square feet per man; length of rooms, $77\frac{1}{2}$ to 98 feet; breadth, $19\frac{1}{2}$ feet; height, $18\frac{1}{2}$ feet; from 16 to 26 men per room; these rooms are on second story.
	(3.) <i>North barracks.</i> —Thirty-six rooms; 210 non-commissioned officers and men; 900 to 1,800 cubic feet per man; 50 to 100 square feet per man; 28 rooms at 7 men each; 1 room at 36 men each; which last room is in length, 239 feet; width, 15 feet; height, 18 feet.
	(4.) <i>West barracks.</i> —Bomb-proof. Nine rooms; 300 men; "one-half would be too many;" 1,404 cubic feet per man; 140 square feet per man; centre room, length 200 feet, width 18 feet, height 10 feet.
	(5.) <i>Queen's barracks.</i> —156 rooms for 108 married men and 12 non-commissioned officers, formed by dividing a large room by wooden bulk heads, 8 feet high; each family room being 22 feet long, 12 feet wide, 18 feet high.
	In all the barracks, the windows are on opposite sides, with verandahs, in which many men place their cots in hot weather; doors, one-third panel, two-thirds Venetian.
	Floors, brick on edge, covered with Chunar flags.
	Materials, best burnt brick, set in lime mortar; roof, solid brick, with concrete terrace; basements never used as barracks.
	Iron cots.
DINAPORE.	2. <i>Site.</i> —Tolerably open, but ventilation obstructed by vegetation.

STATIONS.	REPLIES.
	<p>Two of the rooms are each no less than 826 feet long, 35 feet wide, 17 or 18 feet high, with 308 men per room, giving from 1,597 to 1,690 cubic feet per man, and 94 square feet per man; one room for 92 men, gives 1,729 cubic feet per man, 102 square feet per man; 11 rooms, with 16 men each, give 1,020 cubic feet per man, and 60 square feet per man. Doors on opposite sides; no windows; verandahs.</p> <p>Materials, brick and lime for permanent barracks, brick and lime plinth for temporary barracks.</p> <p>Floors, 1½ to 2 feet above ground; no ventilation beneath; flooring, half-burnt brick.</p> <p>Chief permanent barrack bad, runs east and west, which is the prevailing wind; hence badly ventilated.</p> <p>Fig. 2 is a plan and section of part of the barracks at this station, showing a room no less than 826 feet long, having space for 308 men. It is next to impossible for barracks of this construction to be moderately healthy.</p>

FIG. 2.—PLAN OF WEST WING INFANTRY BARRACKS, AT DINAPORE.



CROSS SECTION.



CAWNPORE.

Bedsteads of wood; some few of iron.

3. Site.—Open; free external ventilation.

Echelon barracks: ten ranges for 1,000 men; 100 men per room; 1,235 cubic feet per man; 41 square feet per man; each room 168 feet long, 24½ feet wide, 30 feet high; 4 rows of beds between opposite windows, when the verandahs are used.

Foot artillery: 2 ranges; 120 men per room; 2,652 cubic feet per man; 88 square feet per man; each room 442 feet long, 24 feet wide, 25 feet high; four rows of beds between opposite windows, when the verandahs are used.

Dragoon barracks: 2 ranges; 140 men per room; 1,106 cubic feet per man; 61 square feet per man.

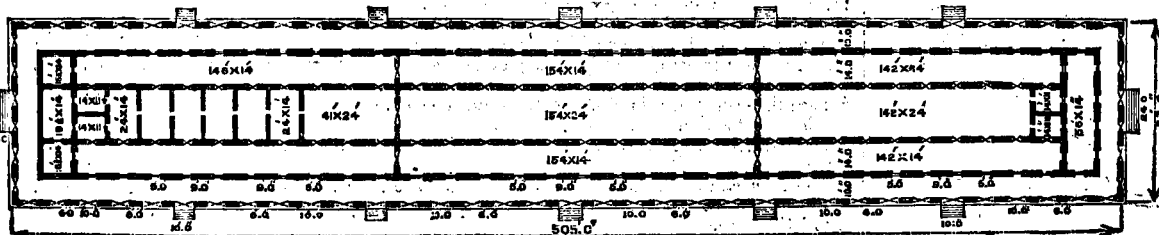
The cubic space presupposes inner verandahs not occupied, but they have invariably been occupied; doors on opposite sides.

Materials, brick and mortar, plastered and whitewashed.

Floors of flagging laid on rammed earth and broken bricks; raised 3 feet above ground; no ventilation beneath.

Fig. 3 is a plan and section of the artillery barracks, showing the usual construction of double verandah barracks, having terraced roofs. The plan also shows a long building divided by arches, which obstruct the ventilation. This enables us to judge of what must be the state of the air when the verandahs are occupied.

FIG. 3.—ARTILLERY BARRACKS, CAWNPORE.



MEERUT.

Cots, wood with twine bottoms and tow mattresses; iron cots and cocoa-nut fibre mattresses the best.

4. Site.—Open; free external ventilation varies with locality.

705 rooms; for 4,227 non-commissioned officers and men; length of men's rooms, 44, 198, 210, and 215 feet; width of men's rooms, 22, 24, 30 feet; height of men's rooms, 16½ to 26½ feet; cubic space per man, 868 to 1,968 feet; square feet per man, 52 to 79 feet.

Windows and doors on opposite sides.

Verandahs on both sides, occasionally used as sleeping quarters.

Materials, brick and lime mortar; thatched or tiled roofs.

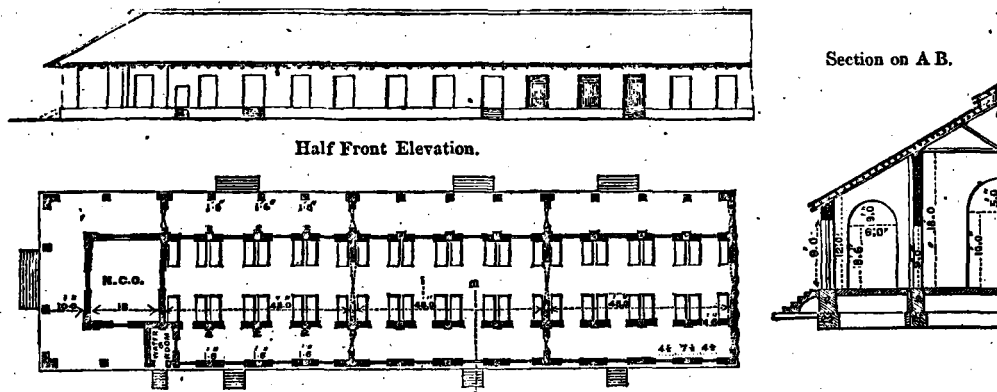
Floors, brick or stone, with concrete over; generally raised 2 feet above ground; no ventilation beneath.

Wooden cots; cotton mattress; iron bottoms would be better.

STATIONS.	REPLIES.
AGRA.	<p>5. <i>Site</i>.—Open; few trees; temperature hot, from baked dry soil and ravines. 76 serjeants' quarters; 23 barrack rooms for 1,776 non-commissioned officers and men; rooms from 204 to 288 feet long, 12 to 24 feet wide, 20 to 28 feet high; 1,379 to 1,912 cubic feet per man; 60 to 79 square feet per man. Doors on each side, with glazed fanlights; no windows. Verandah, 12 feet wide, occasionally occupied as sleeping quarters. Materials, burnt brick and mortar; roofs thatched. Floors, stone over brick, 3 feet above ground; no ventilation beneath; not sufficiently raised above malaria; should be two-storied. Bedsteads, wood; should be iron to keep out bugs.</p>
UMBALLA.	<p>6. <i>Site</i>.—Much tree vegetation; regulations enforced to prevent its interfering with ventilation. 2,162 non-commissioned officers and men; from 12 to 66 men per room; 687 to 1,869 cubic feet per man; 51 to 118 square feet per man; 4 rows of beds between opposite doors and windows, if inner verandahs used as sleeping places; there are actually 3 rows; no jalousies or jhilmils. Materials, burnt brick and lime; tiled or thatched roofs; terraced verandahs. Floors of burnt brick, objectionable; raised 1½ feet above ground; no passage of air beneath; ought to be raised on arches. Wooden cots, ought to be iron.</p>
FEROZEPUR.	<p>7. <i>Site</i>.—Open on all sides; receives benefit of prevailing winds. <i>Accommodation</i>.—948 non-commissioned officers and men. <i>Barrack rooms</i>.—Length 95 to 100 feet; width, 24 to 44 feet; height, 20 feet 1,500 to 1,680 cubic feet per man; 75 to 80 square feet per man. <i>Verandahs</i>.—12 feet wide. <i>Materials</i>.—Burnt brick and mortar. <i>Floors</i>.—Brick and mortar, 3 feet above ground; no ventilation below. <i>Story</i>.—One; rows of beds between opposite windows, 4. <i>Bedsteads</i>.—Wooden frames.</p>
JULLUNDUR.	<p>8. <i>Site</i>.—Open to all winds. <i>Accommodation</i>.—1,200 European, 3,000 native troops; 16 to 24 men per room; cubic space per man, 1,373 to 1,610 feet; square feet per man, 45 to 75 feet; windows on opposite sides; verandahs all round. <i>Materials</i>.—Pucka and kutch bricks, with lime and mud cement. <i>Roofs</i>.—Thatch, tile, pucka. <i>Floors</i>.—Brick on tile over concrete, raised 1 or 2 feet above ground; no ventilation beneath. <i>Bedsteads</i>.—Wood.</p>
MEAN MERR.	<p>9. <i>Site</i>.—Remarkably open. <i>Accommodation</i>.—2,214 British, 1,365 native troops. <i>Barrack rooms</i> 96, with 16 men in each; cubic feet, 1,703 per man; square feet, 72 per man; verandahs, 96, with 8 men in each. Iron-framed barracks, 4, with 52 men in each; cubic feet per man, 1,980; square feet, 80. Dining-room for 104 men in each iron-framed barrack. <i>Materials</i>.—Burnt brick and lime. <i>Floors</i>.—Burnt brick on concrete, raised 3 feet above ground; no ventilation beneath. Burnt bricks are hotter than sun-dried bricks for barracks. <i>Bedsteads</i>.—Wooden; strong and comfortable. Bedding stuffed with hempen fibre.</p>
PESHAWUR.	<p>10. <i>Accommodation</i>.—2,651 British troops. <i>Site</i>.—Open and freely exposed to winds. <i>Temperature</i> raised by reflected sun-heat. <i>Barrack rooms</i>, 108, 16 to 24 men per room; cubic feet per man, 1,320; square feet per man, 66. <i>Verandahs</i> sometimes occupied in winter. <i>Materials</i>.—Burnt or unburnt brick. <i>Floors</i>.—Brick, raised 2 to 5 feet above ground; no passage of air beneath. <i>Bedsteads</i>.—Wooden.</p>
SEALKOTE.	<p>11. <i>Site</i>.—Open and freely exposed to the winds. <i>Temperature</i> raised 2° to 3° by reflected sun-heat. <i>Accommodation</i>.—1,200 men; 100 men per range; cubic space per man, 1,154 to 1,928 feet; square feet per man, 89 to 102 feet; double verandahs all round; distance between opposite windows, 50 feet. <i>Materials</i>.—Sun-dried, brick-faced, with pucka brick. <i>Roofs</i>.—Thatch and tiles. <i>Floors</i>.—Brick, 3 feet above ground; no ventilation beneath; 3 rows of beds between opposite windows. <i>Cots</i>.—Tape and string bottomed; the latter a "vile description of bed," sheltering bugs and all sorts of vermin. <i>Iron bedsteads</i> required.</p>
GHAZEEPUR.	<p>12. <i>Site</i>.—Open; nothing to impede free ventilation. <i>Accommodation</i>.—Old stables, fitted up as temporary barracks, 5 in number, each 460 feet long; 35 feet wide; 9, 11, 17 feet high; from 160 to 250 men per room, cubic feet per man, 850 to 2,108 feet; square feet per man, 62 to 99. <i>Verandahs</i> on both sides. <i>Materials</i>.—Pucka, with tiled roofs. <i>Floors</i>, of old stables, partly kunkur, partly brick, raised 1 foot above ground; no ventilation below; neither doors nor windows. <i>Bedding</i>.—Charpoy, blanket, &c.</p>
BERHAMPORE.	<p>13. <i>Site</i>.—Surrounded by jheels and wet ground; barracks built in square; ventilation impeded by bazaars, &c.; 3 upper storied and 8 lower-roomed barracks. <i>Accommodation</i>.—One European, and one native infantry regiment; 24 to 100 men per room; cubic feet per man, 1,037 to 1,314; square feet per man, 70 to 82 feet; 4 rooms in each upper-roomed barrack used for dining and recreation; no windows, only Venetian doors. <i>Materials</i>.—Brick and mortar; flat terraced roofs. <i>Floors</i>, terraced and tiled, 1½ feet above ground; no ventilation below. <i>Bedsteads</i>.—Iron and wood; mattresses, hemp.</p>
HAZAREEBAUGH.	<p>14. <i>Site</i>.—Open, freely ventilated. <i>Accommodation</i>.—960 single men, 120 married; 10 temporary barracks, 300 feet by 20 feet by 18 feet; 100 men each barrack, at 1,080 cubic feet per man; 63 square feet per man.</p>

STATIONS.	REPLIES.
	<p>Five temporary barracks, 24 families each; 4,500 cubic feet per family; 200 square feet per family; no windows, only doors and fan-lights. <i>Verandahs</i>, 10 feet wide. <i>Materials</i>.—Foundation and plinth of burnt bricks in mortar. <i>Superstructure</i>.—Burnt and sun-dried bricks in mud. <i>Roofs</i>.—Tiled over thatch. <i>Floors</i>.—Brick and stone terraced, 2 feet above ground; no air beneath. <i>Iron hooped cots</i>. Fig. 4 is a plan of one half of a single verandahed barrack at Hazareebaugh, showing the usual construction of this class of barrack.</p>

FIG. 4.—STANDARD PLAN OF THE BARRACKS AT HAZAREEBAUGH.



ALLAHABAD.

15. *Site*.—One-third of the station below the level of river; open and exposed to winds. Indigo cultivated close to Wellington barracks; a great nuisance. Much filth and nuisance from civil bazaars; too close to lines.
Accommodation.—2,515 British, 1,871 native troops.
 Five soldiers' barracks, 100 men per room; cubic feet per man, 1,437 to 1,609; square feet per man, 73 to 80; rooms, 335 feet by 22 feet by 24 feet.
 One barrack, 80 men per room; 1,528 cubic feet per man; 82½ square feet per man; rooms for 40 married men; giving 4,032 cubic feet per family; and 248 square feet per family.
 Folding doors badly fitting; no windows.
Verandahs 15 feet wide; used on emergencies for sleeping.
Materials.—Burnt and sun-dried brick.
Roofs.—Thatch and tiles.
Floors.—Flagged; no air beneath.
Wooden cots, with cordage bottoms; harbour vermin; easily broken; iron cots infinitely better.

DUMDUM.

16. *Site*.—Tolerably open; very low.
Accommodation.—1,649 non-commissioned officers and men; 31 to 209 men per room; latter room is 469 feet by 28 feet by 18 feet; 1,000 to 1,270 cubic feet per man; 64 to 71 square feet per man.
Verandahs on both sides; one often used for sleeping, leading inevitably to outbreak of sickness.
Materials.—Solid masonry and iron; leak badly.
Floors.—Chunar stones, raised 3 feet, with passage of air beneath.
Roofs.—Totally insufficient. There should be wooden floors.
Wooden cots.

BENARES.

17. *Site*.—Open; external ventilation impeded by city; internal much obstructed by Sudder bazaar, which requires removal.
Accommodation.—Seven companies infantry, 1 troop horse artillery. 8 barrack rooms; 38 to 180 men per room. 1 house occupied by 200 men; cubic feet per man, 1,240 to 2,184; square feet per man, 77 to 136. 2 barracks, 26 families each; cubic feet per family, 3,872; square feet, 242. Barrack rooms have doors on opposite sides; no windows.
Verandahs 10 feet wide.
Materials.—Chunam stone laid in mortar.
Floors, little raised above ground; no air below.
Wooden cots, with iron bands.

LANDOUR.

18. [Convalescent depôt.]
Site open, and beneficially exposed to winds.
Accommodation.—Twelve barracks, 84 rooms. 228 non-commissioned officers and men; at from 888 to 1,190 cubic feet per man; 55 to 119 square feet per man; built of stone and lime.
Thatched roofs.
Floors, terraced, a foot above ground; no ventilation below.
Wooden bedsteads: highly objectionable; harbour vermin, accumulate dust and dirt; iron bedsteads the best.

MUTTRA.

19. *Site* encumbered with trees, interfering with ventilation, also the large filthy city of Muttra; broken ground, filthy nullahs, stagnant water, and other nuisances.
 Seven barracks, for 400 European troops; with 40 to 104 men per room; 1,000 to 1,575 cubic feet per man; 60 to 75 square feet per man.
Materials, chiefly unburnt bricks and cement.
Floors raised 2 feet above ground; stone slabs over brick; no air below.
Ordinary cots used.

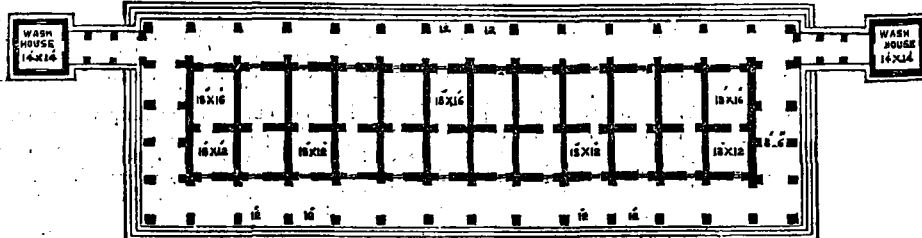
RANEGUNGE.

20. *Site* open, exposed to salubrious winds.
Accommodation.—1,120 European, 500 native troops; 20 barrack rooms; with 20, 100, and 128 men per room; at 918 to 1,760 cubic feet and 76 to 100 square feet per man; doors on four sides,

STATIONS.	REPLIES.
UMRITSIR.	<p><i>Verandahs</i> seldom used for sleeping.</p> <p><i>Materials</i>.—Stone and mud; sunburnt brick; thatched roofs; earthen floors, 3 feet above ground; no air below. Buildings only suitable for troops en route. Permanent barracks required. Iron barracks need verandahs.</p> <p><i>Bedding</i>.—Wooden cots, with iron hoops.</p> <p>21. <i>Site</i> good; freely exposed to the air.</p> <p><i>Accommodation</i>.—15 rooms; 620 British troops, 300 native troops. No dimensions given.</p> <p><i>Materials</i>.—Brick, mortar, and mud.</p> <p>Floors raised 2 feet above ground; no ventilation beneath.</p> <p><i>Bedsteads</i> of dyar; iron suggested as much superior.</p>
NYNEE TAL.	<p>22. <i>Site</i> perfectly open; 6,409 feet above sea.</p> <p><i>Accommodation</i>.—740 British troops; 230 native troops; 21 barracks, 2 rooms in each; 20 men per room, with 630 cubic feet and 45 square feet per man; construction, temporary; stone, roofed with thatch; not sufficient for troops. Permanent barracks proposed.</p> <p>Floors pukka; 1 to 2 feet above ground; no air beneath.</p> <p><i>Verandahs</i> 6 feet wide; not used for sleeping.</p> <p><i>Bedding</i>, simple rope charpoys, with blankets and sheets.</p>
RAWUL PINDI.	<p>23. <i>Site</i> open; nothing to interfere with ventilation.</p> <p><i>Accommodation</i>.—Eight rooms, 24 men in each, each room 66 feet long by 24 feet wide and 24 feet high, exclusive of roof; giving 1,584 cubic feet and 66 square feet per man.</p> <p><i>Materials</i>.—Burnt bricks and mortar.</p> <p>Floors, raised above ground; no ventilation beneath.</p> <p><i>Verandahs</i>.—Double; inner one for messing.</p> <p><i>Bedsteads, wooden</i>.—Tape bottoms; iron recommended as less likely to harbour vermin; more durable and neater in appearance.</p>
LUCKNOW.	<p>24. <i>Cantonments</i>, about 40 feet above river, open and freely exposed to winds, but not so good as old station. There will be 20 barracks for infantry, 9 barracks for cavalry, when completed. Those for infantry, 72½ feet by 22 feet by 23 feet; 24 men per room; 1,528 cubic feet per man; 66½ square feet per man. Cavalry barracks, 52 feet by 22 feet by 23 feet; 18 men per room; 1,644 cubic feet per man; 72½ square feet per man.</p> <p><i>Materials</i>.—Burnt brick; mud cement; tiled roofs.</p> <p>Floors.—Tile, 3 feet above level, no air beneath.</p> <p><i>Bedsteads, wooden</i>.—Much infested with bugs; iron much better.</p>
CHUNAR.	<p>25. <i>Site</i> elevated, freely exposed to winds.</p> <p><i>Accommodation</i>.—268 British troops, in 25 rooms; with 1,156 to 1,305 cubic feet per man; 43 to 76 square feet per man.</p> <p><i>Materials</i>.—Stone and mortar.</p> <p>Floors.—Terraced or paved; no passage of air beneath.</p> <p><i>Verandahs</i>.—Commonly occupied as sleeping quarters in hot weather.</p> <p><i>Cots</i>.—Wood and string; cane bottomed cots stronger; more easily kept free of insects.</p>
ROORKEE.	<p>26. <i>Site</i> open; some private houses enclosed with trees.</p> <p><i>Accommodation</i>.—For 487 British troops; in 21 barracks; each 100 feet by 10 feet by 20 feet; at 30 men per room; with 666 cubic feet and 33 square feet per man.</p> <p><i>Materials</i>.—Mud bricks; thatch and tile.</p> <p>Floors.—Brick, 4 feet high; no passage of air beneath.</p> <p><i>Verandahs</i>, 10 feet wide; not used as sleeping quarters.</p> <p><i>Bedsteads, wood</i>.—Harbour for bugs in the joints; iron preferable.</p>
JHANSI.	<p>27. <i>Site</i>.—Open in every direction; no obstruction to ventilation.</p> <p><i>Infantry barracks</i>.—Two rooms; 24 men each; each room 67 feet by 22 feet by 28 feet; giving 1,715 cubic feet and 61 square feet per man.</p> <p>Two iron framed rooms, 24 men each; with 1,014 to 1,170 cubic feet and 63 to 65 square feet per man.</p> <p><i>Verandahs</i>, 12 feet wide; usually occupied for sleeping in hot season, and temporarily, when the barracks are overcrowded.</p>
BARRACKPORE.	<p>Floors.—Lime plaster; 3 feet above ground; no passage of air beneath.</p> <p>28. <i>Site</i>.—Much vegetation in neighbourhood; not interfering materially with ventilation.</p> <p><i>Accommodation</i>.—Eighty-five soldiers' rooms; 30 non-commissioned officers' rooms; for 960 single and 120 married men; 1,260 to 1,702 cubic feet per man; 60 to 95 square feet per man.</p> <p><i>Verandahs</i>, 10 to 12 feet wide; not used for sleeping.</p> <p><i>Materials</i>.—Brick and mortar; pillars on iron frames; mud cement.</p> <p><i>Flooring</i>.—Tiles over brick, 2 to 3 feet above ground; no passage of air beneath.</p> <p><i>Bedsteads, wooden</i>.</p>
DELHI.	<p>29. <i>Site</i>, inside walls of city; not well ventilated; temperature raised by reflected sun heat. Present barracks temporary; for 959 European troops; 1,408 native troops.</p> <p>30. <i>Site</i> open, but trees should be cleared away.</p> <p><i>Accommodation</i>.—For two batteries of artillery, British troops; 12 companies of infantry, British troops; 1 regiment, cavalry, native troops; 2 regiments, infantry, native troops; 48 to 160 men per room; 67 to 93 square feet per man; 1,280 to 1,740 cubic feet per man.</p> <p><i>Materials</i>.—Stone or kutchra or burnt brick and mud; roofs, thatched or tiled.</p> <p>Floors of concrete, brick, or stone; in new barracks will be raised 4 feet above ground; no passage of air beneath.</p>
JUBBULPORE.	<p><i>Bedsteads, wooden</i>.</p> <p>31. <i>Site</i>.—Shut in by rocky ridges and hills; not freely exposed to wind.</p> <p><i>Accommodation</i>.—827 British; 559 native troops; in 10 ranges of barrack rooms; 303½ feet by 20 feet by 17 feet; 1,000 cubic feet per man; 60 square feet per man.</p> <p><i>Materials</i>.—Burnt brick and lime.</p> <p><i>Roof</i>.—Thatched.</p> <p><i>Floor</i>.—Flagged; 18 inches above ground; no air beneath.</p> <p><i>Barracks</i>.—Capable of very great improvement.</p> <p><i>Verandahs</i> on both sides, used as sleeping quarters when men much crowded, as has been the case since March 1860.</p>
DARJEELING.	<p>32. <i>Site</i> open; freely exposed; 7,000 feet above sea.</p> <p><i>Accommodation</i>.—For 115 to 120 convalescents, British; 210 native troops.</p> <p>Three barracks; 2 rooms each, 51 feet by 21 feet by 14 feet; 18 men per room; with 803 cubic feet and 57½ square feet per man; 28 married rooms. One married barrack, damp on account of situation. The others damp from bad roofs.</p>

STATIONS.	REPLIES.
<p>VII. MARRIED QUARTERS. FORT WILLIAM.</p> <p>DINAPORE. CAWNPORE.</p> <p>MEERUT. AGRA. UMEALLA. LOODIANA. FEROZEPORE.</p>	<p><i>Materials.</i>—Brick and mortar, roofs shingle; floors wooden; 2 feet above ground; not very free passage of air beneath. <i>Verandahs.</i>—Never occupied for sleeping. <i>Drainage</i> defective. <i>Cots.</i>—Cane bottom; bedding hemp.</p> <ol style="list-style-type: none"> 1. Separate rooms in Queen's barracks for 120 families. Serjeants have separate rooms at the end of all barracks. 2. "Sufficient." 3. Married people accommodated partly out of barracks, partly in temporary hospital; partly in men's barracks but separate. 4. "Sufficient." 5. Families occupy a large separate barrack, with plenty of room. 6. Artillery and foot have sufficient married quarters. Dragoons not quite sufficient. 7. No information. 8. In artillery, families have separated barracks, two rooms and bath room per family. Fig. 5 shows the plan of these quarters.

FIG. 5.—MARRIED MEN'S BARRACK FOR THE ARTILLERY DIVISION, FEROZEPORE.



JULLUNDUR.
MEAN MERE.
PESHAWUR.
SEALKOTE.
MURREE.
GHAZEPORE.
BEHAMPOR.
HAZAREBAUGH.
ALLAHABAD.
DUMDUM.

BENARES.
LANDOUR.

MUTTRA.

RANEGUNGE.
UMRITSIE.

NYNEE TAL.
RAWUL PINDL.
LUCKNOW.
CHUNAR.

ROORKEE.
JHANSI.
BARRACKPORE.
DELHI.
MORAR GWALIOR.
JUBBULPORE.
DARJEELING.

VIII. MILITARY PRISONS.

IX. VENTILATION OF BARRACKS.

FORT WILLIAM.

DINAPORE.

CAWNPORE.

MEERUT.

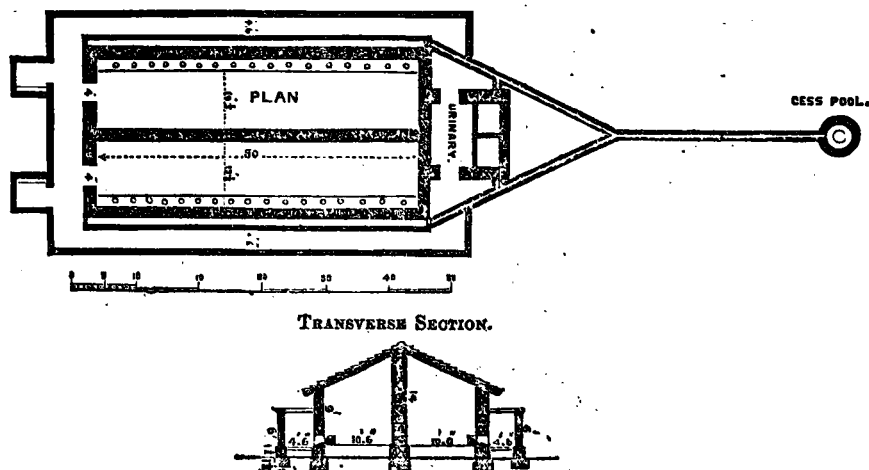
- Infantry occupy corner rooms of barracks.
9. "Sufficient at present."
 10. "Sufficient at present."
 11. "Sufficient."
 12. Sufficient for all married non-commissioned officers and privates to live separately.
 13. No information.
 14. Separate barracks for families. "Sufficient."
 15. Accommodation for 120 married men and families.
 16. Accommodation ample.
 17. "Sufficient."
 18. None. Either a barrack is divided into temporary quarters, or if under the same roof with unmarried men, the quarters are completely separated from them.
 19. "Sufficient" accommodation in "married men's barracks."
 20. Married people occupy separate houses. In one or two instances, rooms in barracks, but quite apart from unmarried soldiers.
 21. "Sufficient" for married non-commissioned officers. Married men of cavalry occupy old cavalry barracks. In artillery, married people occupy barrack rooms with the men.
 22. None.
 23. None. Married people occupy same barracks as unmarried men, separated from them by a purdah or cloth.
 24. None. Married men use the same barrack rooms as the rest, divided only by a partition.
 25. None as yet.
 26. Each family has 2 rooms, 18 feet by 12, and 12 feet by 12.
 27. Accommodation for 15 married people. Insufficient. Many occupy barrack rooms; some few rent houses.
 28. "Sufficient."
 29. None. Pendalls occupied temporarily.
 30. No information.
 31. Married people reside in separate quarters.
 32. Married quarters only temporary.
 33. "Sufficient."
 34. Sufficient as regards mere space.

Several of the stations have no prison accommodation; or if it exist, it is of a temporary character. At those stations where there are prison cells, one-half of them are reported as "good;" and the other half as "bad," or "highly defective." The deficiencies are in construction and position. The cells too small, without proper ventilation or protection from sun heat. In some instances they are placed so as not to receive the benefit of winds; and they are so hot as to be uninhabitable during the hot months. Sometimes sickness arises from these defects. In one instance it is reported that the prison has no latrines. Generally speaking, the evidence shows that considerable improvement is required in the prison accommodation in this presidency.

1. By numerous doors, 12 to 13 feet high and 6 feet apart, and openings at the ceiling. Cooling by punkahs. These arrangements, with the height of wards, 17 to 20 feet, said to be "quite sufficient" for purity of air by night and day.
2. Doors and skylights, "which latter, however, do not open." Ventilation sufficient during day, when doors are open, but not during night, with closed doors. Cooling by tatties and punkahs, the former apt to cause chills, rheumatism, and ague.
3. Doors, windows, and over-lights, near tops of walls; moveable on horizontal axes; quite sufficient. Cooling during hot winds by tatties, which effect a reduction of temperature of about 10° or more.
4. By doors, windows, and openings in roof, generally sufficient. Cooling by tatties and punkahs.

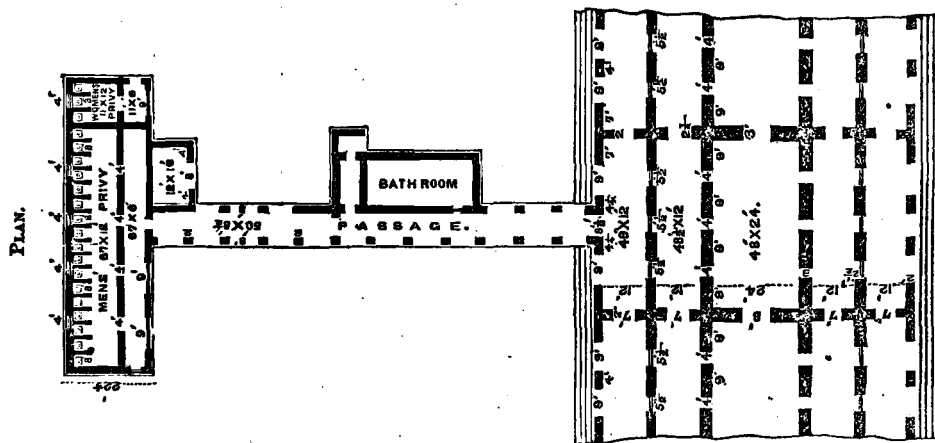
STATIONS.	REPLIES.
AGRA.	5. Iron ridge ventilators, with openings in inner walls. Sufficient, provided verandahs not occupied as sleeping rooms. Cooling by tatties, which reduce the temperature of hot west wind from 120° to 80° Fahrenheit. Punkahs used.
UMBALLA.	6. By doors and windows only; tolerably efficient; could be improved by ventilators between roof and verandah. Ventilation of tents still a desideratum. Tatties used for cooling.
FEROZEPUR.	7. Ridge ventilation. Skylights or upper windows, "quite sufficient." Cooling by tatties and punkahs.
JULLUNDUR.	8. By openings along ridge, sufficient. Punkahs and tatties used for cooling.
MEAN MEER.	9. By ridge. Swing windows high up in inner walls; sufficient, when barracks not crowded. Cooling by punkahs and tatties. Thermantidotes would be an improvement.
PESHAWUR.	10. By shafts, by ridge and windows, sufficient. Cooling by tatties.
SEALKOTE.	11. Ventilating apertures along ridge, with upper windows, sufficient. Cooling by tatties.
GHAZREPUR.	12. Ventilators on ridge. By no means sufficient. Cooling by punkahs.
BERHAMPUR.	13. Roof ventilation by holes 2½ feet in diameter; covered with ventilating zumlahs, sufficient. Punkahs for cooling.
HAZAREBAUGH.	14. Ridge ventilation running the whole length. Fanlights on pivots over each door; sufficient, because one or more doors are kept open. Cooling by punkahs from April till September.
ALLAHABAD.	15. By doors, and in some instances by small semicircular windows over, and by roof ventilation. In cells by gratings. Generally insufficient, because doors have to be closed in high winds, dust, &c. Cooling by tatties.
DUMDUM.	16. By opposite doors and windows. Circular holes close to ceiling, and ventilating windows in upper floors; holes along roof of verandah, covered with earthenware pots. Ventilation quite insufficient, especially at night, when crowded. Cooling by punkahs.
BENARES.	17. Roof ventilation, and an ample number of doors, sufficient. Punkahs and tatties used in hot season.
LANDOUR.	18. [Convalescent' depôt.] Doors and windows; only sufficient for part of the season; no roof ventilation. Barracks not well ventilated and overcrowded.
MUTTRA.	19. Ridge ventilation the entire length; not sufficient at night. Cooling by tatties.
RANERGUNGE.	20. Iron barracks have each four openings. Others have only doorways. "Sufficient."
UMRITSIR.	21. Several methods of ventilation in use. Ridge ventilators. Skylights with windows, the latter insufficient. Cooling by tatties and punkahs.
NYNEE TAL.	22. Two ventilators in roof of each hut. Chimneys of bad construction. Constant smoke in huts. Otherwise air "pure."
RAWUL PINDI.	23. Ridge and dormer window ventilation; quite sufficient. Cooling by tatties and punkahs.
LUCKNOW.	24. Doors, windows, ventilators in roof; quite sufficient. Cooling by tatties and punkahs.
CHUNAR.	25. Doors, windows, openings in roof; not sufficient. Cooling by tatties and punkahs.
ROORKEE.	26. Holes in ridge, covered by raised thatch. Small windows at top of walls; sufficient at this station, but in other stations have seen it often very imperfect. Cooling by punkahs and tatties; the latter very badly watered, and often quite dry.
JHANSI.	27. Ventilating windows on both sides, above doors; generally sufficient. Cooling by punkahs and tatties.
BARRACKPORE.	28. Partly by open wall, three feet under roof into verandahs; partly by ventilators in roof; generally sufficient.
DELHI.	29. Cooling by punkahs. In temporary quarters.
MORAR GWALIOR.	30. Small ventilators in ridge of old barracks. Imperfect. Ventilation in new barracks will be ample, by windows, and by tubes in ridge.
JUBBULPORE.	31. Ridge ventilation; not sufficient with a hundred men in barrack. Cooling by tatties.
DARJEELING.	32. By doors, windows, and chimneys. No roof ventilation. Not quite sufficient.
X. DRAINAGE.	
FORT WILLIAM.	1. By open masonry drains to wells opposite gateways, from which sewage is carried to level of main ditch; drainage bad, and requires manual labour. Fluid refuse swept away by garrison sweepers and water carriers with aid of fire engine; much of it evaporates; outlet a foul ditch. Bomb proof barracks damp.
DINAPUR.	2. By open "saucer-shaped" drains, three feet wide, at permanent barracks; by an earthen drain at temporary barracks. Buildings all become more or less damp in wet season; temporary barracks most so. A foul ditch, leading to nullah in vicinity, often very offensive.
CAWNPUR.	3. No sewers; only surface drains for carrying off rainfall. "Not intended" for draining cook-houses, privies, &c. Sewage from privies received in cesspits, and removed by hand daily. Fig. 6 shows a plan of one of the privies at this station, together with the cesspool arrangement usual in such structures.

FIG. 6.—PLAN AND SECTION OF PRIVY ATTACHED TO ECHELON BARRACKS, CAWNPUR.
One per Company.



STATIONS.	REPLIES.
MEERUT.	4. By open masonry drains to a large tank and nullah, 1,700 feet and 5,000 feet distant; sufficient for surface water. Fluid refuse drained into cesspools close to washhouses, &c., 4½ feet in diameter, and 40 feet deep; 60 feet from nearest barracks; 670 feet from wells. They seldom require cleansing. It is done by opening the tops, and drawing out the fluid in buckets. Some foul ditches about a mile from barracks.
AGRA.	5. Surface drains, 3 feet deep by 8 feet wide. Surface water lodges in vicinity of barracks until it sinks into the sandy soil, rendering raised paths necessary between the barracks. Water from lavatories collected in an open cesspool, from which it is spread over the ground. Fluid refuse partly sinks into subsoil, part is carted away, and part evaporates. Refuse water removed in barrels every morning. Hospital cesspits are deep wells, never cleaned. "Tried to be kept sweet by lime, but in vain."
UMBALLA.	6. Surface drains of earth; merely kept open and free from rubbish and vegetation. Surface water and drainage from lavatories, baths, cookhouses, &c. "disappears with tolerable rapidity" by drains and by percolation. That from privies, urinals, &c. is carted away. Several nullahs in an unsatisfactory state, permitting water to lodge after rain.
FEROZPORE.	7. No drainage. All refuse carried off by sweepers. Water from bath room allowed to sink into the subsoil. Refuse from cookhouses received into cesspits, 3 feet in diameter, cleansed daily.
JULLUNDUR.	8. Open surface drains for removing rain water. Cookhouse refuse carted away. That from privies, urinals, and washhouses received into cesspits underground, 8 inches in diameter, 14 feet deep, "never within" 60 yards of any well, about 50 feet from barracks; cleansed when required.
MEAN MEER.	9. Drainage of lines by two shallow "saucer" masonry drains, emptying into roadside drain, 250 feet from each barrack. No drains about the barracks. Water lies for some hours. Lavatory cesspools sometimes overflow, saturate the ground, and taint the atmosphere. These cesspits are from 30 to 40 feet deep, 8 feet diameter, 64 feet from barracks, and 180 feet from wells. Occasionally opened and emptied.
PESHAWUR.	10. No sewers. Offensive matter received into cesspools, 3 feet deep, 3 feet wide, and removed daily. Rain water runs off by surface drains.
SEALKOTE.	11. By surface channels to the road drains. No sewers or cesspools. Offensive matter removed by carts from the latrines. Fig. 7 shows a plan of this class of latrines, and the usual manner of connecting them with barracks. There is no drainage of any kind. All the matter is carried away by hand labour.

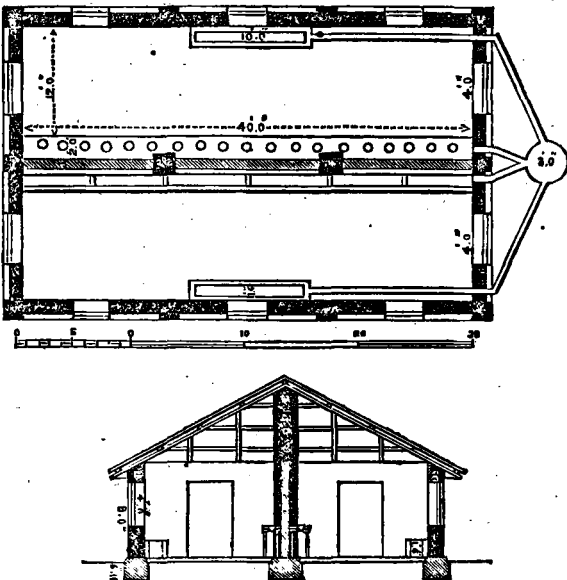
FIG. 7.—PLAN OF PRIVY AND BATH ROOM, SEALKOTE, ATTACHED TO BARRACK. BARRACK.



GHAZEEPORE.	12. Temporary drains, 1 to 3 feet wide, between barracks for surface water; not sufficient. No drainage from lavatories, cookhouses, &c. Fluid refuse mostly sinks into ground. Solid refuse removed by hand.
BERHAMPORE.	13. Open concave drains, 2 to 3 feet broad, 6 inches deep; washed daily and sprinkled with lime; outlet into a large tank close to barracks. All lower barrack rooms damp, from being 1½ feet below river level. Contents of privies carried to holes a mile from barracks; only one cart allowed; quite insufficient for a square mile of cantonment. Vicinity abounds in jheels and foul ditches, with putrid water.
HAZAREEBAUGH.	14. Drainage from washhouse removed by covered drain. Surface drainage vanishes rapidly. Refuse from privies, urinals, &c. carted 2 miles away.
ALLAHABAD.	15. No drains or sewers; merely small channels a foot deep, 10 feet from barrack walls, for surface water. A shallow well at each wash-house into which waste water runs, and is absorbed. Floors of some buildings damp. Surface water partly evaporates, partly sinks into subsoil, partly runs off by natural drainage. Lavatory cesspools 6 feet deep, and 6 feet diameter; cleaned out daily. Contents of latrines, &c. carted away.
DUMDUM.	16. No sewers. Open drains, 6 feet from buildings. Interval being a tile platform. Drainage passes by main drain into salt water marsh. Surface water and drainage from lavatories not efficiently carried away. Drainage from cookhouses, latrines, and urinals removed daily in carts, and buried in pits outside station. Cesspits, 2½ feet diameter, 5 feet deep. Lower floors of barracks damp, particularly in rainy season.
BENARES.	17. "There is no sewerage at all." Drainage received into cesspools, 2½ feet diameter, 2 feet deep, close to privies and wash-houses, 30 yards from nearest well, only a few yards from barracks and hospital. Cleansed by sweepers. Contents carted away.
LANDOUR.	18. On a ridge. Natural surface drainage sufficient. Every house more or less damp for 3 months in the year.
MUTTRA.	19. Temporary drains 1½ to 4½ feet deep for surface water. All other drainage from lavatories, baths, wash and cookhouses, privies, and urinals carted away in vessels.
RANERGUNGE.	20. Surface drainage merely. Fluid refuse of barracks carried away in filth carts and buckets.

STATIONS.	REPLIES.
UMRITSIR.	21. Surface water passes off by natural drainage. Filth removed by conservancy carts. Other fluid refuse evaporates. Cesspits 30 to 50 yards from men's quarters and hospital.
NYNNE TAL.	22. Natural drainage removes surface water, barracks being built on a hill side. Fluid refuse flows down a steep declivity to plains below. No cesspits required.
RAWUL PINDI.	23. Trenches for surface water. No sewers. All sewage collected in masonry cesspools, and removed daily.
LUCKNOW.	24. Only surface drainage. All fluid refuse received into cesspits or tubs, and removed daily.
CHUNAR.	25. No sewers. Open drains 9 to 18 inches wide and deep. Other drainage received into two cesspools; contents taken away in casks night and morning.
ROORKEE.	26. Trenches for surface drainage. All filth and fluid refuse carried away in tubs.
JHANSI.	27. Surface drainage. Other drainage received into cesspits, 3 feet cube, and removed morning and evening.
BARRACKPORE.	28. Only surface drainage. Filth of all kinds removed by carts.
DELHI.	29. All refuse carried down to the river.
MORAR GWALIOR.	30. Surface drainage by open drains. All other drainage from washhouses, privies, urinals, and cookhouses conveyed into cesspools, and removed by carts. Cesspools "never less" than 50 yards from nearest well.
JUBBULPORE.	31. Simply open drains. No sewers or cesspits. All refuse carried away.
DARJEELING.	32. Open stone drains, by which most of the filth and refuse water are washed away; remainder, including that from privies, carried daily to a distance to cesspits, and earth and lime thrown over. Drainage imperfect.
WATER SUPPLY.	
FORT WILLIAM.	1. Supply principally from river and tanks, partly from rain and wells, the last brackish and unwholesome. Water for cooking, drinking, &c. is carried from a tank on the glacis (filled by surface drainage), at a cost of 134l. per annum. This tank is kept "perfectly clean," and is "generally free from foul drainage and surface impurities," but from careless habits of bheesties, water sometimes taken from nearer and impurer sources. Many city tanks in a most filthy condition, producing malaria. Amount of water for troops sufficient for drinking and washing, not for bathing. Proposed to supply Fort William from the Hooghly, the filtered water of which contains 9·4 grains of solid impurities in 40 oz. (above 29 grs. per gallon). This supply said to be very perfect, but the river water is not good enough for use for 6 weeks annually.
DINAPORE.	2. Supply from wells and from Ganges. Some years ago, barrack wells poisoned by infiltration from barrack privies. Well water clear and sparkling, but a little brackish; some of it contains sulphate, oxalate, and carbonate of lime, and some chlorides; in one well there is vegetable matter and ammonia. Water raised in leathern or iron buckets, and distributed by bheesties in leathern bags. River water after filtration the best.
CAWNPORE.	3. Water derived from wells; only one tank. Not liable to pollution from leaves. Quantity abundant; no peculiarity of flavour; no chemical analysis; quality "good." Raised in leathern buckets and skins. Carried by bheesties to barracks, and kept in earthen vessels for use.
MERRUT.	4. Water from wells. Tanks used by natives; nuisance and malaria from some of them. Supply soft, excellent, unlimited. Raised by leathern buckets and bags, by hand or by cattle.
AGRA.	5. Principally from wells; occasionally from river. Well water very salt, with few exceptions. Considered heating during rainy season. Contains large quantities of muriate and sulphate of soda and lime. It is laxative, and apt to disagree at first. Supply sufficient. Raised in leathern bags by bullocks, and carried in skins by bheesties for the use of Christian and Mussulman. Hindoos carry their water in brass or earthen jars.
UMBALLA.	6. Water supply from wells; not liable to pollution; amount very limited; in hot weather most wells nearly dry; quality pure, as to sensible properties; hard; contains large quantity of carbonate of lime; no chemical analysis; not injurious to health; raised by Persian wheels and by hand; distributed by masonry channels and by carriers.
LOODIANA.	7. Entirely from wells; kept free from impurities; quality excellent; amount sufficient; no chemical analysis; raised by leather bags and distributed by carriers.
FEROZPORE.	8. Water from wells; remarkably pure, but not free from some combination with earthy matters; soft, sufficient in quantity; raised and distributed in leather bags. No chemical analysis.
JULLUNDUR.	9. Water from wells; abundant and wholesome; no chemical analysis.
MEAN MEER.	10. Water from wells; filtered before drinking; not liable to pollution; generally good in quality, but some brackish, saline. 1,000 grs. of water contain:—carbonate of soda, 0·494 grs.; carbonate of lime, 0·14; carbonate of magnesia, 0·08; chloride of sodium, 0·095; sulphate of soda, 0·178; silica, 0·013; a small quantity of organic matter. Raised by Persian wheel or large skins. Carried in leather skins for use.
PESHAWUR.	11. Water supply from river Barah by small open canal; stored in tanks, filled daily; quantity about 15 cubic feet per second; colour from suspended matter varies from pale grey to deep red. No chemical analysis. Filtration required.
SEALKOTE.	12. Water from wells; not liable to pollution; very pure generally; some wells contain soda; hard, containing considerable proportion of sulphate of lime. "Very free from impurities." "Decidedly good." No chemical analysis; quantity abundant. Raised for use by rope and leathern bucket.
MURREE.	13. Water derived from numerous springs and two reservoirs, one not liable to pollution, the other full of leaves and surface impurities; quality inferior; colour cloudy and muddy; taste and smell more or less earthy after rain; removable by filtration, but boiling sometimes necessary; no chemical analysis; water soft; amount sufficient; quality considered inferior by native visitors, and to cause colic; boiling and filtration through sand and charcoal render it wholesome.
GHAZEEPORE.	14. Water from numerous wells and from tanks (but not for drinking purposes); quality good and sweet, "and does not seem contaminated by the amount of leaves that necessarily fall into open structures." Great nuisance from a large partially-drained tank. Amount sufficient; no chemical analysis. Raised by bucket and rope, and distributed by bheesties in skins.
BERHAMPORE.	15. Water from river, wells and tanks, chiefly from wells for European troops; supply almost unlimited; well-water tolerably pure, when filtered through charcoal; no chemical analysis. Raised in leathern buckets by hand labour.
HAZAREEBAUGH.	16. From wells and tanks; in some wells the water has a slightly saline taste, in others, it is pure; no chemical analysis, but tests show presence of silicic, phosphoric, hydrochloric, and carbonic acids; hardness, 4·5; tank water alkaline; deposited copiously on standing;

STATIONS.	REPLIES.
ALLAHABAD.	contains organic matter in considerable quantity. All water should be filtered. Drawn by bullocks.
DUMDUM.	17. Water entirely from wells; abundant; contains carbonate of lime; hard; improved by filtration; free from animalcules; sensible properties good; no chemical analysis. Raised and distributed by bullocks and water-carriers.
BENARES.	18. Water from wells and open tanks; quantity abundant; generally clear; sensible properties good. In 40 oz. there are:— <i>Well water</i> : Solid residue, 6.6 grains. Silica, .8 grains; earthy carbonates, 1.8 grains; alkaline chlorides, 0.8; alkaline sulphates, 0.3; carbonates and organic matter, 2.9. <i>Tank water</i> : Solid residue, 2.8 grains. Silica, .2 grains; earthy carbonates, 2.0; alkaline chlorides, alkaline sulphates, carbonates, and organic matter, 0.6. Tank water should be filtered. Raised and distributed for use by bheesties, in leathern bags.
LANDOUR.	19. Derived from numerous wells; clear, without taste or smell; soft and pure; no chemical analysis; contains slight trace of lime, chlorides in large proportions, slight quantity of potash and carbonic acid; amount ample. Drawn by water-carriers, with leathern buckets.
MUTTRA.	20. Water from wells, not abundant, except in rains; good as to colour, taste, and smell; no chemical analysis.
RANEGUNGE.	21. Water from wells and from river. Some wells contain large quantities of sulphureted hydrogen on account of their low situation and the imperfect surface drainage. This water drunk by natives. In the station some wells good; others close to them impregnated with salts. Abundance of good water. Raised and distributed by ropes and leather buckets. No chemical analysis.
UMRITSIR.	22. From wells; not liable to pollution; supply equals demand; quality excellent, but rather hard; no animalcules; no chemical analysis; water raised and distributed by ropes and buckets.
NYNEE TAL.	23. From wells; protected from impurities; apparently good; no chemical analysis; some wells contain nitrate of potash; supply ample. Drawn by means of leathern bags.
RAWUL PINDI.	24. Partly from springs, partly from lake; the latter used for drinking, bathing, and washing; supply unlimited, pure, soft, wholesome; no chemical analysis. Raised by bheesties, in skins. Part conveyed to barrack in wooden watercourse.
LUCKNOW.	25. From wells and river; sensible qualities good; hard; no chemical analysis; quantity sufficient. Raised and distributed by bheesties and bullocks.
CHUNAR.	26. From wells; mostly good; in a few, brackish; no chemical analysis.
ROORKEE.	27. From Ganges and wells; quantity inexhaustible, clear, sweet, and inodorous "if allowed to settle before it is drunk." No chemical analysis; soft; under the microscope shows dust, minute fragments of vegetable matter, and feathers of insects. Drawn from Ganges into leather bags, and conveyed by bullocks and bheesties. Raised from wells by hand labour.
JHANSI.	28. From canal and wells; soft, good, and very pure; no chemical analysis.
BARRACKPORE.	29. From wells; preserved from pollution; supply sufficient; hard; agreeable to taste; no chemical analysis.
DELHI.	30. From tanks principally, wells, and river; tanks often polluted by decayed leaves from trees; without taste or smell. <i>Analysis of imperial quart.</i> — <i>Tank water</i> : Solid residue, 2.7 grains. Earthy carbonates, 1.02 grains; silica, .38; saline and soluble matter, chiefly chlorides, sulphates, and carbonates, 1.3. <i>Well water</i> : Total solid residue, 12 grains. Earthy carbonates, with sulphates, 6.46 grains; silica, .44; soluble saline matters, chiefly chlorides and carbonates, 5.1. Both waters contain a little organic matter. [Tank water contains 10.8 grains, and well water 48 grains per gallon of impurity, besides organic matter.] Raised and distributed in skins.
MORAR GWALIOR.	31. Mostly from river, some from wells; latter, with few exceptions, brackish; not good; contains soda; no chemical analysis. Drawn and distributed in usual manner.
JUBBULPORE.	32. From wells for drinking and cooking; soft, abundant, excellent; no chemical analysis. Drawn by bheesties in leather buckets, and carried in leather bags, stored in baked earthen vessels.
DARJEELING.	33. From wells; abundant, clear, and well-tasted; some wells contain iron; alkaline and soft; no chemical analysis; no microscopic impurities. Raised and carried by bheesties in leathern mussock.
II. ABLUTION AND BATH ACCOMMODATION.	34. Abundant supply from numerous mountain springs, some so pure as to be fit for photographic purposes, only containing traces of lime and iron; some contain so much iron as to be used medicinally.
FORT WILLIAM.	1. Lavatories at end of barracks on each story; stone floors, with raised masonry basins; water flows off to drain surrounding the building; plunge-baths much wanted (included in future plans).
DINAPORE.	2. Two double wash-houses and one plunge-bath for each wing of barracks; water supplied by bheesties from wells; drained into a nullah; temporary barracks have no bath; lavatories drained into cesspool wells.
CAWNPORE.	3. Ablution-rooms attached to barracks; no baths, but will be constructed. Water is brought from wells by pipes, and drained to nearest drain.
MEERUT.	4. One lavatory per company; two plunge-baths per regiment.
AGRA.	5. Lavatories of solid masonry, with tiled roofs; water supplied from copper cistern filled from a tank attached to well; waste water collected in cesspits and "carted away;" four baths supplied from wells; waste water carried away by surface drainage.
UMBALLA.	6. One lavatory for each barrack; water from wells; no baths.
LOODIANA.	7. No information.
FEROZPORE.	8. Lavatories are small rooms with brick and mortar floors, "adapted for receiving and draining off the water into the subsoil outside, so that the men may freely bathe themselves." Water provided by water-carriers; no bath.
JULLUNDUR.	9. One lavatory for each company; water kept in tubs; no baths.
MEAN MER.	10. Lavatories 60 feet from barracks, 180 feet from wells supplying water; water conveyed from the well by an underground drain to lavatory, thence supplied by water-taps, and drained away by a drain; bath, a long shallow tank, "in which the men can lie down and bathe." Larger baths being erected.
PESHAWUR.	11. No lavatories for European soldiers as yet (August 1860); plunge-bath in each set of lines.
SEALKOTE.	12. Lavatory for each barrack, also three plunge-baths; water from wells; waste water runs into open cesspits, and thence carted away. It is generally used for gardens.

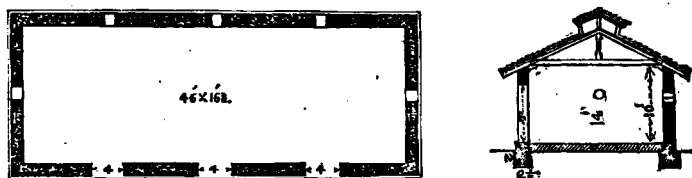
STATIONS.	REPLIES.
<p>MURREE. GHAZEEPORE. BERHAMPORE. HAZAREEBAUGH. ALLAHABAD.</p>	<p>13. No information. 14. Lavatory to each barrack; water supplied from a reservoir behind; drainage to a reservoir, emptied twice a day by a filth cart. 15. Each barrack has lavatories for men and women; water carried from tanks and wells in goat skins, poured into cisterns, and conveyed into rooms by pipes with cocks; drainage into surface drains. 16. Ten double lavatories, one single; basins supplied by water-taps from cistern, and drained away by covered drain into main drain. 17. Lavatories have cast iron basins, lined with porcelain, and a foot bath. Water supplied from wells by bheesties, and drained into cesspools. Fig. 8 shows the general arrangement of this class of ablution accommodation.</p>
	<p>FIG. 8.—PLAN AND SECTION OF A WASH-HOUSE FOR TWO COMPANIES OF EUROPEANS TO BE ATTACHED TO EUROPEAN BARRACKS AT ALLAHABAD.</p> 
<p>DUMDUM. BENARES. LANDOUR. MUTTRA. RANEEGUNGE. UMRITSIR. NYNEE TAL. RAWUL PINDI. LUCKNOW. CHUNAR. ROORKEE. JHANSI. BARRACKPORE. DELHI. MORAR GWALIOR. JUBBULPORE. DARJEELING.</p>	<p>18. Lavatories with metal basins, supplied with water from stop-cocks. No baths. 19. One lavatory per company, supplied with water from a well drained by branch drains. One plunge bath, another required. 20. Spacious lavatory with brass basins in a trough, but from the scanty supply of water in the dry season they are not much used, and the men wash in earthen vessels. Drainage to the slope of the hill. 21. Three temporary shed lavatories. One plunge bath. 22. No information. 23. Oblong building, with masonry stand for earthen jars and basins of water. 24. Hill station. No lavatories. Men wash themselves in verandahs. 25. No information. 26. Lavatories have a long masonry shelf for washing basins, also a set of small washing rooms, supplied by pipes from cisterns, receiving water from nearest well. A small canal runs the whole length of bath room, to supply water to the bathers, who can draw it in earthen or leathern buckets, and throw it over themselves. Iron bars across canal to prevent bathers "lying at full length in it, and soiling the whole supply." Drained to a drain outside. 27. Lavatory for each barrack, except one. Water supplied by bheesties, and runs out through the wall into the drains. No baths. River Ganges used. 28. Lavatories, small tiled sheds, with a wall having depressions to hold basins. 29. Lavatories not finished; to be on the standard plan. 30. Wash-house for each barrack. No bath. 31. No information. 32. Lavatory for each company. Tubs or earthen vessels for holding water, supplied by bheesties from nearest well. Wash-hand basins, earthen or metal. Drainage into a cesspool 4 or 5 feet deep. Filth or refuse matter carried away from cesspool every morning. 33. Lavatories have tubs or half casks for water. Drained into a drain running round building. No baths. 34. Eight bath rooms to each barrack. Good water supply from a spring. Refuse water carried off by stone drain.</p>
<p>XIII. DIET AND COOKING.</p>	<p>1. The ration in the Bengal presidency consists of bread 1 lb., meat 1 lb., vegetables 1 lb., rice 4 oz., sugar 2½ oz., tea ¼ oz., or coffee 1½ or 1¾ oz., firewood for cooking. The ration is considered complete. Vegetables vary according to season, and consist of potatoes, carrots, onions, cabbages, turnips, sweet potatoes, cauliflower, and pumpkins. A larger supply of potatoes is required, and soldiers' gardens would, it is conceived, enable vegetables to be raised in sufficient quantities. Sometimes there is a scarcity of vegetables, and the men suffer from eating too much animal food. It is suggested in one of the returns, that the diet scale of the navy is much better than that of the army. It consists of from 5 to 9½ oz. of animal food, and 26 ozs. of vegetable food, while the army scale in India contains no less than 16 oz. of animal food. Sometimes the men purchase milk, butter, fish, eggs, &c., or fruit, when in season. Complaint is made that mutton is not issued often enough, and that the vegetables are inferior in quality. The men have three meals a day; breakfast at 8 A.M., consisting of tea or coffee, bread, often animal food; dinner at 1 p.m., and tea at 4 or 5 p.m.</p>

STATIONS.	REPLIES.
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The cookhouses are small outbuildings, at a short distance from the barracks. They are provided with rude fireplaces, raised a little above the floor, often dark and badly ventilated. No chimneys, the smoke finding its way out as it likes. There are usually four messes in a company; each mess has one copper boiler of eight gallons, one of seven, and one of two gallons, one frying pan, one gridiron, together with ladles, chopper, baskets, &c. The vessels are usually tinned twice a month. In the hands of native cooks they admit of considerable variety of cooking, such as boiling, stewing, roasting, making curries, &c. The cooking is stated generally to be "sufficient." Native cooks are engaged for the companies. They are paid by the soldiers for cooking, and also for such extras in addition to the ration as they may supply. The ration is counted as worth 3 annas 4 pice, or 5d. daily. The kitchens are generally surface drained to cesspits, from which the refuse is carried away daily; or the cesspit is sunk deep enough to be self-draining into the subsoil. Sometimes there is no drainage of any kind, the refuse water being merely thrown out on the surface of the ground. None of the cookhouses appear to have any water supply, except what is carried in skins or vessels by water-carriers.

Fig. 9 gives the ground plan and elevation of a cookhouse at Benares, and shows the usual construction.

FIG. 9.—COOKHOUSE, BENARES.



XIV. INTEMPERANCE.
FORT WILLIAM.

1. Troops about as temperate as at other stations. Seven trials for habitual drunkenness in 8th regiment in three months. In 5th Fusiliers 2 per cent. habitual drunkards. But average of habitual drunkards in European regiments in this country not less than 15 per cent.

8th regiment, direct admissions from intemperance, to total admissions,	1	in 114.
5th Fusiliers	"	" 2 in 100.
8th regiment, indirect admissions	"	" 1 in 11.
5th Fusiliers	"	" 17 in 100.

Seven regiments in Madras 1849.

	Punished per 1,000.	Admitted per 1,000.	Died per 1,000.
Teetotallers	236.9	1,308.9	11.11
Temperate	587.2	1,415.9	23.15
Intemperate	1,709.8	2,148.6	44.58

Drunkenness punished as an offence. Spirits sold in regimental canteens, average daily consumption 1½ drams per man; not issued before dinner. To men in health spirits decidedly injurious in India. They are the curse of the European soldier in India. Beer in moderation greatly preferable. Would be most beneficial to health to suppress spirits altogether, allowing a ration of beer from the canteen instead, also to substitute tea, coffee, &c.

DINAPORE.

2. Confirmed drunkards from 1 to 2½ per cent. Spirits sold in canteen, not in bazaar. Daily consumption 1 to 1½ drams per man, 2 drams per day allowed. Spirits "probably beneficial" to old soldiers, but not to young ones. Would be beneficial to abolish spirits as a ration and abolish the sale in canteens, substituting beer, coffee, tea, &c. There should be coffee rooms where the men could have coffee, tea, lemonade, &c. and periodicals.

CAWNPORE.

3. Soldiers fairly temperate. Spirits sold in bazaar; not conducive to health, efficiency, or discipline. Highly beneficial if sale could be abolished. Malt liquor, tea, and coffee preferable; but men might obtain spirits otherwise.

MEERUT.

4. Soldiers temperate; rum sold at canteen. Native spirits occasionally smuggled into barracks. Soldier allowed 2 drams per day, or 1 pint of beer, 1 dram, on payment. Spirits injurious to health; malt liquors and wines less injurious; tea, coffee, &c. better than either; beneficial to prohibit sale of spirits, and permit only beer, tea, coffee, &c.

AGRA.

5. Soldiers usually temperate; spirits sold in canteen, forbidden in bazaar. During cold season, 2 drams of rum, 1 quart of beer, issued to each man per diem. During hot season, 1 dram of rum, 1 quart of beer. This is the average daily consumption per man throughout the year. Evil effect of spirit drinking manifest during last field service; spirits in excess the bane of European soldier; would be better to allow beer or porter; "but they will have spirits," and to abolish the sale would drive men to the bazaar.

UMBALLA.

6. Soldiers temperate; 3 per cent. of admissions caused directly by drunkenness, and 15 per cent. indirectly. Artillery consume three quarters of a gallon of spirits per month per man; hussars, 1½ drams per day; injurious to health and discipline; beneficial to suppress sale of spirits, and substitute beer, tea, coffee, &c.

FEROZPORE.

7. Soldiers generally temperate; from 1 to 2 per cent. confirmed drunkards; spirits sold in canteen. Each man consumes about 6 oz. rum and 1 pint malt liquor, or 3 oz. rum and 2 pints malt liquor per day. Spirits in moderation rather prejudicial by promoting dram drinking in excess. Advantageous to suppress the sale, if other spirits could not be obtained. Moderate use of beer healthy. Tea, lemonade, &c., better than any. If all spirit selling were suppressed, beer, tea or coffee would materially benefit health. There should be a coffee shop, with reading room and workshops.

JULLUNDUR.

8. Soldiers temperate; no confirmed drunkards; spirits sold in canteen. Average consumption less than a dram per man per day. Injurious to health and discipline. Would be beneficial to abolish sale and substitute beer, coffee, tea, &c. Coffee should be issued before morning parade; and beer at dinner and at night.

MEAN MEER.

9. Soldiers temperate. Consume a great deal of malt liquor in lieu of spirits. One out of 204 admissions caused by drinking. Amount allowed per man per day, 2 drams of spirits, 1 pint of beer, or 1 dram and 2 pints. Would be more healthy without spirits. It tends to subvert discipline and efficiency. Decidedly in favour of beer in place of spirits; but abstinent man more enduring of fatigue and less obnoxious to disease than temperate man.

STATIONS.	REPLIES.
PESHAWUR.	10. Soldiers temperate; little more than 1 per cent of admissions directly from drink. Average consumption less than a dram per man per day. Would be unadvisable to abolish sale in canteen, as some old soldiers could not do without it. With sufficient malt liquor, sale of spirits could be suppressed.
SEALKOTE.	11. Temperate; about 3 per cent. confirmed drunkards. Average consumption of spirits, 1 dram a day. Some men never take them. Spirits most injurious to health, and prejudicial to efficiency and discipline; should never be offered for sale, as men are induced to take spirits who never would, if they were not so handy. Under no circumstances, except extraordinary fatigue, should spirits be issued; only beer, tea, or coffee should be allowed; and the loss of revenue otherwise compensated for.
GHAZEEPORE.	12. On the whole temperate. Rum sold in canteen; none in bazaar. Two drams a day per man can be purchased. Sale of spirits in bazaar ought by all means to be abolished; but not injurious as sold in canteens. In moderation not injurious; but good malt liquor preferable to spirits in any form. Coffee in the morning better for the soldiers in all points. Total abolition of spirits would not be advisable. No canteen. Spirits and beer issued at once from the tub.
BERHAMPORE.	13. Soldiers usually temperate; 1 in 120 admissions produced directly, 1 in 10 indirectly by drink. Among temperate men, 45½ per cent. of sickness; 34½ per cent. of crime. Among drunkards, 52½ per cent. of sickness; 65½ per cent. of crime. Spirits injurious, except to old soldiers, who have indulged in them. Sale should be abolished in bazaars, and allowed under restrictions in canteen. Would be beneficial to substitute beer, except to those who have long indulged in spirits. Well-conducted coffee and reading rooms should be established at a distance from canteens.
HAZAREEBAUGH.	14. Soldiers as a body temperate; one-third of diseases and one-half of crimes, directly or indirectly from drink; but no statistics. Each man may purchase $\frac{1}{10}$ gallon of spirits per day. Actual consumption in 1859, 6½ gallons per man per year. Spirits decidedly injurious to health, and not conducive to efficiency or discipline. Abolish altogether sale of spirits in canteen and bazaar. Injurious even in moderation. Long cherished idea as to their necessity for the British soldier thoroughly exploded. A man who drinks tea or coffee will do more work than a dram drinker, though considered sober. It is an error to sell spirits in canteen to prevent men obtaining worse spirits in bazaars. It creates craving to be satisfied elsewhere. Selling rum in canteen is an unmitigated curse to a regiment, destructive alike to health and discipline. Even malt liquor not necessary to health in India, but not injurious, or less so than spirits. It will be a "happy day" when only coffee, tea, lemonade, &c. are drunk.
ALLAHABAD.	15. Soldiers temperate; about 1 per cent. confirmed drunkards. Out of 5,021 admissions in 1859, 36 were from delirium tremens (5 fatal); 25 from ebrietas. Many diseases, especially of liver, indirectly from drink. Much sickness and mortality also indirectly. Spirits injurious to health. Entire substitution of malt liquor in canteens would be beneficial. Probable amount of spirits consumed less than a dram per man per day. But 1 quart of beer and 2 drams of rum may be purchased. Suppress sale of spirits, permit beer, coffee, tea, lemonade, &c. only to be sold.
DUMDUM.	16. Soldiers usually temperate. Out of 850 admissions, 2 were from delirium tremens; 10 ebrietas. Spirits sold in canteen. Drugged spirits in bazaar. Spirits injurious to health, most prejudicial to discipline. Would be beneficial to suppress sale in canteens, and to permit only beer, coffee, tea, &c. to be sold, with exceptions in special cases. Permit no native grog shops within 4 miles of cantonment.
BENARES.	17. On the whole temperate. Spirits sold in canteen. Each man may purchase 2 drams a day. Average consumption last half-year, $\frac{1}{2}$ a dram and $\frac{1}{2}$ a pint of malt liquor daily per man. Spirits certainly injurious, and the great cause of sickness and crime in a regiment. Malt liquor beneficial. Prohibit sale of spirits in canteens, and permit only beer, coffee, tea, &c. to be sold.
LANDOUR.	18. Spirits sold in canteen, if allowed by surgeon. Extent 2 drams a day. In moderation conducive to health. Nothing deleterious to discipline or efficiency in issuing spirits in well-regulated canteens. Health, morality, and discipline, very much improved since use of malt liquor encouraged.
MUTTRA.	19. Artillery very intemperate; 10 per cent. confirmed drunkards. Cavalry temperate; 1 admission in 91½ caused directly by intemperance; 2 drams of rum per man per day allowed in canteen. Any amount of bazaar spirits attainable. As a general rule, spirits not conducive to health or discipline; but could not be withheld from men accustomed to them. Suppress sale to all men under 30 years of age. Malt liquor better. Suppress spirits gradually, and permit only beer, coffee, tea, lemonade to be sold.
RANEEGUNGE.	20. Troops temperate. Spirits sold in bazaar. No canteen. In moderation not injurious. But malt liquor the best beverage.
UMRITSIR.	21. "Rather intemperate." Directly, one-sixth, indirectly one-half, of admissions from drink. Spirits sold in canteen, but not allowed in bazaar. Average consumption, 2 drams per man per day. Its effect on health "injurious to the last degree." Malt liquor and wines beneficial. Suppress spirits altogether, and permit beer, coffee, and tea to be sold; but it might be injudicious, as men who wanted spirits could get country liquor.
NYNEE TAL.	22. Temperate. One case delirium tremens last year. Men all invalids, require daily stimulant, 1 quart of beer and 1 dram of rum allowed daily. Amount specified conducive to health. Suppression of spirits generally would be beneficial, with exceptional cases.
RAWUL PINDI.	23. Temperate; 7 out of 282 admissions directly, and 1 out of 282 admissions indirectly from drink. Rum sold in canteen; 2 drams a day allowed. More injurious to health than otherwise. Necessary on a march. If abolished, worse spirits would be got. Malt liquor preferable.
LUCKNOW.	24. Not much intemperance. Spirits sold in canteen. As a rule not conducive to health. Should be abolished, except in exceptional cases. Malt liquor and wine beyond doubt preferable. Beneficial to prohibit the sale in canteens, substituting beer, tea, coffee.
CHUNAR.	25. Soldiers mostly temperate. One man in 20 a confirmed drunkard. Admissions on a ten years' average, from drink, directly, 1 in 3; indirectly, 1 in 7½. In 6 years, among 12 total abstainers, no deaths, no crimes. Among 576 temperate men, deaths, 8·84 per cent. of strength; 4·12 of admissions. Crime, 42·01 of strength. Among drunkards, deaths 14·21 per cent. of strength; 8·13 per cent. of admissions. Crime, 426·87 per cent. of strength. Temperate men, with few exceptions, all drink occasionally. Spirits sold in canteen; about 2 drams per man per day consumed. Impossible to state how much is sold in bazaar. Use

STATIONS.	REPLIES.
	of spirits, except in few cases, injurious and most destructive as regards efficiency and discipline. Malt liquor beneficial. Prohibit sale of spirits, except in certain cases. Discourage by every means men acquiring a taste for it. Absolutely interdict it on passage out, giving malt liquor instead.
ROORKEE.	26. Soldiers generally temperate. Still much disease and crime from drinking of spirits. Sold both in canteen and bazaar. "All spirit drinking injurious to health." Almost all crime caused by it. Ought to be abolished in canteens and bazaars. At present collectors encourage sale as much as they can, for the sake of revenue. In Burmah, when malt liquor could be had, health always improved. Marked change for the worse when spirit was issued instead. Since beer was introduced, the tremulous, yellow-skinned, emaciated spirit-drinker rarely met with.
JHANSI.	27. Temperate. Spirit sold at canteen. Not injurious in moderation. Not conducive to health. Malt liquor and wine beneficial, being tonics. Spirits only temporary stimulants. Beer might be substituted by degrees for spirits, but would not be beneficial to prohibit sale to men accustomed to spirits.
BARRACKPORE.	28. Liquor too easily procured. A good deal of intemperance. A rather large number of confirmed drunkards. Fourteen to 15 per cent. of admissions directly from drink. Spirits, injurious to health. If entirely abolished among European troops, and dietary improved, &c., mortality would be "extraordinarily diminished." Malt liquors, although not essential, not injurious. Decidedly beneficial to suppress spirits, though it would excite discontent at first. Men should have employment, recreation, good tea, coffee, milk, more variety of food and cooking.
DELHI.	29. "Inclined to be intemperate." Four men per company confirmed drunkards. Spirits sold in canteen. About three-fourths take one dram, one fourth two drams each per day; injurious. Moderate use of malt liquor or wine good. Not beneficial to suppress the sale of spirits, because country liquor would be bought instead.
MORAR GWALIOR.	30. Several intemperate men. Liquor difficult to get at present. Less than 1 per cent. of admissions directly; more than 2½ per cent. indirectly, from drink. Spirit causes a good deal of sickness. Fatal cases occur mostly among intemperate men. Drunkenness much the prevailing crime at station. Spirits sold in canteen to the extent of one dram with beer, two without, per diem. Ardent spirits, except as medicine, always injurious. Malt liquor much less so. Most beneficial to suppress sale of spirits, if men did not use native liquor. Recommended prohibition of distillation, except for medical or chemical purposes.
JUBBULPORE.	31. As a rule intemperate. One in 200 a confirmed drunkard. Spirits sold in canteen, and illegally in bazaar. Some men take one dram, others two per diem. Old soldiers often take a dram before parade; injurious. Highly beneficial to abolish spirits. Malt liquor beneficial. No doubt a cup of good hot coffee most wholesome stimulant for a soldier. Entire suppression of spirits would undoubtedly increase health and efficiency of troops.
DARJEELING.	32. Soldiers temperate. No admission to hospital from intemperance. Each man not attending hospital, or in hospital, may purchase daily 2 drams rum, or 1 dram of rum and 1 bottle "day." No hesitation whatever in saying that spirits are "decidedly and highly injurious" to troops, and anything but conducive to efficiency or good order. Would be, without doubt, beneficial to abolish altogether the use of spirituous liquors, if done gradually and wisely. The soldier would not be such a drunkard but for his condition. Better that condition, and the British army may become a sober one. Wine, malt liquor, and spirits all injurious in excess. Malt liquor least so. Use of tea, coffee, lemonade, &c. would afford a striking contrast in the result to the other drinks mentioned. There should be restaurants where men could get tea, coffee, newspapers, magazines, and mix with men of other regiments, instead of the discomfort of the everlasting barrack room.
XV. INSTRUCTION AND RECREATION. FORT WILLIAM.	1. There are at this station one ball court and eight skittle alleys; two regimental schools and a garrison school; one garrison library and regimental libraries; a theatre and a gymnasium. There are no day rooms, no soldiers' clubs, no gardens, no workshops. Cricket, foot-ball, and quoits are played morning and evening. Present means said to be "sufficient." Savings banks decidedly most advantageous. Ground floors of barracks and verandahs afford ample shade for recreation.
DINAPORE.	2. One fives court and four skittle grounds. A school, a library, and reading room, well lighted. A soldiers' garden, not used. Workshops insufficient. A station theatre. No gymnasium. Means not at all sufficient to keep the men occupied during wet weather and heat. A large covered space wanted for workshops, skittle grounds, ball alleys, quoits, &c. A farmyard would be advantageous, as would also be the institution of savings banks. Men confined to barracks in hot weather; said to be "beneficial." No shade, but from verandahs.
CAWNPORE.	3. A ball court and skittle grounds. Regimental schools, libraries, and reading rooms. Workshops for tailors, shoemakers, and armourers. Cricket and quoits. Theatre occasionally. No gymnasium. Means insufficient. Properly constructed skittle grounds, gymnasia, and shooting galleries, and swimming baths required. Regimental savings banks in full operation. Men confined to barracks from 7 a.m. to 5½ p.m. in hot weather. "At least there is an order to that effect, but it is often disobeyed." No shade whatever, except barrack verandahs.
MEERUT.	4. Ball courts and covered skittle grounds. Schools and a theatre. No library, no day room, no soldiers' club. No gardens, no workshops, no gymnasium. Present means not sufficient to keep men occupied during wet or heat. Savings banks very advantageous. Men should have indoor employments at trades. Shade quite insufficient. Men confined to barracks from 8 a.m. to 4½ p.m. in hot weather. Less restriction in cold season, "and with the best possible results."
AGRA.	5. Double ball court, and three skittle alleys; schools, library, and reading room, indifferently lighted at night; soldiers' garden, worked by natives, supplies vegetables for mess; no soldiers' clubs, no day rooms, no workshops, no theatre in barracks, no gymnasium. Means insufficient for affording occupation in hot and wet weather. Men confined to barracks between morning and evening parades; restriction said to be "necessary, but very irksome." A large covered building for gymnasium, workshops, games, &c., "would draw many men from their cots, where they idle and sleep all day." No sufficient shade. Savings banks useful for provident men.
UMBALLA.	6. Ball courts and skittle grounds. Schools, library, and reading room, well lighted. Soldiers' garden. No day rooms, no soldiers' club, no workshops, no theatre, no gymnasium. Lofty

STATIONS.	REPLIES.
<p>LOODIANA. FEROZEPOR.</p>	<p>spacious buildings for these purposes would add greatly to health, comfort, and amusement in hot weather. Part of building should be used for games; part for library, reading room, coffee room, theatre, plunge baths. Shade not sufficient. Men confined to barracks from breakfast to 5 p.m., "beneficial." 7. No information.</p>
<p>JULLUNDUR.</p>	<p>8. Ball courts and skittle grounds. Schools, library, and reading room, sufficiently lighted. One soldiers' garden, theatre, and gymnasium. No day rooms, no workshops. These latter, with a coffee shop, would be an important inducement for men occupying themselves during the heat.</p>
<p>MEAN MEER.</p>	<p>9. Ball courts and skittle alleys. A regimental school, library, and reading room, sufficiently lighted at night. One garden, a private theatre, not in use. No workshops, no gymnasia, no sufficient shade. There are savings banks; decidedly advantageous.</p>
<p>PESHAWUR.</p>	<p>10. Skittle grounds. Schools, library, and reading rooms. Several theatres. Billiard room for serjeants. Cricket, chess, backgammon, bagatelle for men. No ball courts, no day rooms, no clubs, no gardens, no workshops, no gymnasia. Photography, modeling, and drawing suggested. No sufficient shade. Double fives court much needed. Men confined to barracks in heat of day. Savings banks have been of greatest use.</p>
<p>SEALKOTE.</p>	<p>11. Ball court and skittle grounds. Schools, libraries, and reading rooms, well lighted at night. A theatre. No workshops, no gymnasia, no garden. There should be regimental gymnasia and reading rooms, separate from barracks. Men confined to barracks in hot weather from 10 a.m. to 4 p.m. Savings banks highly advantageous. No shade.</p>
<p>MURREE. GHAZEEPORE.</p>	<p>12. Ball courts and skittle grounds. Schools and regimental libraries. A reading room, very well lighted at night, provided with chess, backgammon, dominos, and 16 newspapers and periodicals. A soldiers' garden, with seeds and tools provided by Government, who grant prizes for best cultivation. Armourers', saddlers', tailors', shoemakers', and one watchmaker's, shops. Theatres. Cricket and regimental clubs, foot balls and quoits; the latter a favourite game. A gymnasium strongly recommended. Workshops for every trade might be instituted. Savings banks advantageous; that of one regiment has 8,000%. Sufficient shade for exercise. Present means sufficient, if properly used.</p>
<p>BERHAMPORE.</p>	<p>13. No information. 14. One ball court, two skittle grounds. No other means of instruction or recreation. "Almost everything in this way has yet to be done." Men confined to barracks from 8 a.m. to 5 p.m. No shade, except verandahs, which are too small and under water during the rains.</p>
<p>HAZAREEBAUGH.</p>	<p>15. Five ball courts, two skittle grounds. Library and reading room, but neither lighted at night. A theatre is being fitted up. No schools, no day rooms, no soldiers' gardens, no workshops, no gymnasia, no sufficient shade. Men restricted to barracks from 8 a.m. to 5½ p.m. Savings banks advantageous.</p>
<p>ALLAHABAD.</p>	<p>16. Ball court and skittle grounds. Regimental school, Government library, not lighted at night. A temperance reading room, well lighted, and having upwards of 200 members. No gardens. Armourers', shoemakers', and tailors' shops. A small theatre. No gymnasium. Further means of amusement and occupation advisable, "as the long days of the Indian hot weather hang heavily on the soldiers' hands." Men can exercise in the verandahs.</p>
<p>DUMDUM.</p>	<p>17. Skittle grounds. Schools, libraries, and reading rooms, well lighted sometimes, but generally lighting defective. No ball courts, no day rooms, no clubs, no gardens, no workshops. All commanding officers concur in recommending the latter. No theatre, no gymnasium. Present means not sufficient for hot and wet weather. Soldiers confined to barracks from 8 a.m. to 5 p.m.; said to be "beneficial to health." Men exercise in verandahs. Savings banks highly advantageous.</p>
<p>BENARES.</p>	<p>18. Fives courts and several skittle grounds. A school; no library, nor reading room; no day room, nor soldiers' club; no gardens, no workshops, nor gymnasia; no theatre, except a barrack room, occasionally used. Present means "totally insufficient for occupying the men." Great success lately attended the opening of a small museum, illustrated by lectures showing "that soldiers are ready to avail themselves of any means of rational amusement in the evening, in preference to spending all their time in the canteen." No sufficient shade.</p>
<p>LANDOUR.</p>	<p>19. One ball court and three skittle grounds. Two schools. One library and reading room, sufficiently lighted at night. One day room. One garden, two workshops, a station theatre. No gymnasium. One gymnasium and more workshops required. Present means scarcely sufficient. No sufficient shade. Men confined to barracks from 8 a.m. to 5 p.m., "with the very best effect on their health."</p>
<p>MUTTRA.</p>	<p>20. A ball court, four skittle grounds, school room, good library and theatre. No reading nor day rooms; no soldiers' gardens, no workshops, nor gymnasia. No restriction as to exposure required.</p>
<p>RANEEGUNGE. UMRITSIR.</p>	<p>21. No means of instruction, occupation, or amusement whatever, except a soldiers' garden, for which there are no tools, although indented for a year ago. Carpentry, saddlery, and coopers' work are in great demand, and would benefit the men, as regards health, morals, and finance. No sufficient shade.</p>
<p>NYNEE TAL.</p>	<p>22. Only two skittle grounds, and no sufficient shade for exercise. 23. A ball court and two skittle grounds. Schools, library in an unsuitable room. No day room, no club, no gardens, no workshop, no theatre, no gymnasia. Men not sufficiently occupied during wet and heat. Restricted to barracks, which is supposed to be beneficial to health.</p>
<p>RAWUL PINDI.</p>	<p>24. Two skittle grounds, one school, one library, well lighted; men confined to barracks in heat of day. Present means not sufficient to keep men occupied. No shade, except verandahs. 25. Nothing but schools, no ball courts, no skittle grounds, no day rooms, no gardens, no workshops, no theatre, no gymnasia, no library or reading room, except the barrack room. Present means not sufficient; men confined to barracks during the day "with the best results."</p>
<p>LUCKNOW.</p>	<p>26. The following means are being established:—ball courts and skittle grounds, schools, library and reading room, day room, gardens, theatre and gymnasia; but no workshops, which should be built, and then the means would be ample. Men restricted to barracks in hot months.</p>
<p>CHUNAR.</p>	<p>27. No ball court, one skittle ground under construction; two schools, a library and reading room, not kept open at night. No day rooms, no clubs, no gardens, no workshops, no theatre, no gymnasia. Present means insufficient. No restriction as to exposure in sun and rain, "Men go about at all times, and except when under the influence of liquor do not appear to suffer from exposure." Shade insufficient. [N.B.—The mean temperature of</p>

STATIONS.	REPLIES.
ROORKEE. JHANSI.	this station is 65° in December and January, and 92° in June; the sun temperature as high as 120° in June, and yet the men do not "suffer from exposure".] 28. No information.
BARRACKPORE.	29. Schools, library and reading room, day room, one garden, and workshops. No ball courts, no skittle ground, no theatre, no gymnasium. Present means not sufficient; all the above should be supplied, together with swimming baths. Shade not sufficient. In hot weather, men restricted to barracks from 8 a.m. to 5 p.m. Savings banks advantageous.
DELHI.	30. Companies' skittle alleys, a school, library, and reading room, used as a day room. Present means not sufficient. No gardens, no workshops. The following are required:—fives courts, a theatre, gymnasium, swimming baths, public reading of good biographies, travels, novels, &c. Trades of various kinds, such as clothing, accoutrements, barrack furniture, watch making, printing, paper making, baking. Savings banks should be connected with workshops. No sufficient shade.
MORAR GWALIOR.	31. Skittle grounds, schools, a library and reading room sufficient. Soldiers confined to barracks in hot weather. Shade not sufficient.
JUBBULPORE.	32. Company skittle grounds, regimental schools, library and reading room. No doubt ball courts, clubs, gardens, workshops, theatre, and gymnasium will be introduced in due course. Shade insufficient.
DARJEELING.	33. One skittle ground, one school, one regimental library and reading room, one armourers' shop, one theatre. Means insufficient. No sufficient shade.
XVI. DRESS.	34. Two skittle grounds in a very bad state of repair; one school, good library and reading room, two gardens worked by natives. Tailors, shoemakers, tinsmiths work at their trades in barracks; only carpenters have a workshop. A hospital reading room and reader. Means insufficient. Rains fall incessantly for five months, and men are pent up in barrack rooms to the great injury of their health. Different kinds of recreation under cover should be provided for this. There are two kinds of dress in use, one for cold weather, the same as in England; the other consisting of khakee tunic and trousers, wicker helmet for summer wear. Dress generally considered as suitable for climate and duties. The boots are complained of as being bad. Flannel is considered indispensable. Great coats are used on night guard. Surgeon Major Hare, 2d Bengal Fusiliers, gives in the Roorkee report some interesting information regarding the waterproofing of soldiers' clothing, which is worthy of consideration. At Peshawur, a wadded coat is issued for winter wear.
XVII. DUTIES.	The routine of duties varies in different regiments and at different stations. They consist of drills, exercises, and guards; drills occupy one to one and a half hours in the early morning, and half an hour to one hour in the evening; from peculiar circumstances they sometimes do not recur every day. Guards last 24 hours, coming round sometimes every fifth day, giving the men four successive nights in bed, sometimes only once a fortnight, or once in three weeks. With few exceptions, the reporters concur in stating that night guards are not injurious to health, if proper precautions are exercised as to clothing and shelter. From neglect of these, men coming off guard are often found affected with slight rheumatism or bowel complaint. No injury follows night guards properly conducted, even at unhealthy stations. One of the reports indeed states that they are not only not prejudicial, but rather beneficial in hot weather. A few of the reports state night guards to be directly injurious. There is no evidence that the men suffer in health from the usual drills, duties, and exercises, except in the case of raw recruits. Grooming horses is said to be healthy. At all the stations the practice exists of confining men the whole day to barracks in hot weather; the confinement beginning as early in one case as 6½ a.m., and lasting till the approach of sunset.
XVIII. PERIOD OF SERVICE IN INDIA.	All the reports concur in stating that, before a soldier is sent to India, he should be perfected in his drill at home; otherwise he will be sure to suffer from the climate. All the reports, with three or four exceptions, recommend that the soldier should be sent direct from home to India, instead of to any intermediate station. They all concur in stating that none but men whose constitutions are fully formed are fitted for Indian service; and the ages between 20 and 25 are, in general, considered the best ages for beginning such service. They further agree in this important point, that men should be sent from England so as to arrive in India between November and February; there is a general concurrence as to the propriety of exercising great care with recruits on first landing there, and as to sending them direct to their regiments. There is considerable difference as to the period of useful service a soldier may fulfil in India. The lowest period named is from three to five years; the highest from 15 to 25 years. The opinion in one station report is that a soldier in India may serve as long as in any country out of his own, provided due care be taken of his health. Under existing sanitary conditions, the prevailing opinion appears to be, that a soldier can serve in India from 10 to 12 or, perhaps, to 15 years at certain stations. Invalids leaving India should do so in time to reach England in early summer.
XIX. HILL STATIONS. FORT WILLIAM.	1. No experience. But consider hill climates beneficial to the weak and to men suffering from functional disease; but useless, or even hurtful, to organic disease. Troops on return to plains not more liable to fevers. At Kussowlie, Subathoo, Simla, and Dugshai, "white purging" prevails, often causing serious losses in the regiments. Croup and diphtheria also occur. Natives suffer from typhoid fever. "Troops should be located on hills, with short periods of service on plains." Best elevations 4,000 to 8,000 feet, with good drainage, thorough ventilation, space, and freedom from local causes of diseases.
DINAPORE.	2. No experience, but approve. But there is too often want of room for exercise, and difficulty in feeding the men. Hazareebaugh has a climate almost equal to the hills for health.
CAWNPORE.	3. No experience. A certain number of men should be selected from all corps and sent to the hills alternately.
MEERUT.	4. No experience.
AGRA.	5. Decidedly approves of hill stations. Hot season there most agreeable, but cold season most invigorating. Men residing on hills keep their stamina best and stand work better on the plains than other troops. Barracks at Landour imperfect. Elevations of 4,000 feet beyond the influence of tropical climates, and less cloudy, but not so cold and bracing as higher elevations. Plenty of level ground, good water, and easy access are desiderata.

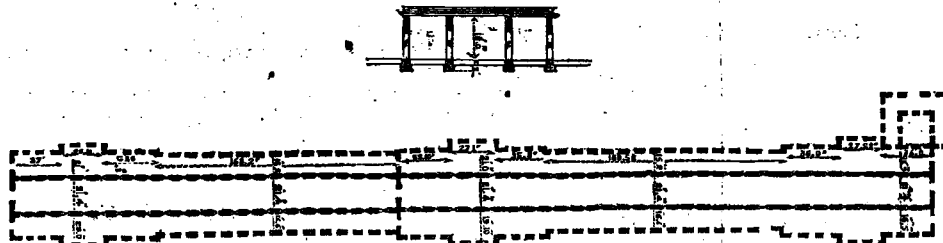
STATIONS.	REPLIES.
UMBALLA.	6. Hill stations are highly favourable to troops arriving in health, if lodged in good barracks; unfavourable in some states of disease. Dry, spacious, well ventilated barracks have been the great want of hill stations. Want of vegetables has been productive of much mischief. Approves of hill stations.
LOODIANA. FEROZEPOR.	7. No experience.
JULLUNDUR. MEAN MEER.	8. Approves. Occasional location every third or fourth season on the hills the best manner of using hill stations.
PESHAWUR.	9. Disapproves of hill stations generally.
SEALKOTE.	10. Approves most strongly; but troops have suffered at hill stations from bad barracks, want of sanitary measures, and indifferent rations. Those with organic disease are sure to suffer. Men on arriving are liable to internal congestions, and no hill station has perfect immunity from cholera, bowel complaints, and fevers. Men on returning to the plains suffer from febrile attacks at first, but are afterwards healthier than those who remained on plains. Residence at 4,000 feet safe during whole year; at greater elevations from April till November only. Service on plains, with short periods of residence on hills, would be most healthy.
MURREE. GHAAZEPOR.	11. No experience, but approves; and, as a general rule, considers it would be more healthy to locate troops on plains with short service on hills.
BERHAMPORE.	12. Troops do better on plains than hills, where station is healthy; they are more efficient and less liable to bowel affections. Where plain stations are healthy, no advantage in quartering troops on hills. Occasional change may benefit a regiment. "It has, however, not yet been shown that European cavalry corps, never quartered at hill stations, are less efficient in any way than infantry corps, taking their tour at these stations."
HAZAREEBAUGH.	13. No information.
ALLAHABAD.	14. Approves most decidedly. "There is a form of diarrhoea and dysentery prevalent at Kussowlie and Subathoo, most difficult to treat or cure; and, I believe, it is the same at most other hill stations."
DUMDUM. BENARES. LANDOUR.	15. Strongly approves. Mild diarrhoea prevails, attributed to the drinking water. Considers service in plains, with change to hills, the best.
MUTTRA. RANEEGUNGE. UMRITSIR. NYKEE TAL.	16. Hills healthy for healthy men. Caution required for invalids. Quite unsuited to many diseases. Favourable to most lung diseases. Persons coming from plains liable to bowel complaints. Warm clothing required. Too much the fashion to coop men up on rainy days in gloomy hill barracks.
RAWUL PINDI.	17. Strongly recommends occasional residence; but considers standard of health among troops in Upper Provinces, as a rule, not inferior to that among troops on hills.
LUCKNOW.	18. No experience.
CHUNAR. ROORKEE.	19. No experience.
JHANSI. BARRACKPORE. DELHI.	20. Thinks hill stations, as a rule, should be set aside for sick and weakly men, carefully selected from regiments on the plains, but not for whole regiments. Has been at Kussowlie, Landour, Simla, Subathoo, Murree. Has observed diarrhoea contracted at Kussowlie, where barracks are faulty and overcrowded; never almost gets well, until patient removed to plains, "and not then, unless disease taken in time." Has known "scorbutic diarrhoea almost decimate a regiment at Kussowlie." Landour remarkably healthy. Thinks service in plains with short periods in hills the best; but would insist on numerous sanitarium in hills, with the best possible barracks, &c.
MORAR GWALIOR.	21. No experience; but approves of hill stations.
JUBBULPORE.	22. No experience.
DARJEELING.	23. No experience; but approves of hill stations.
XX. HOSPITALS. FORT WILLIAM.	24. Approves most decidedly. Headquarters should be on the hills, with detachments doing duty on the plains.
	25. Decidedly approves; but does not believe that every altitude will be found equally healthy. Convalescents suffer all more or less from diarrhoea. Recommends wearing flannel.
	26. Approves of hill stations; but troops very liable to diarrhoea on arriving. Considers location on hills with short service on plains the best.
	27. No experience.
	28. Much approves; but regiments suffering from disease have often had great mortality and sickness on being sent to hills. Would locate entire regiments on hills. Diarrhoea very common. Chief want of hill stations, fresh vegetables and pure water. In rains, water loaded with rotten vegetable matter, causing diarrhoea.
	29. No experience.
	30. No experience.
	31. Approves. Troops should be located on hills with short service on plains. Accommodation not sufficient for convalescents at any hill station.
	32. No experience; but has no great confidence in hill stations. Considers that invalids should be sent to the sea-side.
	33. Has been in charge at Dugshai. During first season mortality large, more than one-half from hill diarrhoea; worst cases among men who had previously suffered from fever in Peshawur. Excess of cold caused much mortality. Health improved in second year. European troops should be located on well chosen hill stations with short service on plains.
	34. Approves strongly. No peculiar diseases at Darjeeling. Troops should be located on hills, with short service on plains. Present barrack and hospital accommodation here not sufficient for health or comfort.
	1. Site.—Three-quarters of a mile from Fort; partly open; site, "healthy for Calcutta."
	Water supply from tank.
	Drainage.—Imperfect; mere open surface drains, discharging into a foul open ditch, receiving the sewage of the gaol and hospital, 100 yards from the wards; a great nuisance.
	Construction.—Sick only on upper floors; roof water carried off by surface drains; walls, brick and mortar; verandahs, inner one frequently used for sick; buildings, 2 and 3 floors high; constructed in 1795.
	Accommodation.—Forty-two wards for 420 beds, at from 1,630 to 1,927 cubic feet, and from 78 to 181 square feet per bed. Numerous windows open to the floor.
	Ventilation by windows, doors, jhilmils; sufficient. A constant current through the wards and no closeness. Punks are used.
	Cleansing.—Walls and ceilings cleansed and whitewashed once yearly.
	Latrines 61 feet from wards, reached by covered passage; ordinary close stools emptied when used.

STATIONS.	REPLIES.
DINAPORE.	<p><i>Lavatory and baths.</i>—Hot and cold baths in each wing, besides ordinary bathing room.</p> <p><i>Hospital washing</i> in compound.</p> <p><i>Bedding.</i>—Wooden or iron cots, the latter preferable.</p> <p><i>Storage.</i>—Sufficient at ordinary times.</p> <p><i>Cooking.</i>—Common native cooking places and an open fire for roasting.</p> <p><i>Attendance.</i>—Hospital serjeant, two European ward masters, and native ward coolies. Proposed to introduce European female nurses, one to every 25 patients, to whom it would be "more grateful."</p> <p><i>Sanitary state.</i>—"As good as circumstances will allow."</p> <p><i>Convalescents.</i>—Special wards "superfluous," as "soldiers are generally kept in hospital till reported fit for duty."</p> <p><i>Female hospital.</i>—Buildings not very airy, but arrangements "most satisfactory."</p> <p>2. <i>Site.</i>—As healthy as can be obtained, but not well ventilated. That of temporary hospital somewhat better. Cook-houses and privies not judiciously placed.</p> <p><i>Water supply</i> from wells and river, abundant.</p> <p><i>Drainage</i> by pukka drains to river; temporary hospital drained into cesspools.</p> <p><i>Construction.</i>—Floors $1\frac{1}{2}$ to 2 feet above ground; no passage for air beneath; brick and mortar; verandahs 10 feet wide, used to accommodate sick when central ward is full. Buildings on one floor; erected in 1821, 1851, and 1859. Fig. 10 is a plan and section of this hospital, showing that it is only a long passage 633 feet in length, a most unsuitable construction for a hospital.</p>

FIG. 10.—PLAN OF EUROPEAN PERMANENT HOSPITAL AT DINAPORE.

Total length of Ward 633 feet; 150 Beds.

CROSS SECTION OF HOSPITAL.



CAWNPORE.

Accommodation.—Two wards for 128 and 150 beds respectively, at from 1,308 to 1,595 cubic feet and 77 to 88 square feet per bed.

Ventilation.—Wind does not blow across the permanent hospital. It does so in the temporary hospital; doors and skylights used in former; doors, openings, and roof ventilation in latter; ventilation sufficient in permanent hospital only when doors are open; sufficient at all times in the temporary one; tatties used for cooling.

Cleansing.—Limewashing twice a year, and every 3 months to the height of 6 feet.

Latrines over drains to the river bank; water supplied by hand; offensive in spite of use of lime and charcoal.

Lavatory and bath.—Shower and slipper baths; earthen dishes for the feet; lavatory with basins; water supplied by bheesties, turned on by a cock; "means sufficient."

Hospital washing by dhobies on river bank.

Storage ample; dry in dry season, "but damp, as all places are at the station, during the "rains."

Bedding.—Iron or wooden frames; mattress and pillows of country hemp; sheets and country blankets; bedside carpet.

Cooking.—Ordinary Indian cookhouse, with pots, pans, frying-pans, and spits, "which enable "an Indian cook to prepare anything."

Attendance.—Hospital serjeants for discipline, 20 ward coolies and 1 superintendent per regiment, "generally very kind and attentive;" a comrade in severe cases.

Sanitary state.—Generally good. No gangrene or pyæmia; cholera and fever have appeared at times.

Convalescents.—Walk on the roof of hospital and by river side. Often sent out on elephants or in doolies to take the air.

Female hospitals.—Two, with about 1,000 cubic feet, and 50 to 60 square feet, per bed; female attendants; "present arrangements satisfactory."

3. *Site* open and freely ventilated.

Water supply "abundant and good."

Drainage.—Only by surface drains; all impurities are conveyed to a distance daily.

Construction.—Stone floors $3\frac{1}{2}$ to 4 feet above ground; no ventilation beneath. Thatched roof with tiles. Double verandahs; inner ones used for sick when necessary. Building on one floor.

Accommodation.—Three wards of 24 beds each, at 2,349 cubic feet and 87 square feet per bed. When verandahs used, number of beds doubled.

Ventilation by doors and pipes carried through thatch. Hospital receives full benefit of prevailing winds. Means "sufficient."

Cleansing.—Walls and ceilings of wards cleaned and limewashed every six months or oftener.

Latrines 40 yards from hospital; consist of a shallow drain, and are offensive.

Lavatory and bath.—Small plunge bath, on the edge of which are placed vessels for washing; "neither sufficient nor convenient."

Hospital washing done at a distance.

Storage sufficient.

Bedding.—Iron and wooden bedsteads; two mattresses.

Cooking "tolerably well performed."

Attendance.—Hospital serjeant, orderlies, ward coolies; "sufficient."

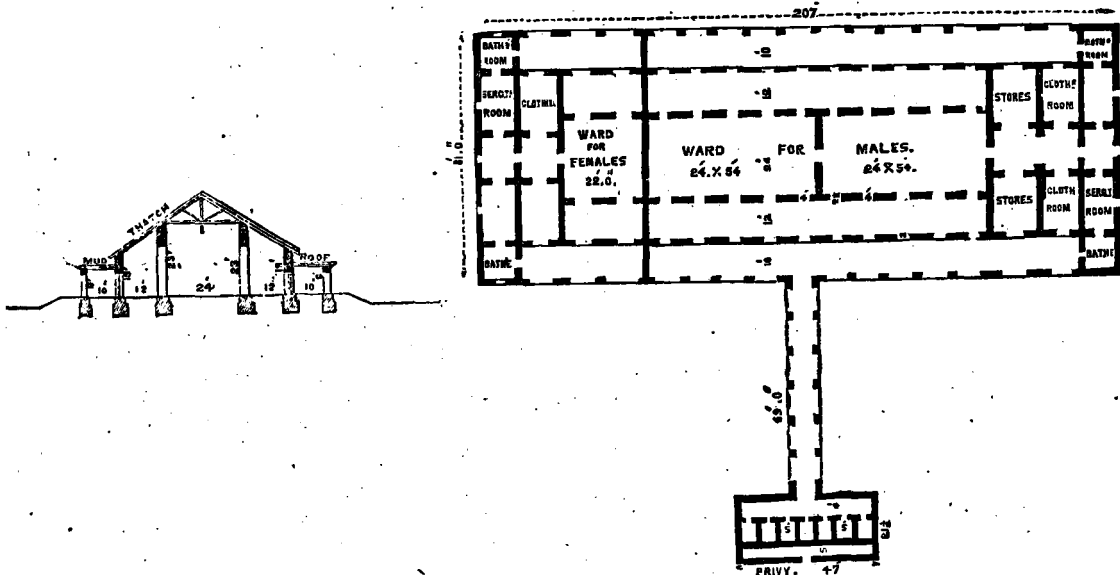
Sanitary state "tolerably good."

Convalescents are taken out on elephants and in spring bullock carts. No shady walks; no convalescent ward; one would be advantageous.

STATIONS.	REPLIES.
MERRUT.	<p><i>Female hospital.</i>—None; sick attended at present in their barracks.</p> <p>4. <i>Site open, freely ventilated, and healthy.</i></p> <p><i>Water supply</i> "abundant and wholesome."</p> <p><i>Drainage</i> by open masonry drains into tank and nullah.</p> <p><i>Construction.</i>—Floors 1 to 2 feet above ground; no passage for air beneath; materials brick and mortar; roof, tiles over thatch; verandahs all round, some double; inner one sometimes used for sick. Built in 1810, 1811, 1830, 1845, 1846, 1856.</p> <p><i>Accommodation.</i>—Four wards, containing 428 beds, at from 1,052 to 1,622 cubic feet, and from 67 to 78 square feet per bed. One of the wards contains as many as 160; another 100, and another 104 beds.</p> <p><i>Ventilation.</i>—Hospital receives full benefit of prevailing winds. Doors, windows, and circular holes in side walls, and also in roof. Kuskus tatties, and thermantidotes used for cooling the air.</p> <p><i>Cleansing.</i>—Limewashing annually, or oftener if required.</p> <p><i>Latrines</i> adjoin hospital; supplied with water; contents removed in filth carts; urinal has a cesspool.</p> <p><i>Lavatory and bath.</i>—One bath in lavatory; said to be "sufficient."</p> <p><i>Hospital washing</i> done by native washermen.</p> <p><i>Storage</i> sufficient.</p> <p><i>Bedding.</i>—Wooden bedsteads, hemp mattresses, sheets, and blankets; iron bedsteads recommended.</p> <p><i>Cooking.</i>—Common Indian kitchen; diets properly cooked.</p> <p><i>Attendance.</i>—Hospital serjeant and natives; no nurses; orderlies for special cases.</p> <p><i>Sanitary state</i> "excellent." No hospital disease.</p> <p><i>Convalescents.</i>—No wards, but such would be advantageous; elephants and doolies used for airing.</p>
AGRA.	<p><i>Female hospitals.</i>—Separate arrangements; "satisfactory."</p> <p>5. <i>Site open, healthy, and freely ventilated.</i></p> <p><i>Water supply</i> ample from wells, though generally very salt; several better wells used for drinking.</p> <p><i>Drainage.</i>—None except on surface; during hot and cold season the washing and bathing water spreads over ground and sinks into soil or evaporates. Main drain only runs after heavy rains.</p> <p><i>Construction.</i>—Hospital on single floor, raised 2½ feet, but no passage of air below; materials brick and mortar; thatched roof; double verandahs, inner one frequently used by sick or convalescents.</p> <p><i>Accommodation.</i>—Three wards; 120 beds, at from 1,320 to 2,135 cubic feet, and from 55 to 73 square feet per bed.</p> <p><i>Ventilation</i> by ridge ventilators, open doors, tatties, and thermantidotes; also punkahs; "sufficient."</p> <p><i>Cleansing.</i>—Whitewashing quarterly or oftener.</p> <p><i>Latrines</i> over cesspits, into which close stools are emptied; very offensive.</p> <p><i>Ablution and bath room.</i>—Bathing tubs; "sufficient for the purpose and convenient;" a wash-house being constructed.</p> <p><i>Hospital washing</i> done at a distance.</p> <p><i>Storage</i> sufficient.</p> <p><i>Bedding.</i>—Bedsteads of wood, hemp mattresses and pillows; cotton sheets, woollen blankets, or wadded cotton "resais."</p> <p><i>Cooking.</i>—Kitchen same as in barracks; "sufficient."</p> <p><i>Attendance.</i>—Hospital serjeant for discipline; regular establishment for European corps at ordinary times consists of 79 individuals, to whom are added in hot seasons 161 bheesties and coolies, making in all 240.</p> <p><i>Sanitary state.</i>—Hospitals "as free from disease as ground floor hospitals of this construction can be." All tropical hospitals should be two storied (the sick above).</p> <p><i>Convalescents.</i>—No wards; men sent to light duty in barracks; exercise by elephants and doolies; seats in verandahs and arm chairs.</p>
UMBALLA.	<p><i>Female hospital.</i>—One adjoining general hospital; "satisfactory."</p> <p>6. <i>Site open, freely ventilated, and healthy.</i> That of native infantry hospital near foul nullahs.</p> <p><i>Water supply</i> "wholesome, but very limited indeed."</p> <p><i>Drainage</i> by surface drains; all refuse water carried away.</p> <p><i>Construction.</i>—Hospitals on one floor, raised 3½ feet above ground; no passage of air beneath; built of burnt bricks and lime; thatched or tiled; verandahs on both sides; inner frequently used for sick; built in 1845-6, and 1859.</p> <p><i>Accommodation.</i>—31 wards; 356 beds, at from 1,500 to 1,872 cubic feet, and from 72 to 108 square feet per bed.</p> <p><i>Ventilation.</i>—Hospitals receive benefit of prevailing winds. Ventilation by doors, windows, and in ridge; "sufficient;" tatties and thermantidotes used for cooling.</p> <p><i>Cleansing.</i>—Limewashing once a year or oftener.</p> <p><i>Latrines</i> in rear of hospital; shallow cesspits cleansed daily.</p> <p><i>Ablution and bath room</i> has brass and earthenware basins along the wall; tubs for bathing. Inexpensive improvements could be made.</p> <p><i>Hospital washing</i> done at a distance.</p> <p><i>Storage</i> not sufficient.</p> <p><i>Bedding.</i>—Wooden bedsteads, tow mattresses, sheets, and country blankets; iron bedsteads required.</p> <p><i>Cooking</i> by usual Indian method; "much cannot be said in general in praise of the cooking, but it is sufficient."</p> <p><i>Attendance</i> "ample and liberal."</p> <p><i>Sanitary state</i> "satisfactory."</p> <p><i>Convalescents.</i>—No wards, but they "would be useful, as enabling the surgeon to regulate diet, exercise, and exposure of convalescents." Exercise by carts, elephants, and doolies. No shaded walks.</p>
LOODIANA.	<p><i>Female hospital.</i>—In separate buildings. A privy required for each.</p> <p>7. <i>Site open, freely ventilated.</i></p> <p><i>Water supply</i> abundant and wholesome.</p> <p><i>Drainage</i> by open natural surface drains. All impurities removed by sweepers.</p>

STATIONS.	REPLIES.
<p>FEROZPORE.</p>	<p><i>Construction.</i>—One ground floor ward of burnt bricks and lime. Closed verandah all round; used for sick when necessary; <i>Ventilation</i> by windows and skylights; "sufficient." <i>Cleansing</i> of walls and ceilings whenever required. <i>Storage</i> sufficient. <i>Attendance.</i>—One native doctor, one cooly, one water-carrier, one sweeper, "sufficient for ordinary wants of sick." <i>Sanitary state.</i>—No epidemic disease has appeared in ward. <i>Female hospital.</i>—Present arrangement "sufficient," (which means none). 8. <i>Sites</i> open, freely ventilated. <i>Water supply</i> from wells in hospital grounds. <i>Drainage.</i>—None; water from bath rooms allowed to sink into subsoil, as also roof water. "Drainage not necessary." <i>Construction.</i>—On one floor, built of brick and mortar; verandahs. Built in 1846. <i>Accommodation.</i>—Seven wards, 188 beds, 1,600 to 1,900 cubic feet, and 66 to 72 square feet per bed. <i>Ventilation.</i>—Prevailing winds admitted; doors 7 feet apart; ventilators in ridge; "sufficient;" punkahs, tatties, and a thermantidote used for cooling; warming by ordinary chimney fire-places for wood. <i>Cleansing</i> of walls and ceilings once a year or oftener. <i>Latrines.</i>—Same as in barracks; filth removed by sweepers; no cesspits; lime and wood ashes used to prevent smell. <i>Lavatory and bath</i> constructed in verandah corners; very deficient in infantry hospital. <i>Hospital washing</i> done in open air. <i>Storage</i> sufficient. <i>Bedding.</i>—Wooden bedsteads; bedding as in medical code. <i>Attendance.</i>—Hospital serjeant and natives; a soldier attends extreme cases. <i>Sanitary state.</i>—"Excellent." <i>Convalescents.</i>—No separate wards; patients use the regimental garden for exercise. <i>Female hospital.</i>—Separate wards, with native attendant; "satisfactory." Fig. 11 is a plan of one of the hospitals at Ferozepore, showing the double verandah construction, the position of the privies, and the provision for sick women and children, where there is no separate female hospital.</p>

FIG. 11.—PLAN OF THE HOSPITAL FOR THE ARTILLERY DIVISION, FEROZPORE.

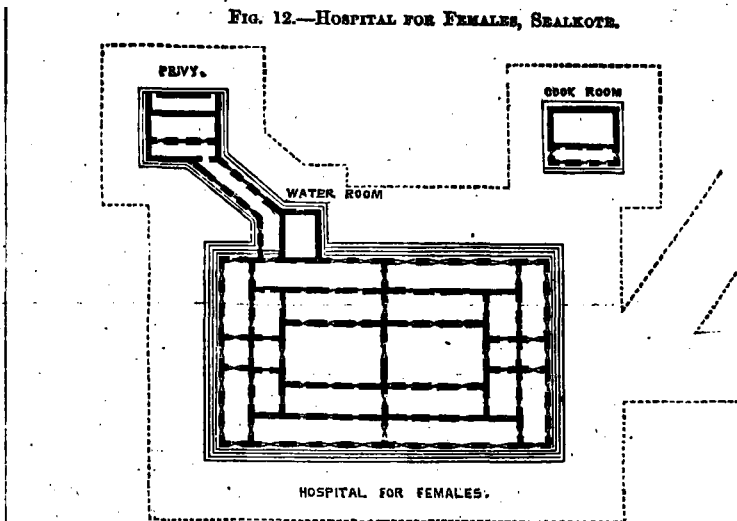


JULLUNDUR.

9. *Site.*—Open and healthy.
Water supply.—Abundant and wholesome.
Drainage.—None; all filth removed in carts; imperfect surface drains for roof water, which is not removed, but sinks into subsoil.
Construction.—Mud walls; verandahs all round; thatched roofs; floors 3 feet above ground; no passage of air beneath. Built in 1847-48.
Accommodation.—Three wards; 58 beds, at 902 to 1,728 cubic feet, and 57 to 72 square feet per bed.
Ventilation.—Free exposure to winds; ridge ventilation; no windows; cooling by punkahs and tatties; "sufficient."
Cleansing.—Walls and ceilings limewashed annually, or oftener.
Latrines.—"Well drained," and "seldom offensive."
Lavatories and baths.—Basins fixed in masonry; "gurrachs for douche baths," and tubs for warm baths.
Hospital washing done by a dhoby.
Storage sufficient.
Bedding.—Wooden bedsteads; "bedding good."
Cooking.—Ordinary kitchen; cooking generally good.
Attendance.—"Sufficient."
Sanitary state.—"Most healthy."
Convalescents.—No wards; "unnecessary." No provision for exercise, except hospital compound where there is no shade.

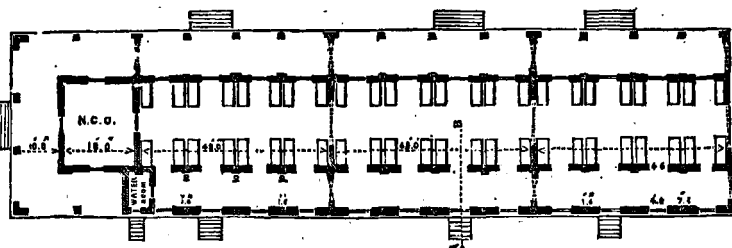
STATIONS.	REPLIES.
MEAN MEER.	<p><i>Female hospital.</i>—A ward for women and children, "with an ayah, when necessary."</p> <p>10. <i>Site.</i>—Two European hospitals on sites open and good. One occupies an area of 60,000 square yards.</p> <p><i>Water supply.</i>—Abundant and good, from a well within enclosure.</p> <p><i>Drainage</i> of wash-houses and cook-houses, either into deep covered cesspools or small shallow reservoirs, whence it is carried away daily; they are close to the hospital; surface drainage by small cut channels for roof and rain water.</p> <p><i>Construction.</i>—Solid masonry; floors raised 3½ feet above ground; no ventilation below. Verandahs 10 feet broad; outer ones not used for sick; on one side divided into compartments for wash-houses. "This bad system is detrimental to ventilation." Hospital built in 1854-55.</p> <p><i>Accommodation.</i>—In E1 hospital, 10 wards; 160 beds, at 1,728 cubic feet and 72 square feet per bed. Verandahs are occupied by sick on pressure.</p> <p><i>Ventilation.</i>—Full exposure to prevailing winds; doors, windows, and ridge openings; not sufficient if hospital were crowded; cooling by thermantidotes, punkahs, and tatties. Fire-places for warming.</p> <p><i>Cleansing.</i>—Partial whitewashing once a quarter.</p> <p><i>Latrines.</i>—Pans and moveable urinals; contents removed twice a day; "not ordinarily" "offensive, if kept clean."</p> <p><i>Lavatories and baths.</i>—In compartments walled off in outer verandah; tables with basins drained into a cesspool. Slipper baths and tubs in hospital for sick.</p> <p><i>Hospital washing</i> done seven miles away.</p> <p><i>Storage</i> scanty.</p> <p><i>Bedding.</i>—Same as in barracks.</p> <p><i>Cooking.</i>—Low mud or brick fireplaces with side ledges, to support pans and kettles; also brick fireplaces; "sufficient."</p> <p><i>Attendance.</i>—Hospital serjeant and two orderlies, with ward coolies; "enough."</p> <p><i>Sanitary state.</i>—"Splendid and commodious buildings." Improvements in cooling air; in latrines, &c., in progress; ventilation defective.</p> <p><i>Convalescents.</i>—No special wards; exercise by carts, elephants, and doolies.</p> <p><i>Female hospital.</i>—One within each hospital enclosure. Managed like the men's hospital.</p>
PESHAWUR.	<p>11. <i>Sites.</i>—Open; free ventilation; good drainage. No malaria.</p> <p><i>Water supply.</i>—Abundant and wholesome.</p> <p><i>Drainage.</i>—All refuse water, and other impurities, carted away; surface drains for removing rain and roof water.</p> <p><i>Construction.</i>—Wards raised 2 feet above ground; no ventilation beneath; double verandahs, inner ones used for sick when necessary; hospital on one floor.</p> <p><i>Accommodation.</i>—Three hospitals; 21 wards; 900 beds (including female hospital), at 1,320 cubic feet, and 66 square feet per bed.</p> <p><i>Ventilation.</i>—Opposite doors; swing windows; thermantidotes for cooling; fireplaces for warming.</p> <p><i>Cleansing of walls and ceilings</i> twice a year.</p> <p><i>Latrines and urinals.</i>—Same as in barracks; cleansed daily.</p> <p><i>Lavatory and bath.</i>—Incomplete and insufficient; no wash-houses; only a portion of outer verandah used; cold baths administered by leather bags or waterpots.</p> <p><i>Hospital washing and drying</i> out of station.</p> <p><i>Storage</i> crowded.</p> <p><i>Bedding.</i>—Same as in barracks, except that a chopped hemp mattress is allowed.</p> <p><i>Cooking.</i>—Kitchens, temporary mud buildings without doors or windows; "insufficient," but cooking "sufficient."</p> <p><i>Attendance.</i>—Hospital serjeant; native servants; an orderly, when necessary.</p> <p><i>Sanitary state.</i>—Good, except for ablution.</p> <p><i>Convalescents.</i>—No wards required; exercise, in doolies or on elephants.</p> <p><i>Female hospitals.</i>—Separate buildings, with matron and native female servants; "very satisfactory."</p>
SEALKOTE.	<p>12. <i>Site.</i>—Well ventilated and healthy.</p> <p><i>Water supply.</i>—Good.</p> <p><i>Drainage.</i>—Refuse water and other impurities removed in carts; surface drainage "ample" for removing roof water and rainfall.</p> <p><i>Construction.</i>—On one floor; brick masonry; tiled roofs; double verandahs (inner ones might hold sick, if necessary); floors of brick, raised 3 feet above ground; no ventilation beneath. Built in 1852-53.</p> <p><i>Accommodation.</i>—Ten wards; 160 beds, at 1,930 cubic feet and 78 square feet per bed.</p> <p><i>Ventilation.</i>—Free exposure to winds; ridge ventilators; windows opening in centre; cooling by punkahs and tatties; warming by fireplaces.</p> <p><i>Cleansing.</i>—Whitewashing twice a year; four times to the height of 6 feet.</p> <p><i>Latrines.</i>—Usual construction; filth removed daily in carts.</p> <p><i>Ablution and bath room</i> attached to each wing; plenty of water laid on from wells; baths in each room.</p> <p><i>Hospital washing</i> done at a distance.</p> <p><i>Storage</i> sufficient.</p> <p><i>Bedding.</i>—Wooden cots, "which so harbour bugs that they are constantly broken by the men" "in their efforts to expel the vermin, and the repeated repairs required are most expensive."</p> <p><i>Cooking.</i>—In kitchens similar to those of barracks.</p> <p><i>Attendance.</i>—One hospital serjeant; more permanent hospital orderlies required; nurses not employed, but strongly recommended.</p> <p><i>Sanitary state.</i>—"Highly satisfactory."</p> <p><i>Convalescents' wards.</i>—"Not necessary;" doolies and elephants used for exercise.</p> <p><i>Female hospitals.</i>—"Excellent" and "perfectly satisfactory." Fig. 12 gives a plan of this building, and also the construction of the more recent female hospitals in the north-west.</p>

FIG. 12.—HOSPITAL FOR FEMALES, SEALKOTE.

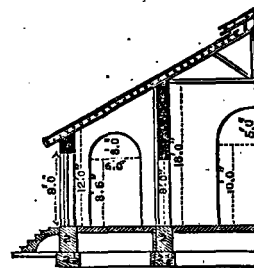


STATIONS.	REPLIES.
<p>MURREE. GHAZEEPORE.</p>	<p>13. No information. 14. <i>Site.</i>—Open, and “perhaps as good as could be chosen.” <i>Water supply.</i>—“Good.” <i>Drainage</i> by pukka brick drains. <i>Construction.</i>—Single story buildings, of pukka and kutcha bricks; tiled roofs; floors, 2 feet from ground; no ventilation beneath; verandahs sometimes used for sick. <i>Accommodation.</i>—Three wards, 156 beds, from 775 to 1,309 cubic feet, and 68 to 93 square feet per bed (100 beds have 775 cubic feet each). <i>Ventilation.</i>—Free outside; windows; roof ventilators; “sufficient.” <i>Cleansing.</i>—Limewashing on requisition. <i>Latrines</i> drained into cesspit, cleansed twice a day. <i>Lavatories.</i>—Same as in barracks; large baths required. <i>Hospital washing</i> done by dhobies. <i>Storage</i> sufficient. <i>Bedding.</i>—Same as in barracks, infested with bugs and other vermin, to the great distress of the sick. “Scalding the bedsteads with turpentine, corrosive sublimate, &c., is resorted to “to destroy these insects, but with very partial success.” Iron bedsteads required. <i>Cooking</i> “sufficient.” Kitchen of ordinary construction. <i>Attendance</i> “liberal.” <i>Sanitary state</i> “as perfect as means will allow.” “Of course all the buildings, generally, are most unsuitable for hospital purposes.” <i>Convalescents.</i>—Wards might be established; elephants and doolies for exercise; no shade. <i>Female hospital.</i>—None; sick treated in their own quarters.</p>
<p>BERHAMPORE.</p>	<p>15. <i>Site</i> objectionable; close to dry river bed; high walls impede ventilation, except in upper floor. <i>Water supply</i> from wells; requires filtration for use. <i>Drainage.</i>—Very imperfect, only one small drain communicating with a cesspool, 30 yards from hospital; not sufficient fall to carry off rain water speedily. <i>Construction.</i>—Brick and mortar; terraced roof; 2 floors. <i>Accommodation.</i>—Seven wards, 156 beds; 1,257 to 1,287 cubic feet; 64 to 66 square feet per bed. <i>Ventilation.</i>—Venetian doors in lower story; glazed doors in upper; openings above doors; punkahs; ventilation “sufficient.” <i>Cleansing.</i>—Limewashing twice a year. <i>Latrines.</i>—Thirty-six yards from hospital; iron pans 2 feet deep with metal covers; drainage very imperfect; native hospital has a cesspool. <i>Lavatory.</i>—Baked earthen basins; bath house with hot and cold baths, out of repair; wooden tubs used; very inconvenient. <i>Hospital washing</i> done at a distance. <i>Storage</i> sufficient. <i>Bedding.</i>—Wooden bedsteads; mattress and pillows of hemp; sheets and country blankets. <i>Cooking.</i>—Usual kitchen utensils; “sufficient.” <i>Attendance.</i>—Hospital serjeant and orderlies from regiment; trained orderlies would be greatly preferable. <i>Sanitary state.</i>—No sick on lower floor at present; upper floor satisfactory; improved drainage and baths required. <i>Convalescents.</i>—No wards; only the verandahs; no shaded walks or seats. <i>Female hospital.</i>—One ward set apart for sick; same medicines and comforts supplied as for men; 1 anna a day deducted as stoppage.</p>
<p>HAZAREEBAUGH.</p>	<p>16. <i>Site.</i>—Open, freely ventilated, healthy and unexceptionable. <i>Water supply</i> good and sufficient. <i>Drainage.</i>—Rain drains off by a ditch in front and outside hospital wall; all sewage from privies, cook-room, &c. removed by carts. <i>Construction.</i>—Stone, burnt bricks and mortar, sun-dried bricks and mud; roof, tiled over thatch; verandahs; floors 4 feet above ground; no passage for air beneath; 1 floor built in 1858-59. Fig 13. shows one-half of one of the hospitals at this station, and also the usual arrangement of beds in single verandahed hospitals.</p>

FIG. 13.—STANDARD PLAN OF THE HOSPITALS AT HAZAREEBAUGH.



SECTION ON A. B.



STATIONS.	REPLIES.
	<p><i>Accommodation.</i>—Six wards, 96 beds; 1,080 cubic feet, 60 square feet per bed. <i>Ventilation.</i>—Hospital broadside to wind; wooden doors; no windows except fan-lights over doors; roof ventilators; glass doors, and Venetians suggested; cooling by punkahs; other means unnecessary; warming by open fireplaces. <i>Cleansing.</i>—Limewashing once a year, or oftener on requisition. <i>Latrines.</i>—On standard plan; contents removed 2 miles from barracks; lime and charcoal used. <i>Lavatory.</i>—Water laid on to each basin; dirty water drained away by covered drains; “sufficient;” no baths; “sick wash in the basins of the lavatory, and can always afterwards, if they please, get a skin full of water thrown over them by the water-carriers.” <i>Hospital washing</i> done by dhobies (5 allowed for a corps) at a distance. <i>Storage</i> not dry enough; stores at present in the female hospital. <i>Bedding.</i>—Iron-hooped cots; mattresses seldom sufficiently thick to prevent the patients feeling the hoops; pillows stuffed with country hemp; sheets and blankets. <i>Cooking.</i>—Ordinary Indian arrangements; pay too small to secure services of cooks, “with even moderate pretensions to the name;” plain roasting, boiling, &c., all that can be expected. “No delicacy of any kind, likely to tempt the capricious appetite of a sick man, could be prepared by these miserable pretenders.” <i>Attendance.</i>—Usual arrangements; “European nurses, professionally trained, might be most advantageously introduced into the hospitals in this country.” <i>Sanitary state</i> “very good;” “but more light would be an advantage.” <i>Convalescents.</i>—No wards; convalescents sent back to barracks; no shaded walks, except verandahs; elephants used for exercising. <i>Female hospital.</i>—One, 5 wards; 80 beds; 1,080 cubic feet and 60 square feet per bed; female attendants; arrangements very good and satisfactory.</p>
ALLAHABAD.	<p>17. <i>Site.</i>—The best in the lines. <i>Water supply</i> good and wholesome, filtered through sand and charcoal. <i>Drainage.</i>—Very imperfect, inadequate during rains; roof-water mostly sinks into subsoil, only shallow narrow surface drains. <i>Construction.</i>—Floors level with ground; total want of ventilation beneath; materials, baked and sun dried brick; thatch and tile roofs, insufficient for coolness; verandahs 15 feet wide, sometimes used for sick; buildings on one floor. <i>Accommodation.</i>—Four hospitals; 9 wards; 780 beds; seven wards have 100 beds each, with from 990 to 2,033 cubic feet; and from 40 to 88 square feet per bed; built in 1858-59. <i>Ventilation.</i>—Hospitals face the wind; in most instances no windows, except openings over doors, and openings in roof; ventilation very defective, especially when doors have to be closed; tatties used for cooling; no means of warming. <i>Cleansing.</i>—Limewashing on requisition. <i>Latrines</i> of usual construction, cleansed daily. <i>Lavatory.</i>—Cast-iron basins, lined with porcelain on benches; water supplied from wells by bheesties; distance from hospital too great; no baths. <i>Hospital washing</i> by washermen, well done. <i>Storage.</i>—Of small sun dried bricks, tolerably dry. <i>Bedding.</i>—Wooden bedsteads, fragile; harbour vermin; constantly requiring repairs. <i>Cooking.</i>—Usual kitchen apparatus; proper cooking stoves required; want of suitable apparatus for roasting and grinding coffee. <i>Attendance</i> “ample;” besides usual provision, 6 European nurses in general hospital, found to add much to comfort of sick. <i>Sanitary state</i> “good;” but cholera has occurred; hospitals merely temporary, and deficient in many requirements. <i>Convalescents.</i>—No wards; exercise on elephants; no shade. <i>Female hospital.</i>—None; wards set apart in other hospitals; female attendants allowed.</p>
DUMDUM.	<p>18. <i>Site.</i>—Generally healthy. <i>Water supply.</i>—Wholesome, but not abundant. <i>Drainage.</i>—By surface drains. Lavatory water conveyed away with roof water. Other foul water flows into a pit and is carried away daily. <i>Construction.</i>—One-storied; raised on brick arches 3 feet above ground, with free ventilation beneath. Masonry walls. One hospital iron-framed. Verandahs used for sick when centre wards full. <i>Accommodation.</i>—Main hospital, 20 wards; iron-framed hospital, 7 wards; native hospital, 6 wards; female hospital, 9 wards; total beds, 390, at from 1,072 to 1,637 cubic feet and 78 square feet per bed. <i>Ventilation.</i>—Full benefit of prevailing winds. Numerous doors and windows. Ventilating skylights. Punkahs for cooling. <i>Cleansing.</i>—Limewashing once a year, or on requisition. <i>Latrines.</i>—Usual construction. Contents removed by cart every morning. <i>Lavatory.</i>—Metal basins. Water laid on. Hot, warm, and shower baths. <i>Hospital washing.</i>—Done by dhobies. <i>Storage.</i>—Sufficient. <i>Bedding.</i>—Wooden bedsteads. Iron bedsteads, with coir mattresses, are to be introduced. <i>Cooking.</i>—Usual arrangements. Cooks not highly paid, and of the worst description.</p>

STATIONS.	REPLIES.
BENARES.	<p><i>Attendance.</i>—Usual arrangements. When sick men cannot quit their beds, one or two comrades are allowed to attend them.</p> <p><i>Sanitary state.</i>—Satisfactory.</p> <p><i>Convalescents.</i>—No wards. Not required. Walks, but no shade. Exercise given by an ambulance bullock waggon.</p> <p><i>Female hospital.</i>—One with 23 beds. Female attendants but no matron. An experienced nurse, capable of assisting at confinements, required.</p> <p>19. <i>Site.</i>—Generally healthy.</p> <p><i>Water supply.</i>—Abundant and good.</p> <p><i>Drainage.</i>—None; roof water sinks into ground; refuse water removed in filth carts.</p> <p><i>Construction.</i>—On one floor. Raised 2 feet above ground. No ventilation beneath. Materials, bricks, with thatched roof. Verandahs all round.</p> <p><i>Accommodation.</i>—6 wards; 176 beds, at 1,161 to 1,584 cubic feet, and 72 to 75 square feet per bed.</p> <p><i>Ventilation.</i>—Hospitals exposed to prevailing winds. Doors numerous on opposite sides. Windows few. These with ridge ventilation sufficient. Cooling by tatties.</p> <p><i>Cleansing.</i>—Limewashing twice a year, or oftener.</p> <p><i>Latrines.</i>—Iron pans, emptied twice a day.</p> <p><i>Lavatory.</i>—Sufficient. A proper bath-room required.</p> <p><i>Hospital washing.</i>—By native washermen.</p> <p><i>Storage.</i>—Sufficient.</p> <p><i>Bedding.</i>—Wooden cots, inferior tow mattresses, coarse blankets. English blankets required.</p> <p><i>Cooking.</i>—Usual arrangements; "sufficient."</p> <p><i>Attendance.</i>—Usual provision.</p> <p><i>Sanitary state.</i>—Good.</p> <p><i>Convalescents.</i>—No wards. No shaded walks. Take airing morning and evening on elephants and in ambulances along public roads.</p> <p><i>Female hospital.</i>—A small one; but a larger, with a lying-in-ward, is required.</p>
LANDOUR.	<p>20. <i>Site.</i>—Unobjectionable.</p> <p><i>Water supply.</i>—Sufficient for culinary, drinking, and ordinary washing purposes; not for bathing.</p> <p><i>Drainage.</i>—Natural, on surface. Water runs down steep slopes and ravines.</p> <p><i>Construction.</i>—Stone and lime; terraced roof. Verandahs. One floor, raised 2 feet above ground, with passage for air beneath. Built in 1846.</p> <p><i>Accommodation.</i>—4 wards, 60 beds; 935 to 996 cubic feet, 53 to 55 square feet per bed.</p> <p><i>Ventilation.</i>—Sufficient, from position of hospital; doors, windows, and ventilators in the wall. No cooling required. Warming by open fireplaces, 2 in each ward.</p> <p><i>Cleansing.</i>—Limewashing twice a year, or oftener.</p> <p><i>Latrines.</i>—Drained; never offensive.</p> <p><i>Lavatory.</i>—Brazen vessels filled from a trough; portable baths.</p> <p><i>Hospital washing.</i>—Done at a distance.</p> <p><i>Storage.</i>—Sufficient.</p> <p><i>Bedding.</i>—Wooden bedsteads; bedding very good. All cots should be of iron.</p> <p><i>Cooking.</i>—Means "sufficient."</p> <p><i>Attendance.</i>—Hospital serjeant, selected by chance or necessity from the sick men on arrival. A great grievance, repeatedly but fruitlessly represented. Orderlies obtained from barracks. No nurses.</p> <p><i>Sanitary state.</i>—Hospital has been remarkably free from disease.</p> <p><i>Convalescents.</i>—Wards not necessary. Weakly men carried out in sedan chairs. Little available ground for exercise.</p> <p><i>Female hospital.</i> None; sick obliged to be taken into a spare ward.</p>
MUTTRA.	<p>21. <i>Site.</i>—Cavalry hospital good. Artillery hospital too near the city, with a dry nullah close to it.</p> <p><i>Water supply.</i>—Good.</p> <p><i>Drainage.</i>—No drains; refuse water and other impurities collected in cesspools and removed daily.</p> <p><i>Construction.</i>—Burnt and unburnt bricks. Tiled and thatched roofs. Verandahs; inner ones very frequently used for sick. Single-storied. Floors 2½ feet from ground. No passage for air beneath.</p> <p><i>Accommodation.</i>—3 wards, 48 beds; square feet per bed, 64 to 75; cubic feet per bed, 1,350 to 1,422; the new female hospital used for cavalry.</p> <p><i>Ventilation.</i>—(External) of cavalry hospital good; of artillery hospital not so. No windows; doors opposite each other, with roof ventilators. Thermantidotes for cooling.</p> <p><i>Cleansing.</i>—Walls swept down weekly; whitewashed annually, or oftener.</p> <p><i>Latrines.</i>—Copper pans. Contents carted away every morning for combustion in one of the many brick-kilns that surround the station and help to poison the air. Privy drainage runs into cesspool. No supply of water except by bheesties.</p> <p><i>Lavatory.</i>—Earthen pans or basins, and earthen vessels filled with water; not convenient. No means of bathing but a moveable warm and slipper bath.</p> <p><i>Hospital washing</i> done at the river.</p> <p><i>Storage.</i>—Sufficient.</p> <p><i>Bedding.</i>—Common cots, with tow mattresses, and pillows, &c.</p> <p><i>Cooking arrangements</i> "sufficient."</p> <p><i>Attendance.</i>—Insufficient; more European supervision required. "In times of increased sickness, apathy and laziness of natives always embarrassing, and a source of complaint and discontent to the patient."</p> <p><i>Sanitary state.</i>—Fair; but, as a general rule, hospitals are badly lighted and gloomy. Light enters from a couple of panes in the doors near the top; and, when closed, darkness almost complete. Windows wanted.</p> <p><i>Convalescents.</i>—No wards. Sick exercised on elephants, or in doolies.</p> <p><i>Female Hospital.</i>—One for cavalry (part of the old cavalry hospital); none for artillery.</p>
RANERGUNGE.	<p>22. <i>Site.</i>—Healthy.</p> <p><i>Water supply.</i>—Good, but has to be brought from a distance.</p> <p><i>Drainage.</i>—Roof water sinks into subsoil; no drains; refuse water and other impurities are carried away in carts and buckets.</p>

STATIONS.	REPLIES.
UMRITSIR.	<p><i>Construction.</i>—On one floor; 18 inches above ground; no ventilation beneath; brick, stone, and mud; verandahs all round. Built in 1857-60.</p> <p><i>Accommodation.</i>—Three wards; 114 beds at from 765 to 1,450 cubic feet and from 45 to 70 square feet per bed.</p> <p><i>Ventilation.</i>—Exposed to winds by doors; no means of cooling.</p> <p><i>Cleansing.</i>—Limewashing every six months or oftener.</p> <p><i>Latrines.</i>—"Naturally drained;" contents removed daily.</p> <p><i>Lavatory.</i>—"Sufficient;" no baths.</p> <p><i>Hospital washing at a distance.</i></p> <p><i>Storage very imperfect.</i></p> <p><i>Bedding.</i>—Wooden cots, mattress, and cotton quilt.</p> <p><i>Cooking.</i>—Kitchen very imperfect.</p> <p><i>Attendance.</i>—Hospital serjeant; natives; regimental orderlies, if required.</p> <p><i>Sanitary state.</i>—"Good;" hospital sufficient for temporary purposes; far from being complete; ventilation and lavatory very bad.</p> <p><i>Convalescents.</i>—No ward; no provision for exercise.</p> <p><i>Female hospital.</i>—Separate building; "satisfactory."</p> <p>23. <i>Site.</i>—Healthy.</p> <p><i>Water supply.</i>—Abundant and wholesome.</p> <p><i>Drainage.</i>—No sewers; refuse water and other impurities otherwise removed; roof water evaporates or is absorbed.</p> <p><i>Construction.</i>—Bricks and mortar; verandahs; one floor only; raised 2 feet from ground; no ventilation below.</p> <p><i>Accommodation.</i>—Two wards; 20 beds each, at 1,420 cubic feet and 71 square feet per bed.</p> <p><i>Ventilation.</i>—Windows, ridge openings, punkahs, tatties, and thermantidotes; hardly sufficient; warming in winter months by stoves.</p> <p><i>Cleansing.</i>—Limewashing once a year.</p> <p><i>Latrines.</i>—"If the filth is removed directly, which it should be, they would not be offensive."</p> <p><i>Lavatory.</i>—Sufficient; a large moveable bath for sick.</p> <p><i>Hospital washing</i> by dhobies attached to hospital.</p> <p><i>Bedding.</i>—Wooden cots; tow mattresses, &c.</p> <p><i>Cooking.</i>—Native kitchen; "sufficient."</p> <p><i>Attendance.</i>—"Sufficient."</p> <p><i>Sanitary state.</i>—"Good;" no epidemic, "with the exception of cholera," has appeared in wards.</p> <p><i>Convalescents.</i>—No wards; would be advantageous only at large stations, where there are general hospitals. No shaded walks.</p> <p><i>Female hospital.</i>—A small bungalow; "very unsatisfactory."</p>
NYNER TAL.	<p>24. <i>Site.</i>—Healthy; freely ventilated.</p> <p><i>Water supply.</i>—Good.</p> <p><i>Drainage.</i>—None required.</p> <p><i>Construction.</i>—Two floors; lowest 6 inches above ground, highest 10 feet; materials, rubble, stone and lime; open verandahs all round.</p> <p><i>Accommodation.</i>—Eleven wards; 45 beds. Patients fluctuate from 50 to 3.</p> <p><i>Ventilation.</i>—Scarcely possible to ventilate properly, too many windows; situation exposed; draught too strong; warming by open fires in winter.</p> <p><i>Cleansing.</i>—Limewashing all over once a year; every three months 6 feet high.</p> <p><i>Latrines</i> kept clean by sweepers.</p> <p><i>Lavatory.</i>—Chatties and tubs for washing; no baths; sick bathe in lake.</p> <p><i>Hospital washing</i> by washermen.</p> <p><i>Storage</i> sufficient.</p> <p><i>Bedding.</i>—Wooden cots.</p> <p><i>Attendance.</i>—One hospital serjeant; one European barber; one European orderly.</p> <p><i>Sanitary state.</i>—Healthy; "during rains, however, open surfaces of blisters, &c., do not heal kindly."</p> <p><i>Convalescents.</i>—All are so; exercise in chairs carried by coolies; shaded walks.</p> <p><i>Female hospital.</i>—One separate room. All the present arrangements temporary and unsatisfactory.</p>
RAWUL PINDI.	<p>25. <i>Site.</i>—Open and freely ventilated.</p> <p><i>Water supply.</i>—From well in compound; abundant and most excellent.</p> <p><i>Drainage.</i>—None; refuse water runs into cesspools; emptied daily.</p> <p><i>Construction.</i>—One-storied; floor 2 feet above ground; no ventilation below; double verandahs, inner one only used for special cases of sickness. Built 1853-57.</p> <p><i>Accommodation.</i>—One ward; 20 beds, 1,900 cubic feet, 95 square feet per bed.</p> <p><i>Ventilation.</i>—By doors on opposite sides, pivot windows, ridge ventilators; always sufficient; cooling by tatties and punkahs; fireplace in each verandah.</p> <p><i>Cleansing.</i>—Limewashing once a year or oftener.</p> <p><i>Latrines.</i>—Contents removed daily.</p> <p><i>Lavatory.</i>—Small washing-room to each wing; not sufficient for sick nor their utensils; a plunge bath in each wing, not used because not considered beneficial.</p> <p><i>Hospital washing</i> by dhobies.</p> <p><i>Storage</i> not sufficient.</p> <p><i>Bedding.</i>—Wooden bedsteads, highly objectionable, cumbersome, unsightly, become filled with bugs, causing loss of sleep and positive injury; iron bedsteads required; bedding suitable.</p> <p><i>Cooking.</i>—In ordinary Indian kitchen.</p> <p><i>Attendance</i> sufficient.</p> <p><i>Sanitary state.</i>—"Good," with the exceptions mentioned.</p> <p><i>Convalescents.</i>—No wards; no shaded walks; exercise in doolies.</p> <p><i>Female hospital.</i>—A special ward; "satisfactory."</p>
LUCKNOW.	<p>26. <i>Site.</i>—Good; best available.</p> <p><i>Water supply.</i>—Sufficient.</p> <p><i>Drainage.</i>—None; only on surface.</p> <p><i>Construction.</i>—Burnt bricks and lime; tiled roofs; verandahs; floors raised 3 feet; no passage of air beneath; built 1859.</p> <p><i>Accommodation.</i>—Ten wards, with a number of small rooms, 2,737 cubic feet, and 75 square feet per bed.</p>

STATIONS.	REPLIES.
CHUNAR.	<p><i>Ventilation.</i>—Windows on pivots near top of wall; doors; ventilating tiles in ridge; cooling by tatties.</p> <p><i>Cleansing.</i>—Limewashing once a year, oftener if necessary.</p> <p><i>Latrines.</i>—Too close to main buildings; water supply not sufficient; contents removed by sweepers.</p> <p><i>Lavatory.</i>—A small room to each ward; patients wash in tubs or earthen vessels without arrangement; one or two masonry baths; barely sufficient.</p> <p><i>Hospital washing</i> by dhobies.</p> <p><i>Storage.</i>—Quite sufficient.</p> <p><i>Bedding.</i>—Wooden cots, mattress, &c.; iron cots better.</p> <p><i>Cooking.</i>—Good and sufficiently varied.</p> <p><i>Convalescents.</i>—No special wards; exercise in verandahs or on elephants.</p> <p><i>Female hospitals.</i>—Provided; “quite satisfactory.”</p> <p><i>Sanitary state.</i>—“Good.” Larger and better bathing houses would be an improvement.</p> <p><i>27. Site.</i>—Partially open and freely ventilated only to the north and west.</p> <p><i>Water supply</i> abundant.</p> <p><i>Drainage.</i>—Surface guttering, with an outlet 30 yards distant; insufficient.</p> <p><i>Construction.</i>—Stone and lime; verandahs; inner ones occasionally used for sick or convalescents; building one-storied; floor, 6 feet above ground; no ventilation beneath.</p> <p><i>Accommodation.</i>—Four wards, 46 beds, at 1,187 to 1,316 cubic feet, and 68 to 87 square feet per bed.</p> <p><i>Ventilation.</i>—No windows; numerous doors, with ridge openings; occasional closeness in hot weather; cooling by punkahs and tatties.</p> <p><i>Cleansing.</i>—Limewashing once a year, or oftener.</p> <p><i>Latrines.</i>—Fifty feet from hospital; cleansed in the usual Indian way; “not more offensive than such places are in this country.”</p> <p><i>Lavatory.</i>—Part of verandah; also serving as bath room; “sufficient.”</p> <p><i>Storage</i> sufficient.</p> <p><i>Bedding.</i>—Cane-bottomed bedsteads; tow mattress, &c.</p> <p><i>Cooking.</i>—Indian and English cooking apparatus; cooking properly done, and varied according to order.</p> <p><i>Attendance.</i>—Hospital serjeant and usual native establishment; in serious cases “a waiting man from the battalion, who is relieved daily;” not sufficient.</p> <p><i>Sanitary state.</i>—“Healthy;” position of latrines and kitchen not good; buildings interfere with ventilation.</p> <p><i>Convalescents.</i>—No wards; exercise taken by river side or on ramparts.</p> <p><i>Female hospital.</i>—In same compound as male hospital; two wards, “satisfactory,” but a nurse required.</p>
ROOKEE.	<p><i>28. Hospital</i> is a barrack.</p> <p><i>Ventilation.</i>—By holes in roof; “sufficient;” no means of cooling.</p> <p><i>Cleansing.</i>—Limewashing once a year.</p> <p><i>Latrines.</i>—Cleansed by sweepers.</p> <p><i>Lavatory.</i>—A small shed; “sufficient;” a bathing tub and foot bath, also “sufficient.”</p> <p><i>Hospital washing.</i>—By washermen.</p> <p><i>Storage</i> sufficient.</p> <p><i>Bedding.</i>—Wooden cots, harbouring bugs; iron better.</p> <p><i>Cooking.</i>—Kitchen simply a hut; cooks prepare food on ground; “this arrangement is not good, but we are accustomed to it in India.”</p> <p><i>Attendance.</i>—Not sufficient; “healthy men are detached for this duty from the barracks, but they dislike it, and often neglect their patients.”</p> <p><i>Sanitary state</i> “good.”</p> <p><i>Convalescents.</i>—No ward; exercise morning and evening, sometimes on elephants; extra doolies required.</p> <p><i>Female hospital.</i>—One; “sufficient.”</p>
JHANSI. BARRACKPORE.	<p><i>29. Hospitals</i> not yet built. A barrack used temporarily. No female hospital.</p> <p><i>30. Site</i> open; generally healthy.</p> <p><i>Water supply</i> from tank close to hospital; abundant and generally wholesome.</p> <p><i>Drainage</i> by open masonry; drains to river; “sufficient.”</p> <p><i>Construction.</i>—An iron-framed building with verandah; one immense hall, 411 feet long, 38½ feet wide, and 23 feet 8 inches high. Verandahs. Building on one floor 3 or 4 feet high, and planked over.</p> <p><i>Accommodation,</i> 150 beds, all in one ward (60 beds on each side, 30 beds down the middle), at 1,809 cubic feet, and 86 square feet per bed.</p> <p><i>Ventilation</i> by doors and openings in ridge; “sufficient.”</p> <p><i>Cleansing.</i>—Limewashing annually, or oftener.</p> <p><i>Latrines</i> of usual construction. Contents removed daily.</p> <p><i>Lavatory</i> attached to hospital. Two bath rooms with two baths in each. Earthen dishes used for ablution.</p> <p><i>Hospital washing</i> by dhobies.</p> <p><i>Storage</i> insufficient. Bedding and clothing partly kept in verandahs, and injured by wet or damp (since remedied).</p> <p><i>Bedding.</i>—Wooden bedsteads; tow mattresses.</p> <p><i>Cooking</i> “sufficient.”</p> <p><i>Attendance.</i>—Usual establishment. Comrades allowed in serious cases.</p> <p><i>Sanitary state</i> good, but more accommodation in the way of store rooms and small wards required.</p>
DELHI. MORAB GWALIOR.	<p><i>Convalescents.</i>—No wards; not needed. No provision for exercise, except verandahs. Weakly men taken out on elephants.</p> <p><i>Female hospital,</i> none. “Certainly desirable.”</p> <p><i>31. No regular hospital.</i> A temporary hospital of bricks, stone and mortar, on one floor. Too much surrounded by walls and other buildings for free ventilation. No windows, only doors. Ventilation of wards by doors and openings. Latrines of usual construction. Lavatories with iron and wooden baths. Cooking pretty well done. Whole arrangements temporary.</p> <p><i>32. Present hospital</i> an old barrack, on an open airy site, but has a sluggish malarious nullah in front.</p> <p><i>Water supply.</i>—Any amount available.</p>

STATIONS.	REPLIES.
JUBBULPORE.	<p><i>Drainage</i> into cesspits constantly emptied. <i>Construction</i>, on one floor, raised 5 to 6 feet above ground. <i>Accommodation</i>.—Five wards, 100 beds, 1,540 cubic feet, and 103 square feet per bed. <i>Ventilation</i>.—No windows, only doors. <i>Lavatory</i>, temporary. Sick bathed in tubs. Neither sufficient nor convenient. <i>Storage</i> indifferent. None properly so called. Sometimes tents used, sometimes part of the hospital when there is room. <i>Cooking</i>.—Kitchen "not commodious." <i>Sanitary state</i> in every respect objectionable. New hospital much required. <i>"No women and no hospital, which arrangements are very unsatisfactory."</i> 33. <i>Site</i>.—Generally good. <i>Water supply</i> abundant. <i>Drainage</i> by open pukka drains. No provision for conveying away the roof water. <i>Construction</i>—Unfinished; on one floor; raised 2 feet above ground; no ventilation beneath. Materials brick and lime. Tiled roofs. Verandahs. <i>Accommodation</i>.—Three wards, 60 beds; 1,768 cubic feet and 81 square feet per bed. <i>Ventilation</i>.—No windows; doors half glazed; 15 on each side. A ventilator in each door. Apertures at top of wall and in roof. Sufficient; tatties for cooling. <i>Cleansing</i>.—Limewashing twice a year. <i>Latrines</i> connected with a cesspit cleansed daily by filth carts. <i>Lavatory</i> at the ends of verandahs. Bath room under same roof as latrines, but separated "sufficient." <i>Hospital washing</i> by dhobies. <i>Storage</i> unfinished. <i>Bedding</i>.—Wooden bedsteads; iron better. <i>Cooking</i> sufficient. <i>Attendance</i>.—Hospital serjeant and two orderlies, increased as required. <i>Convalescents</i>.—Wards none, such would undoubtedly be advantageous. Only verandahs for exercise. <i>Female hospital</i>, none. Treated in barrack rooms. "A most unsatisfactory arrangement." <i>Sanitary state</i>.—Hospital incomplete. No dead house, &c.</p>
DARJEELING.	<p>34. <i>Site</i>.—Far too exposed. <i>Water supply</i>.—Good and sufficient. <i>Drainage</i>.—Not carried far enough down hill. Means of conveying away roof water bad. Surface drainage and guttering insufficient. <i>Construction</i>.—Brick and mortar; one story; with verandahs. <i>Accommodation</i>.—Two wards; 34 beds, 1,100 cubic feet, and 75 square feet per bed. <i>Ventilation</i>.—By windows and doors; insufficient light; insufficient ventilation. Warming by fireplaces. <i>Cleansing</i>.—Limewashing once a year; too seldom. <i>Latrines</i>.—Under same roof as hospital; very badly drained; water supply defective; state offensive. Western verandah was used for accommodating sick, when patients obliged to leave wards on account of effluvia from privy. This was shut up "after five years writing about it." <i>Lavatory</i>.—Close to privy; cold and offensive from its proximity. No fireplace in it. Several men have to wash in same utensil, and to dry with same towel several days running. "In fact, the inducements to remain dirty are, especially in the case of sickly men, greater than those to be clean." No means of bathing, properly so called. <i>Hospital washing</i>.—Means sufficient, except during rains. <i>Storage</i>.—Not sufficient. <i>Bedding</i>.—No cots; only barrack bedsteads; far too narrow for sick men. Mattresses stuffed with coarse hemp; hard, lumpy, and furrowy. Blankets and pillows very inferior. "Last year's supply" almost all "worm-eaten;" had been previously used in the plains. <i>Cooking</i>.—Cooks not numerous enough, nor sufficiently paid. Impossible to get anything like a good cook for the trifling wages. <i>Attendance</i>.—"Sufficient up here," but hospital serjeant and orderlies should be better paid. <i>Sanitary state</i>.—"Bad." <i>Convalescents</i>.—No wards. Wards would be an advantage. No provision for exercise. <i>Female hospital</i>.—None. Women and children treated in their own quarters. Would be satisfactory enough if the married quarters were not so dark and damp as they are.</p>
XXI. BURIAL OF THE DEAD.	<p>Every station has a British burial ground, situated at a proper distance from cantonments. The grounds are generally well kept, and of suitable soil. One body is buried in a grave; rarely re-opened, except for relatives. One or two of the low lying grounds appear to be wet. But no nuisance or injury to health is ever said to arise from any of them. A burial takes place generally as soon as arrangements can be made, 12 to 24 hours after death. Mohametans bury their dead in separate grounds; generally at a considerable distance from barracks. Their practice of burial is not so careful as that in the British grounds. And sometimes considerable nuisance arises from the dead becoming partially exposed by wild animals or by heavy rains. Near large cities, the grounds become at times very offensive; and better regulations on the part of the authorities appear to be called for. Hindoos burn their dead, and throw the remains, more or less imperfectly consumed, into the rivers. The burning ghats are sometimes too close to the stations, and give rise to nuisance. At other times, the poor merely singe the body, and throw it into the river. Some additional regulation in these matters appears to be required at certain stations.</p>

MADRAS PRESIDENCY.

ABSTRACT OF SANITARY DETAILS IN RETURNS FROM PRINCIPAL STATIONS WHERE THERE IS ACCOMMODATION FOR BRITISH TROOPS.

Replies to the questions issued by the Commission have been received from 49 stations in the Madras Presidency and its dependencies, at 29 of which there is accommodation for European troops.

A number of these were occupied solely by native troops at the time the returns were made.

The following abstract is confined to the more important stations where the largest number of European troops have been located.

The lowest stations are *Fort St. George* and *Poonamallee* on the level of the sea. The highest occupied purely as a military station is *Bangalore*, 3,000 feet above the level of the sea.

There are two hill stations, *Ramandroog* and *Wellington*, the former 3,300, the latter 6,000 feet above the sea.

About 8,500 men are barracked at elevations between the sea level and 1,000 feet above.

About 4,500 are placed at heights between 1,000 and 1,800 feet. Nearly 1,700 are barracked at *Bangalore*, at an altitude of 3,000 feet, and about 1,000 at the two hill stations.

The sea side stations of *Fort St. George*, *Waltair*, and *Vizagapatam* occupy sandy soils; the last is on a swampy tidal estuary.

The barracks and hospitals at *St. Thomas' Mount* are close under the hill, which rises 180 feet above them.

The higher stations are on granite and trap rock, sandstone, and limestone.

Bangalore is an undulating sandy table land, partly swampy.

The Neilgherries in the neighbourhood of *Wellington* are mountainous, and consist of schists and basaltic dykes.

The plain at *Poonamallee* is under water in the rains.

Rangoon and *Tonghoo* are both situated in low, jungly, marshy districts.

In many parts of the Madras Presidency there are districts of country of a healthy character, and possessing climates similar to the best of the south of Europe. Very few of the climates of existing stations are reported as unhealthy, while many are considered as decidedly conducive to health.

TOPO-
GRAPHY
& MOR-
ALITY.

Stations.	Elevation above		Accommodation for British Troops.	Actual Occupation.	Mortality per 1,000 per annum British Troops.		Remarks.
	Sea.	Country.			Total.	Miasmatic Diseases.	
Secunderabad	Feet. 1,800	Feet. various	1,961	2,978	59.74		Undulating; rocky; large tanks; granite and sand.
Vizagapatam	10	0	310	310			On sea-shore; close to tidal marsh; alluvium and gravel.
Waltair	200	150					Sand hills, with deep, clean, dry ravines; close to sea.
Bellary	1,600	60	1,038	1,084	48.6		Undulating; dry; black soil; granite.
Madras		0	1,030		34.69*	16.21	Flat; sandy; dry; clay; resting on primitive formation.
Fort St. George	0	0					
Vellore	675	0		248			Hilly; alluvium; part swampy; primitive rocks.
Bangalore	3,000	0	1,689		23.69*	12.69	Undulating; sandy and dry; part swampy in rain.
Cannanore	20	0	1,094		21.25*	8.86	On the sea-coast; laterite with red gravel.
Trichinopoly	250		1,095		31.07		Alluvial; granite and trap rock.
Rangoon	80	70	1,150	1,033			Flat; jungly; swampy; clay; sandstone; laterite.
Tonghoo	300	35	1,160	681			Flat; marshy; jungly; red sand; clay; laterite; iron ore.
Ramandroog	3,300	1,000	50				Hilly; covered with jungle; a table land; scanty water supply; exposed to winds; no cultivation.
Kamptee	900	0	1,396	1,396	37.26*	23.45	Flat; black soil; wet in rains; sandstone and limestone.
Arcot	550	30	366				Partly cultivated; sandy; dry, broken ground, flooded in monsoon, producing malaria; quarter of a mile from river Pallar.
Jaulnah	1,652		427		10.3		Hilly; trap rock; red and black soil.
Poonamallee	2	0	600		89.55*	69.65	Plain; under water in monsoon; sandy.
Wellington (Jackatalla)	6,000	5,000	907		39.11*	21.93	Mountainous; schists; ferruginous clay; basaltic dykes.
St. Thomas' Mount	60	18	600		38.6		Open; small hills; numerous tanks; St. Thomas' Mount rises close behind barracks, and 180 feet above parade, impeding ventilation and increasing heat.

STATIONS.

REPLIES.

II. LOCAL CLIMATES.

FORT ST. GEORGE.

On the whole favourable to health. From November to February cool, dry, pleasant. Temperature 76° to 78° F. Air moist in May and October. Maximum temperature in May 99°. Minimum in December and January 65°. No violent changes. Heavy dew in December and January, with fog 2 or 3 feet above the surface. Air always damp during long-shore winds. Dusty during north winds. Dysentery during October rains. Hepatitis and fever in hot season. January and February the most healthy months; August and September the most unhealthy.

SECUNDERABAD.

Remarkably dry. Rain falls on 50 days annually. Average annual fall, 28 inches. Very changeable. Great attention required to clothing and shelter. Mean maximum temperature of year 95° in May. Mean minimum 64° in December and January. Sun temperature 113° in May. Hot winds, excessive heat and parching, with occasional dust storms, from March till June, which are however the healthiest months. July, August, September, the most unhealthy, when hepatitis, dysentery, diarrhoea, fever, continued, ephemeral, remittent and typhoid, prevail.

VIZAGAPATAM AND WALT AIR.

Climate healthy, rather relaxing. Damp and muggy in south-west monsoon. Usual temperature 92° F. in hot, 70° F. in cold season. Sea-breeze constant. Daily variations slight. Climate healthy. European troops should be healthy, if properly clothed and kept from liquor. Flannel should always be worn. In August and September some remittent fever; other months healthy.

VELLORE.

No observations. Climate hot, but healthy.

* The mortality for the Madras stations is taken partly from the mortality returns for Queen's infantry in the Appendix. The instances in which this is done are marked *. The mortality of the other stations refers partly to Queen's, partly to British troops of the Indian army, and is taken partly from Sir Alexander Tulloch's evidence, partly from the report of Inspector-General Pease (Appendix).

STATIONS.	REPLIES.
BELLARY.	Dry; not very hot. Highest mean maximum 92° F. in May; lowest 78° in January. Mean minimum from 65° in February to 77° in May. Mean monthly range of temperature 8° to 16°. No fogs. Dust storms occasionally. Climate favourable to health of troops, but less animal food and stimulating drink desirable in hot weather. Intermittents, occasional remittents, and bowel complaints occur from October till January. Ephemeral or continued fever in hot months. Rainy season healthy.
'BANGALORE.	Climate one of the best in India. Maximum temperature 97°; minimum 55½°. Mean temperature 75°. Sun's rays powerful. From November till February cold renders woollen clothing and blankets necessary. Most favourable to health. Severe fevers rare. Cholera seldom occurs, but liver disease and dysentery are common. December to April, August, and September healthy. May to July, October and November unhealthy.
CANNANORE.	A sea-coast climate. Generally equable. Occasionally chilly. In wet season moist. Productive among Europeans of loss of tone and debility after long residence. Flannel under-clothing at all times necessary. Mean maximum 81° to 90° F. Mean minimum 73° to 82°. Rainfall 122 to 124 inches.
TRICHINOPOLY.	Hot for two-thirds or three-fourths of year. Mean annual temperature 85° F. Maximum above 100°. Sun temperature 140°. Mean annual rainfall 30 inches. Whirlwinds of dust in May, June, and July. Rivers and tanks dried up. Vegetation suspended. Climate enervating, impairing digestion. Light diet; little animal food necessary. Woollen clothing required for three months. April to July unhealthy; cholera and fever prevail. November to January healthy.
KAMPTEE.	Year divided into cold, hot, and rainy seasons. Cold season from October to January. Temperature 68° in house, 38° at sunrise outside. Hot season from March to June; 85° to 98° F. in house. Rainy season preceded by distressing sultriness, causing langour, restlessness, <i>malaise</i> , exhaustion. Considerable diurnal variation. Heavy dews; sometimes fogs. Maximum temperature observed 110°. Rainy season most unhealthy. Cholera, March, April, July, August; also fevers and bowel disease.
ARCOT.	No meteorological instruments. Climate generally a dry heat. Hot and cold weather most healthy. Immediately before and after monsoon unhealthy.
ST. THOMAS' MOUNT.	No observations. Climate dry for at least nine months. Hot all the year round, varying from 71° minimum to 95° maximum. Heavy rains in October and November. Average annual fall 30 to 40 inches. Climate equable. Fogs rare. Damp at times. Effect on health debilitating from excessive heat; best precautions against which, are moderate diet (animal and vegetable), total abolition of spirituous liquors, moderate quantity of malt liquor, woollen clothing in rainy and cool season, morning drill, sufficient recreation and exercise. October to December most unhealthy months. Severe fever, dysentery, and hepatic disease prevail. January and February healthiest.
WELLINGTON (Jackatalla.)	Climate excellent. Changes gradual. On first arrival battalion suffered much from low fever; not attributable to climate, but to want of drainage of barrack square. March to May unhealthy, apparently from reason mentioned. Barrack square frequently an immense swamp. 1859, barometer from 24.307 to 24.400; mean maximum temperature, 66° F. to 75° F.; mean minimum temperature, 60° to 65°; mean temperature, 63° to 69½°.
RAMANDROOG.	Climate salubrious. Heat never above 84° degrees in shade. No hot winds. Night and morning mists in June, July, and August. September and October pleasant. November and December decidedly cold. All convalescents whatever are better here from March to June than on plains. But in cold and rainy seasons, rheumatism, hepatitis, pulmonary and syphilitic disease are aggravated. Healthy from September to January. Unhealthy (so called) April to August. Fever, rheumatism, hepatic, and pulmonary diseases then prevail. Mean maximum temperature, 85°; lowest mean, 64°; daily range, 4° to 9°.
POONAMALLEE.	Considered healthy. Sea-breeze daily. Highest mean maximum temperature, 87.2° F.; lowest mean minimum, 74.2° F. Rainfall 38½ inches. Ophthalmia and fevers during hot land winds. Catarrhal affections during wet cold season. Healthy months, January to May. Unhealthy, June to September. Prevailing diseases of these months, bowel and liver complaints.
JAULNAH.	No meteorological instruments nor records. Climate generally salubrious; dry and cold; liable to great and sudden variations. Fogs and damp rare; air pure; influence on health salutary. December and January most healthy. August to November unhealthy; fever, dysentery, diarrhoea, rheumatism, then prevail.
RANGOON.	Only eight months' observations. Highest mean maximum 96°. Lowest mean minimum 63°. Mean daily range of temperature from 6°.4 to 28°.9. Climate dry from middle of October till middle of May. Heavy dews and mists January to March. Healthy for European, not for native troops. March till May healthy. During wet season bowel complaints prevail.
TONGHOO.	Highest mean maximum 98° in April, rising to 105°. Lowest mean minimum 57° in January. Sometimes falls to 49°. November to end of February most healthy. May to end of August most unhealthy. Fevers and bowel complaints prevail. Climate good for a tropical one.

III. PREVAILING DISEASES AMONG NATIVE POPULATION, AND THEIR CAUSES.

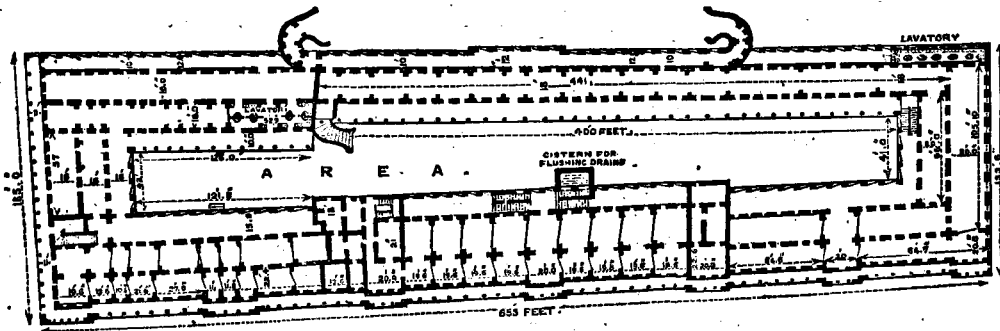
FORT ST. GEORGE.	Continued fevers, diarrhoea, dysentery. Cholera, a few cases, almost daily among natives; occasionally epidemic. Natives who cannot work, generally poor and unhealthy from bad and insufficient food, and are obliged to live in lowest and worst drained locality.
SECUNDERABAD.	Population hale and robust looking, with occasional outbreaks of epidemics. In Hyderabad there are all the influences at work which tend to cause and to propagate zymotic diseases; the most common of which are cholera, smallpox, diarrhoea, dysentery, guinea worm, rheumatism, fevers, often producing spleen disease. Climate and diet not unwholesome; but in Hyderabad, and in a very much less degree in Secunderabad, overcrowding, want of drainage and sanitary measures generally, produce disease among the population.
VIZAGAPATAM AND WALT AIR.	At Vizagapatam, the prevailing diseases are cholera, smallpox, chicken-pox, intermittent and remittent fever, rheumatism, beriberi, lepra, elephantiasis; fevers appear to depend on wind blowing from jungles.
BELLARY.	Generally healthy. Cholera occasionally; fever at times, not malarious, at setting in of rains and during north-east wind. Ophthalmia in rains. Healthiness attributable to dry atmosphere and no superabundance of vegetation.

STATIONS.	REPLIES.
VELLORE. BANGALORE.	Epidemics occasionally; none for some years. Fevers occur after drying up of paddy fields. Intermittent (quotidian); dysentery; diarrhoea; rheumatism; hepatic disease; cholera, occasionally. Population healthy.
CANNANORE.	Town of Cannanore at certain periods very unhealthy. Prevailing diseases, cholera, smallpox, dysentery, diarrhoea, attributable to overcrowding, burying dead among the houses, &c.
TRICHINOPOLY.	Bowel complaints and fevers, not to excess. Native population healthy, attributable to simple and unstimulating nature of mode of living. Itch and leprosy frequent, caused by bad sanitary condition of houses and want of ablution.
KAMPTEE.	Fever, smallpox, cholera, stomach and bowel complaints; irregularity in diet and indulgence in bang and liquor, chief causes.
ARCOT.	No definite information. Epidemic cholera occasionally breaks out.
St. THOMAS' MOUNT.	Intermittent fever, cholera, smallpox; due to crowding, want of ventilation, and filth.
WELLINGTON (Jackatalla).	Natives healthy, attributable to general abstemiousness. But those who arrive from low country suffer from intermittent and spleen disease, from sleeping on the ground. Those who sleep on charpoys not affected.
RAMANDROOG.	Native population said to be healthy. No definite information.
POONAMALLEE.	Smallpox and cholera, attributable to overcrowding and filth.
JAULNAH.	Population healthy, attributable to salubrity of climate. Prevailing diseases, intermittent and remittent fevers.
RANGOON.	Native population said to be "very healthy."
TONGHOO.	Native population liable to intermittent fevers and spleen disease; said to be due to the marshy and jungly nature of the country.
<p data-bbox="289 1071 516 1141">III. PREVAILING DISEASES AMONG EUROPEAN TROOPS.</p>	
FORT St. GEORGE.	Continued fever, dysentery, hepatic disease. Shelter from sun and moderation in eating and drinking the best preventives for hepatic disease. Sanitary improvement of town recommended.
SECUNDERABAD.	About 35 per cent. constantly sick from venereal disease. Lock hospitals recommended. In 4 years, 1855 to 1859, admissions from hepatic disease were 6.84 per cent. of total admissions. In the same period, among native troops, there were 0.23 per cent. That is to say, for every native soldier affected with liver disease, 30 British soldiers were affected. Every possible discouragement should be given to the use of ardent spirits. Unnecessary exposure to the sun and chills should be avoided.
VIZAGAPATAM AND WALTIAH.	During same years, 19½ per cent. of admissions were from venereal; against 4.29 per cent. among native troops. A lock hospital has been long in existence, with these "excellent results." (!)
VIZAGAPATAM AND WALTIAH.	Dysentery is endemic among Europeans, occasionally attaining a fatal malignancy; cholera, more or less; also smallpox; rheumatism and fevers very prevalent, latter rarely malarious, but obscurely remittent and adynamic, often turning into typhoid.
VIZAGAPATAM AND WALTIAH.	Very little hepatic disease.
VIZAGAPATAM AND WALTIAH.	About 6 per cent. of total sick are from venereal. At most stations, dispensaries are all that is required to diminish it. Police surveillance of women in India is "most objectionable and liable to the greatest abuse" from bribery of agents. Nothing to be gained from lock hospitals.
VIZAGAPATAM AND WALTIAH.	Fevers, chiefly quotidian, not uncommon; dysentery occasionally fatal; no cholera for 2½ years; smallpox occasionally in hot months; rheumatism common during the south-west monsoon; 28 per cent. of admissions, and 29 per cent. of total deaths are due to malarial disease. Fevers, cholera, smallpox, most frequent diseases.
BELLARY.	Hepatic disease amounted in 5 years to 3.77 per cent. of admissions. "Less spirits, or better none, would be the best prophylactic."
BELLARY.	Venereal disease has formed 40 per cent. of constantly sick for many years. Best remedy, marriage, at present cost but eventual saving. Lock hospitals advantageous, if efficiently worked.
BELLARY.	Most common zymotic diseases are intermittents in cold season; sometimes remittents, not severe; ephemeral in hot weather; little dysentery; cholera about every 3 or 4 years; rheumatism frequent; bowel complaints occasion 20½ per cent. of the mortality; 24 per cent. of the admissions and 44½ per cent. of the deaths arise from malarial disease.
VELLORE.	Ephemeral, quotidian, tertian, and a few cases of quartan fever prevail. A few cases of dysentery, but no cholera this year. [This refers to native troops.]
BANGALORE.	In 1859-60, 4 per cent. of the strength admitted to hospital with hepatic disease. Temperance, clothing, and avoidance of exposure, are prophylactics.
BANGALORE.	Venereal disease constitutes half the sickness in hospital. Lock hospitals have been recently established. Benefit hoped from them, if properly conducted.
BANGALORE.	Most common malarial diseases among troops are, quotidian and continued fever, acute dysentery, and rheumatism. Adjacent to the barracks is the bazaar, in which are several tanneries, a slaughter-house, and other nuisances. Disinfection of drains and latrines recommended to diminish the frequency of malarial disease.
CANNANORE.	About 4 per cent. of cases under treatment are hepatic disease, attributed to climate.
CANNANORE.	About 33 per cent. of total sick are from venereal disease. Lock hospitals, with stringent police regulation, suggested.
CANNANORE.	Prevailing epidemic diseases are fevers of continued and remittent types, sometimes intermittent, all asthenic in form, and accompanied by other diseases. Dysentery common during south-west monsoon. Rheumatism at the same time; generally very obstinate.
TRICHINOPOLY.	Proportion of liver disease 1 to 34 of other diseases. Cause, often high temperature, but more frequently spirituous liquors. It arises from sun, drink, damp, sudden changes of temperature, sometimes from dysentery, also from scrofulous habit. Men who in England would suffer from phthisis, get abscess of the liver in India.
TRICHINOPOLY.	Proportion of venereal one-fourth or one-fifth of the total sick. In one European corps, 600 to 700 strong, half the strength was in hospital during the year from syphilis. Men when ill are away 20 days from duty. Remedy, marriage; lock hospitals of little use, "as they frequently become instruments of tyranny or revenge." Disease communicable long before the sufferer is aware of its existence. Lock hospitals, with stringent police regulation, might be of use.
TRICHINOPOLY.	Troops suffer from fever, intermittent most common, cholera, smallpox. Most fertile source of disease among soldiers, bad spirituous liquor not obtained in canteen.

STATIONS.	REPLIES.
KAMPTEE.	In artillery, in September 1859, 3 cases scorbutus from insufficient vegetables. Better description of vegetables much required. Has been frequently reported.
ARCOT.	During the last 3 years, one thirty-sixth of whole admissions have been from hepatic disease. Causes: high temperature, exposure to sun, improper food, abuse of spirits, malaria, bad ventilation of barracks. One-fifth of admissions in artillery from venereal disease. Lock hospitals recommended. Prevailing diseases: fevers, of malarial origin, intermittent and remittent; dysentery, which alone causes a fifth part of the mortality; cholera, smallpox, rheumatism.
ST. THOMAS' MOUNT.	About 2·85 per cent. of admissions from hepatic disease. Usually a primary disease, and more particularly in those of intemperate habits. During the last two years 19 per cent. of constantly sick from venereal disease. Lock hospitals and police inspection recommended. Prevailing diseases are, fevers, dysentery, cholera, and rheumatism. Typhoid fevers have lately appeared. In 1857-8, 50 per cent. of the deaths from dysentery. In 1858-9, 84 per cent. of deaths from cholera. In same year, out of 118 average strength, 343 admissions into hospital, and 25 deaths. Cholera of that year arose from imperfect drainage of barracks. Usually 4 or 5 cases of hepatic disease under treatment, caused by solar heat and intemperance; also the result of fevers.
WELLINGTON (Jackatalla).	Seven cases in 54 due to venereal. Police regulations and lock hospitals suggested. Fevers and bowel complaints prevail. Dysentery and fever most prevalent in monsoon; liver disease in hot season. Personal causes: drinking spirits, exposure, eating unripe fruit. Preventives: large, well-ventilated barracks and hospitals, proper drainage and latrines, abundance of water, wholesome diet, abstinence from spirits.
RAMANDROOG.	A few cases of scorbutus among men of broken-down constitution. Change to a warmer station was always had recourse to.
POONAMALLEE.	A few fresh cases of hepatic disease have occurred from stimulants. Fifty-seven per cent. of total sick are from venereal. Lock hospitals recommended, and stopping pay while men are in hospital. Remittent fever very common, March till June; not so frequent since barrack was drained. Dysentery, a few cases. No cholera. Per-centages to total admissions and deaths as follow:—Admissions: fevers, 12 per cent.; dysentery, 2½ per cent.; rheumatism, 4½ per cent. Deaths: fevers, 38 per cent.
JAULNAH.	Hepatic and syphilitic diseases imported. Occasional slight ephemeral fever at beginning of hot season. Other zymotic diseases are relapses. Hepatic diseases, 1 in 12 of cases in hospital, attributable to climatic influences, aggravated by intemperance.
RANGOON.	Very little venereal. Stringent police regulations and lock hospitals desirable. Most prevalent fevers: common, continued, and remittent. Dysentery, chiefly relapses, in cases sent for change of air. A few cases of malignant cholera have occurred among most drunken pensioners. Rheumatism, chiefly syphilitic. These diseases yield 20 per cent. of admissions, and 33 per cent. of deaths.
TONGHOO.	9 to 10 per cent. of admissions from liver disease, caused by intemperance and unnecessary exposure, "Best precautionary measure, stopping sale of intoxicating liquors." Ten per cent. of cases are venereal. Police regulation and lock hospitals recommended.
V. SANITARY STATE OF BAZAARS AND NATIVE TOWNS.	Admissions from fever, 1 in 4 of total admissions; deaths, 1 in 15 of total deaths. From dysentery, admissions from 1 in 2½ to 1 in 4½; deaths, 1 in 15. From cholera, admissions 1 in 52 to 1 in 122; deaths, 1 in 7½. Smallpox, admissions, 1 in 66; deaths, 1 in 15. Rheumatism, admissions 1 in 14. Most prevalent fevers, remittent and intermittent. Cholera sometimes epidemic. Zymotic diseases most prevalent in hot and wet seasons, with a close atmosphere. Intemperance, exposure, eating unripe fruit and vegetables, predisposing causes.
MADRAS.	In the Pegu division, admissions from hepatic disease 2 per cent. of total admissions, and deaths 1½ per cent. of total deaths. Causes: climate, sun, ardent spirits, chills. Fevers, ephemeral, intermittent, remittent, and continued, occasion 16½ per cent. of admissions and 9½ per cent. of deaths. Dysentery and diarrhoea in rains.
SECUNDERABAD.	Mortality during last two years about 1 per cent. of strength. Hepatic disease infrequent. Venereal rare. Cholera unknown. Prevailing diseases: fever, intermittent and remittent, and dysentery.
VIZAGAPATAM AND WALTAIR.	Most offensive effluvia from river Kooum, which "probably" predispose to disease among those exposed to their influence. Air in Black Town and Triplecane loaded with mephitic effluvia at night. Fort bazaar small, clean, and well-ventilated. Bazaars at Perambore and Vepery not well cleaned. Atmosphere around "perfectly poisoned." Drainage very bad.
BELLARY.	Hyderabad is a "hot-bed" of cholera. Sanitary condition very bad. All main streets of Secunderabad bazaar are drained; many back streets not so. External ventilation, on the whole, good. No overcrowding. "Superintendent of police visits bazaar once a week, and fines those in front of whose houses any filth or nuisance is found." Natives ordered to resort to privies, but "no doubt the order is extensively evaded." Water supply from wells; some of them brackish. Supply fails in hot season, and great inconvenience is experienced.
VELLORE.	Sanitary state of bazaars very bad, and although under improvement, never likely to be good. Houses crowded. Habits of the people filthy and offensive. Water from wells not over-abundant; said to be good. Large heaps of filth near the fishermen's huts about the fort. Dungheaps and cesspits among native houses being removed. The "greatest possible nuisance" at times in consequence of drying fish and from the state of the drains. Troops should be removed from this nuisance at Vizagapatam to Waltair. At Waltair, large foul ditch in the bazaar used as a necessary by natives, 500 yards from barracks.
	"Good" drainage, and ventilation lately much improved. Water supply deficient. Cleanliness attended to. Filth removed half a mile, and buried. Streets irregularly built, confined, and crowded, preventing free circulation of air. Nullahs run through bazaar, which occasionally overflow their banks and spread among the houses, many of which are mere hovels. In the better class there is generally a cesspool, "which must be injurious to health."
	Well drained. No latrines. Cleanliness scarcely attended to. Natives perfectly indifferent to condition of their houses. Few of them without those hot-beds of disease, dungheaps and cesspits. Wind blowing over native houses and drains causes nuisance in barracks.

STATIONS.	REPLIES.
BANGALORE.	Cantonment contains 124,660 natives, located chiefly in the general bazaar, situated on sloping ground, well adapted for drainage. Open stone drains on each side main streets; smaller lanes undrained. Houses crowded together. No public necessaries. Natives resort to open spaces. Tanneries and slaughter-houses. Sanitary state "very bad indeed." Neither sufficient ventilation nor drainage. Water supply not wholesome, "owing to the amount of filth percolating into the wells from bad drainage." Houses crowded. Ventilation little attended to. In the better houses, where latrines exist, they are wells sunk in the ground within the precincts of the houses, which are closed up when filled, and others opened. In front of many native huts there is a dirt-heap at almost every door. Bazaars have been allowed to spring up too near the barracks, and now nothing short of removal of one or the other will remedy the evil. Filth from cowhouses flows into open drains. No arrangements for stabling bazaar horses, which, with other domestic animals, are kept in the houses.
CANNANORE.	Bazaar not overcrowded. Drainage good. Water abundant. Cleanliness observed, but great want of latrines, leading to filth and indecency. Native houses have dungheaps and cesspits within the compounds. Cannanore itself is in a very bad sanitary state. Dead are buried within the compounds of houses.
TRICHINOPOLY.	Drainage good. Water supply bad, scanty, and generally brackish. Bazaar usually clean, but open cesspits an intolerable nuisance when wind blows over them. Cleansing done by owners with help of Government carts. Several parts of the cantonment might be improved by pulling down walls, deserted huts, &c., filling up and leveling. Native houses very ruinous, and not ventilated.
KAMPTEE.	Principal streets have closed drains. Ventilation of bazaar imperfect. Crowding not allowed. Water derived from 220 wells; also from river. 34 latrines. A sweeper to each street, and scavengers' carts. Butchers and others provide for removing of offal. "All filth is thrown into pits in the streets of the cantonment." "Persons committing nuisances are closely watched and taken up daily." Poorer houses huddled together without order, on ground intersected by nullahs, making houses difficult of access. Cesspits, "where accessible," are cleansed every 48 hours. European bazaar, with 10,000 natives, is 500 yards from European infantry barrack.
ARCOT.	Drainage of bazaar sufficient. Ventilation, cleanliness, and crowding much the same as in others. Water supply "good." No latrines. Native houses good. "Dungheaps are not exposed."
ST. THOMAS' MOUNT.	Sanitary condition of bazaar bad. Crowded, narrow, badly ventilated.
WELLINGTON	Bazaar well situated and well drained. Water supply plentiful. Cleansing by sweepers.
(Jackatalla.)	Healthy.
RAMANDROOG.	No military bazaar. Civil bazaar crowded, and not kept as clean as it might be, nor the hill generally.
POONAMALLEE.	Native huts near station dirty and unwholesome. Nuisances among them, which, when to windward, are prejudicial to barracks. There should be a strict sanitary police over natives.
JAULNAH.	Bazaar crowded; drained only on surface. Clean. Water from wells. Houses generally good, but many most wretched. No dungheaps nor cesspits, "outside at least."
RANGOON.	Bazaar has "good open drainage." "Ventilation good." "Water supply abundant." Kept very clean. No public latrines. Better arrangements for removal and deposit of night-soil required.
TONGHOO.	No cantonment bazaar. Houses of native followers very bad and dangerous. Commissariat bearers too poor to build houses; "live anywhere and anyhow." "Numbers always sick, and numbers die or have to be sent away."
VI. BARRACK	
CONSTRUCTION.	
FORT St. GEORGE.	European barrack, contains 2 rooms; lower, 1,483 feet long, 18 feet wide, 15½ feet high; upper, is stated at no less than 2,124½ feet long, 20 feet wide, 14½ feet high, and contains above 600 men. These two rooms accommodate 1,030 men, at 1,000 cubic feet, and from 64 to 69 square feet per man.
	Materials, brick and mortar.
	Floors of square brick and teak; those of the lower story of granite, raised from 2 to 4 feet.
	No passage of air beneath.
	Iron bedsteads.
	Fig. 1 shows the ground plan of this barrack.

FIG. 1.—PLAN OF THE BARRACKS, FORT ST. GEORGE.

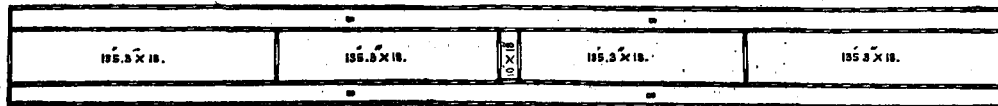


SECUNDERABAD. One hundred and eighteen rooms for 118 non-commissioned officers, and 30 rooms for 1,843 men. Numbers of men per room vary from 4 to 10, 20, 64, 90, and in 10 rooms there are 104 men per room. Cubic feet per man from 1,003 to 1,088; square feet from 40 to 60. No windows; but large double glass and Venetian doors on opposite sides. Double verandahs; inner one (at Trimulgherry) occupied by men. Materials, brick in chunam. Floors of granite. Height, 1½ to 4 feet above the ground. No passage of air beneath. Roofs tiled or terraced.

STATIONS.	REPLIES.
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Fig. 2 shows the Madras artillery barracks at this station.

FIG. 2.—PLAN OF MADRAS ARTILLERY BARRACKS, SECUNDERABAD.



SECTION.



VIZAGAPATAM AND
WALTAIR.

Cots wooden. Commander-in-Chief states that, for upwards of 4 years, he has attempted unsuccessfully to obtain iron cots.

At *Vizagapatam*, one barrack room for 72 men, at 560 cubic feet, and 43 square feet per man. Five temporary barracks at *Waltair*, giving about 800 cubic feet and 53 square feet per man. At *Waltair*, built of wattle and daub, with verandahs and thatched roof. At *Vizagapatam*, of brick, stone, and mortar. Those at *Waltair* liked by the men; cool and healthy. Those at *Vizagapatam*, hot and close, objectionable in every way, ought to be rebuilt.

No passage of air beneath floors.

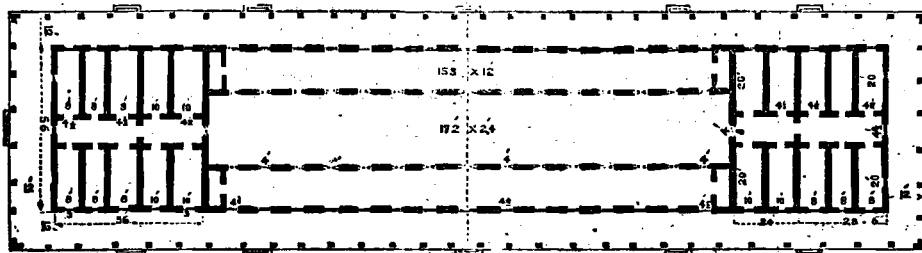
Bedsteads of wood, infested with bugs to a great extent. Iron should be issued.

BELLARY.

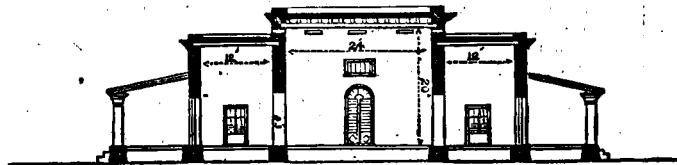
Nine barrack ranges for men; each consisting of one centre room for 64 men, and two inner verandahs for 18 men each. Cubic feet per man, 1,290 to 1,685; square feet, 64 to 105. Materials, stone. Floors of granite slabs, 2½ feet above ground, with no ventilation beneath. Construction commenced in 1843, completed in 1858.

Fig. 3 gives a plan and section of these barracks.

FIG. 3.—NEW EUROPEAN BARRACKS, BELLARY.



SECTION THROUGH A B.



ELEVATION.



VELLORE.

Beds merely planks on wooden trestles. Bugs abound in all the barracks. Iron cots required.

No information as to accommodation. Materials, brick and chunam, with tiled roof. Flooring of tiles and cement, 6 inches above ground; no ventilation beneath.

BANGALORE.

Materials, stone, brick, and mortar.

Floors of flags or chunam; some raised above ground. No passage of air beneath.

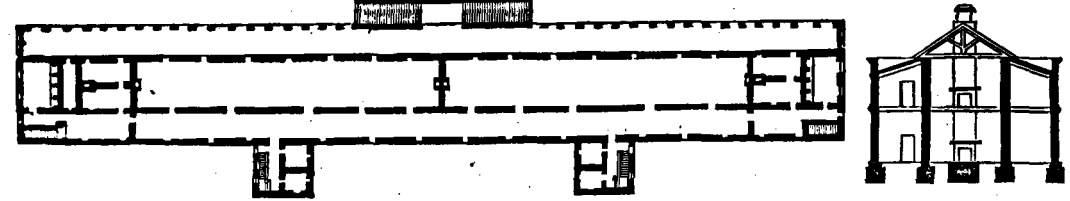
All have verandahs; never used as sleeping places.

Bedsteads of planks on wooden trestles. Iron would be better.

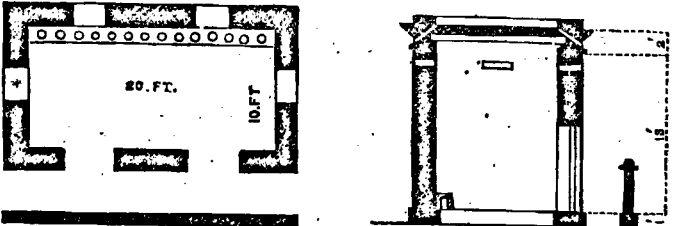
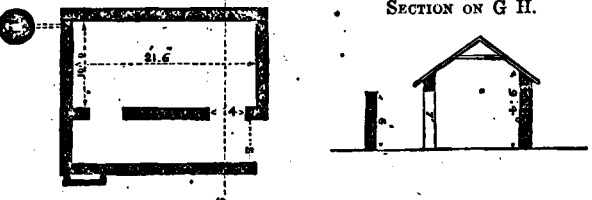
Whitewashing once a year inside, and once every two years outside, but oftener, if necessary.

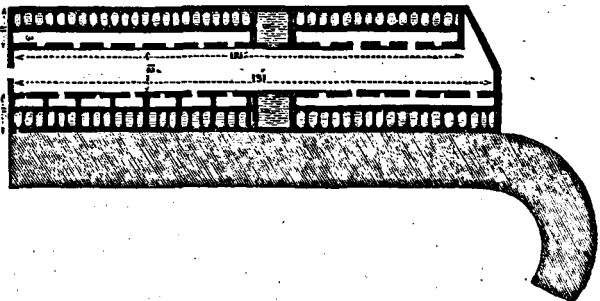
Barracks at the station for horse artillery, for foot artillery, for cavalry, and for infantry.

Horse artillery barracks in two ranges, containing 90 men each, at 1,000 cubic feet and 46 square feet per man. Foot artillery barracks consist of two ranges, 29 men in each, at 1,000 cubic feet and about 70 square feet per man. For cavalry eight ranges, 88 men each, at 1,000 cubic feet and 46 square feet per man. Infantry barracks are in six ranges, containing 50 to 112 men per range, at about the same cubic space and superficial area.

STATIONS.	REPLIES.
CANNANORE.	No details of accommodation. Verandahs: inner ones used as sleeping quarters for 103 men. Bedsteads of boards and trestles, infested with bugs; iron ones required. Floors of laterite stone, raised 4 feet. No passage of air beneath. Walls of laterite plastered. Walls and ceilings limewashed once a year.
TRICHINOPOLY.	Accommodation for 148 artillery, and 947 infantry. Artillery barracks consist of two centre rooms, enclosed verandah and hall. Infantry barracks consist of one tiled room, no less than 1,011 feet long; a bomb-proof 795 feet long, and five temporary barracks. Cubic space per man not given, but appears to be, from the dimensions, 530 cubic feet per man for infantry, and 816 cubic feet per man for artillery. Materials, brick and chunam. Walls and ceilings limewashed once a year, or oftener. Planks and trestles for beds.
KAMPTEE.	One barrack for 1,056 infantry in ten ranges; one for 340 artillery in three ranges. Numbers of men per room not given; nor cubic space per man. Verandahs, 10 feet wide. General construction faulty. 80 to 100 men massed under the same roof for eating and sleeping, "which is highly objectionable," "when for many months of the year, the men are confined to barracks for 20 out of 24 hours." Buildings too low. Windows ought to be glazed. Materials, brick and lime. Flagged floors raised above ground; but no ventilation below. Limewashing, once a year. Bedsteads, wood.
ARCOOT.	Eight ranges, with accommodation for 360 non-commissioned officers and men at 1,000 cubic feet, and from 66 to 100 square feet per man. Sergeants' rooms give 969 cubic feet, and 30 square feet per man. Materials, brick in chunam and clay. Pantile roof. Floors of brick, granite, and chunam; not raised above the ground. Verandahs, in which are placed sergeants' quarters. Wooden and iron cots. Cleansing and limewashing whenever required.
ST. THOMAS' MOUNT.	Constructed of bricks. Floors of chunam or brick. Buildings too low, and unsuited to the climate; ought to be raised on arches. Verandahs. Limewashing annually. Iron and wooden cots. Dimensions not given. No cubic space. No superficial area.
WELLINGTON.	When completed, 20 barrack rooms (16 at present), to contain 42 men per room, at 967 to 1,320 cubic feet, and 64 to 66 square feet per man. 10 enclosed verandahs for mess rooms for 42 men each, at 482 to 557 cubic feet, and 37 square feet per man. Materials, brick and mortar, plastered inside and out. Flooring granite, asphalt, and teak, 1 foot 6 inches above ground; free current of air beneath. Limewashing once a year. Bedsteads, planks and wooden trestles. Iron cots better. Fig. 4 shows the ground plan of the men's barracks.
FIG. 4.—GROUND PLAN OF BARRACKS AT WELLINGTON.	
	
RAMANDROOG.	Built of stone. Stone floors, raised, but no passage of air beneath. Verandahs often occupied as sleeping quarters. Ten rooms. Accommodation for 4 non-commissioned officers and 46 men, at from 1,042 to 1,155 cubic feet per man, and from 58 to 65 square feet per man.
POONAMALLEE.	Bedsteads wood, very bad; building swarms with bugs; iron bedsteads preferable. Two long rooms, with 300 men in each. Space per man, if given correctly, is incredibly small, 112 cubic feet and 8½ square feet per man. Barracks pukka built. Verandah on one side, frequently used as sleeping quarters. Floors of large square bricks, level of ground. Buildings every way unsuitable; have been condemned.
JAULNAH.	Materials, stone, brick, chunam. Floors raised 3 feet above ground, stone; no air passage beneath. Glazed windows. Verandahs used as sleeping quarters in very hot weather. Men take meals in back enclosed verandah. Only an artillery barrack, 2 ranges, for 115 men, at 1,030 cubic feet and 60 square feet per man. Infantry, 312 in number, occupy private dwelling houses.
RANGOON.	European infantry barracks, 18 rooms, each 140 × 45 × 18 feet high; 50 men per room, at 2,200 cubic feet and 120 square feet per man. Five European artillery barracks, 50 men each; same dimensions. No verandah. Roof on both sides carried 10 feet beyond outer wall. Floors of plank and bamboo; raised from 2 to 8 feet above the ground; free ventilation underneath. Materials, wood.
TONGHOO.	Twenty European infantry barracks; 50 men in each, at 2,302 cubic feet and 131 square feet per man. Four artillery barracks, 40 men in each, at 870 cubic feet and 60 square feet per man. Open verandah 12 feet wide. Materials wood. Floors raised from 3 to 7 feet above ground; free ventilation beneath. Bedsteads most uncomfortable.
VII. MARRIED QUARTERS. FORT ST. GEORGE.	There are 81 married quarters in the patchery, and 10 in the barrack square, making 91, instead of 150 as required for a full regiment. Recently a regiment had 126 families, and the number over 91 had to be accommodated in barrack rooms.

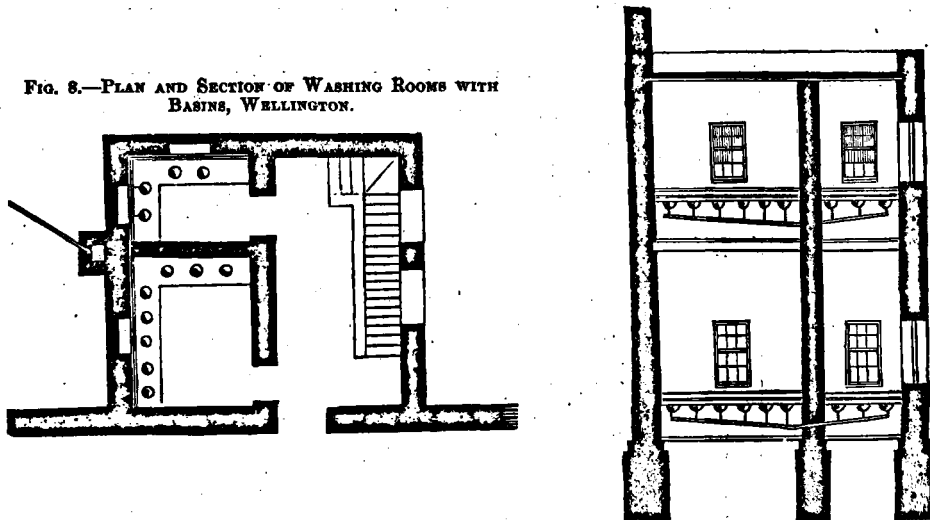
STATIONS.	REPLIES.
SECUNDERABAD. VIZAGAPATAM AND WALTAIR. BELLARY. VELLORE. BANGALORE. CANNANORE. TRICHINOPOLY. KAMPTEE. ARCOT. ST. THOMAS' MOUNT. WELLINGTON. RAMANDROOG. POONAMALLEE. JAULNAH. RANGOON. TONGHOO.	<p>"Sufficient." Separate houses in the former. A building divided in separate quarters at the latter station.</p> <p>Ample accommodation in separate rooms. No information.</p> <p>Sufficient married quarters, built or sanctioned for the cavalry and artillery barracks. Insufficient and very bad for the infantry, but the barrack is condemned, and to be given up. In this case, some married people are in barrack rooms, but not with single men.</p> <p>Married people are quartered in a Christian village. Separate ranges for them are very desirable.</p> <p>No separate quarters. A portion of the barrack accommodation has been given over for married people.</p> <p>Married quarters temporary. Most objectionable in every respect.</p> <p>A separate barrack. Rooms divided by curtains.</p> <p>Married quarters insufficient; others being erected.</p> <p>Married quarters "ample." Sufficient for the present number.</p> <p>None. Married people occupy barrack rooms with single men, but separated by curtains.</p> <p>Not sufficient special quarters. Those who have none live in the patchery, which is private property, consisting of most miserable hovels, badly situated, devoid of ventilation, and unfit for Europeans.</p> <p>No special quarters. Artillery have a patchery.</p> <p>None, except for artillery, which are bad and not sufficiently roomy. Others sanctioned.</p>
PRISON CELLS.	<p>The prison and cell accommodation appears to be of an inferior character. At Secunderabad and Wellington prisons are being built. At nearly all the other stations the cells are described as more or less bad and unwholesome; as being too small, badly ventilated, damp, or too hot, or tainted by the proximity of privies. At Kamptee the cells are away from the barracks, and there is no quarter for any one in charge. These cells are otherwise bad, and cannot be used. The prison and cell accommodation will require improvement at the same time as the stations generally.</p>
VIII. VENTILATION OF BARRACKS.	
FORT ST. GEORGE.	<p>By opposite doors and windows. Venetian shutters to upper floor. Earthen tubes in roof. Half doors generally open night and day. Punkahs for cooling. Huts not ventilated.</p>
SECUNDERABAD.	<p>Ventilation by doors, windows, ridge ventilators, skylights, and upper wall ventilators; said to be sufficient to keep the air pure if the ventilators are kept open. Cooling by tatties.</p>
VIZAGAPATAM AND WALTAIR.	<p>No means of ventilation at Vizagapatam, except windows and doors; insufficient. At Waltair, ventilation insured by not carrying wall up to roof; quite sufficient. Punkahs used for cooling at Vizagapatam; not required at Waltair.</p>
BELLARY.	<p>No windows. Doors, half venetian, half panel. Openings for ventilation in side walls, nearly at top, having glass frames on pivots. Moveable fanlights above doors, sufficient. Punkahs used for cooling.</p>
VELLORE.	<p>None, except by doors and windows. No means of cooling the air.</p>
BANGALORE.	<p>All the barracks have windows and doors. In new buildings, roof and floor ventilation; generally sufficient, but defective in some old buildings.</p>
CANNANORE.	<p>By doors, windows, penthouses in roof, and ventilators in walls; not sufficient when doors and windows are shut. Punkahs not required.</p>
TRICHINOPOLY.	<p>Ventilation in bombproofs by windows and doors; in old artillery barrack by doors. Both insufficient. In other barracks, ridge ventilation, sufficient. Punkahs and tatties for cooling.</p>
KAMPTEE.	<p>Windows on opposite sides, unglazed. Three openings in roof of each barrack. "Ventilation most faulty and deficient." Punkahs and tatties for cooling.</p>
ARCOT.	<p>Windows on opposite sides with ventilators above. "Sufficient." Cooling by punkahs and tatties.</p>
ST. THOMAS' MOUNT.	<p>By an opening in the roof. Windows and doors on both sides; sufficient. Cooling by punkahs.</p>
WELLINGTON.	<p>Windows and doors opening to verandahs. Ventilating windows with ventilators 6 inches square. Sufficient. Warming by fire-places.</p>
RAMANDROOG.	<p>Ventilators near ceiling. Windows, doors, upper half venetian; a great disadvantage in wet and windy weather. Half glass doors required. Warming by fire-places.</p>
POONAMALLEE.	<p>Windows on opposite sides. Small openings in roof. By no means sufficient.</p>
JAULNAH.	<p>Doors, windows, ridge ventilators, and fanlights; good, and generally sufficient in horse artillery; in native infantry and cavalry very deficient. Punkahs and tatties for cooling.</p>
RANGOON.	<p>Doors; and windows on opposite sides. Also a narrow opening, 4 to 6 inches wide, along the top of side walls. Might be improved by having ridge ventilation all along.</p>
TONGHOO.	<p>Doors; windows; a space between the roof and the top of the wall, and ventilating boards at the floor.</p>
IX. DRAINAGE.	
FORT ST. GEORGE.	<p>Fifty thousand rupees lately sanctioned for improving drainage of Fort St. George. Old privies "as bad as they well could be;" new-ones being constructed. Arrangements at native lines, as described, simply abominable. Drainage, in the proper sense, cannot be said to exist; such as it is, it is worse than useless. "No cesspits within the fort of any consequence." Main drain of town 80 yards distant. Effluvia from it very offensive, with north-east wind.</p>
SECUNDERABAD.	<p>Undergoing improvement, in old barracks, by built drains, 4 feet by 3 feet, to an outlet 476 yards distant. Artillery barracks drained by surface drains to a soldiers' garden 140 yards distant. No drainage of any kind at Trinulgherry. Fluid refuse evaporates, or sinks into subsoil. A nullah, which intersects the cantonment, at times very unpleasant. Extent of cantonment said to be so enormous as to preclude any general surface draining. Parades and lines kept clean by regimental followers; bazaar by police.</p>
VIZAGAPATAM AND WALTAIR.	<p>At Vizagapatam, open surface drains to sea and back-water. At Waltair, drainage runs off by surface; said to be sufficient. At Vizagapatam, water lies on surface, unless cleared away. Chunam is spread over it at intervals. One or two bad drains near hospital.</p>
BELLARY.	<p>None, except the fall of the ground. Privies cleansed twice a day; contents thrown on the ground two miles away. Fig. 5 shows the structure of privies of this class.</p>

STATIONS.	REPLIES.
	<p>FIG. 5.—PLAN OF ONE OF THE PRIVIES ATTACHED TO THE BARRACKS, &c., BELLARY.</p>  <p>SECTION.</p>
VELLORE. BANGALORE.	<p>Exceedingly defective. Attended to by local prisoners. Nightsoil carted away to a distance. All drainage by open surface drains to the Ulsoor tank, half a mile from most remote barrack. Sufficient for surface water. Ground favourable for drainage. No swamps or decidedly wet ground. The tank which receives the drainage is largely used for drinking purposes by the native population. All solid refuse carried away.</p>
CANNANORE.	<p>Open drains, one foot deep, one foot broad; partially paved with stone. Privies sewered to covered drains. Outlet into the sea 60 yards off. Drainage not sufficient. During wet season, all floors damp. Drains badly constructed.</p>
TRICHINOPOLY.	<p>An open drain on all sides of barracks. Outlet into an open ditch, 50 yards from nearest barrack. Sufficient for surface water. Artillery barracks not drained. Refuse fluid runs down slope into fields. Old ditch of fort, 2½ miles distant, extremely foul. Eight houses in European lines are the focus of fevers and cholera. Two recent cases had to be removed from them for treatment.</p>
KAMPTEE.	<p>No drainage. Rain water which does not find its way through the barrack wall is left to stagnate, evaporate, or sink into the subsoil. Holes dug in the ground, and consequently a mass of mud and filth, receive the cook-house drainage, and are emptied twice a day. Privies not drained. Everything carried away. "With a native population of 70,000 souls, there must be an immense deal of filth; but every means are taken to prevent it."</p>
ARCOT.	<p>No sewers. Surface drains. Sufficient for surface water, but not for cook-houses. Fluid refuse partly sinks into subsoil, and is partly carried away. Cesspits for privies, about 6 feet square; cleaned daily.</p>
ST. THOMAS' MOUNT.	<p>Surface drains; only flushed by water from bath rooms and by rain. Insufficient, as the drains are frequently filthy. Contents carried to a very short distance from barracks and hospital, and allowed to sink into the soil. A foul ditch close to the outer wall of hospital; being rectified. Refuse from privies, &c., carried away daily.</p>
WELLINGTON.	<p>A project of pipe drainage has been submitted to Government. Drains for surface water being constructed. In the meantime, nightsoil and refuse conveyed in covered carts to cesspits a mile distant.</p>
RAMANDROOG.	<p>Natural drainage down the slope. Fluid refuse taken down the hill. Privies and urinals built on the edge of the hill, which acts as a natural drain.</p>
POONAMALLEE.	<p>No sewerage. Drainage insufficient. East wing of barracks damp in consequence. All fluid refuse "soaks into the subsoil, where it falls." Foul ditch surrounds the fort, which encloses the hospital; has been reported over and over again, without result.</p>
JAULNAH.	<p>A masonry drain surrounds barrack, receiving smaller ones from lavatories, baths, &c. Outlet on a piece of waste ground, 150 yards from barrack. Privies and urinals have cesspools fitted with tubs; removed twice a day to a distance. Fig. 6 shows the arrangement.</p>
	<p>FIG. 6.—PRIVY, WITH CESSPOOL, JAULNAH.</p>  <p>SECTION ON G H.</p>
RANGOON.	<p>Open drains for surface water. Not sufficient where the ground is low, and on which water stands till it evaporates. Barracks and hospitals damp in monsoon. Contents of privies removed to a distance in boxes daily.</p>
TONGHOO.	<p>Drainage natural. "No sewage required." Drainage of bath houses requires improvement. Privies very bad; only a cesspit. No means of cleaning them. Charcoal and lime used for purifying them.</p>
X. WATER SUPPLY. FORT ST. GEORGE.	<p>Water brought in pipes from Seven Wells, two miles distant, to covered cisterns in the fort. Native supply from wells and tanks. Some of it brackish, especially in Black Town. Almost all tank water has a disagreeable smell. Quality said to be "good." No chemical analysis.</p>
SECUNDERABAD.	<p>Water from numerous wells; generally abundant; scanty after dry weather; in colour almost clear, sometimes slightly opaque. Analysis of five wells and one tank given, showing from above 10 grains to above 119 grains of solid matter per gallon, and from above 2½ grains to about 30 grains of organic matter per gallon. Such water apparently not considered unhealthy, although the most fatal diseases at the station are those, of which bad water is known to be a predisposing cause. Water is raised for use in a skin bag, by a rope over a pulley, hauled up by bullocks, and discharged into a reservoir, whence it is conveyed by masonry conduits or skins (the usual way) to its destination.</p>
VIZAGAPATAM AND WALTAIR.	<p>From wells and tanks, former said to be clear and good. A tank near native infantry parade ground "very foul and bad." Amount of water very limited. Water raised from wells by rope and hand. Supposed that an unlimited supply might be brought in iron pipes from a distance of five miles. No analysis.</p>

STATIONS.	REPLIES.
BELLARY.	Principally from wells. Two tanks; one dry for seven months, emitting unpleasant smells. Natives prohibited from bathing in one tank, but do so nevertheless. Quantity not known. Two wells, described as clear and pleasant, contain animalcules. Another said to contain none, contains a considerable quantity of vegetable matter. No analysis. Present supply uncertain; sometimes fails, as it did last year. It would be better to bring water 50 or 60 miles, which can be done.
VELLORE.	Colourless and inodorous, but in most of the wells brackish. The harder water causes diarrhoea among new comers. Plenty of water for lavatory purposes. Water "too near the surface to require any mechanical contrivance for raising it."
BANGALORE.	Wells and tanks, but water not stored. In monsoon time, all tanks full; become smaller in dry weather. All used by natives both for drinking and bathing. Ulsoor tank, used for drinking, is the outlet for the whole drainage of the most filthy bazaar, of the cavalry, infantry, and horse artillery barracks, and of the greater proportion of station. A great nuisance in dry season. Respecting this tank, the Commander-in-Chief remarks, "The disgustingly filthy nature of the source from which the water used at Bangalore is taken has been brought to notice scores of times by me within the last 4½ years, but, as usual, nothing has been done to remedy this most crying evil." Water for Europeans is taken from wells, which are open, and "when they get dirty are cleaned." It is raised by hand or bullock labour, and carried on bullocks and water carts. To remedy these evils, it is proposed to bring a water supply 36 miles. No analysis.
CANNANORE.	From wells; generally free from impurities; quantity ample near some parts of the cantonment; in some seasons little or none near infantry lines; puckallies and bullocks employed for raising and distributing it; said to be "good;" no analysis.
TRICHINOPOLY.	Chiefly from wells, every one of which is more or less impregnated with lime. Water partly stored in open tanks, in some of which, used for drinking in town, natives bathe. Quantity abundant; quality, clear, but most wells slightly brackish; some few sweet. Tank water neither clear nor good. Raised and distributed in the usual way. No analysis.
KAMPTEE.	All from wells, of which there are several hundred; quality various; mostly good, pure, and inodorous. River turbid during rains, foul and polluted with the refuse and filth of bazaar in dry season; used for cattle and for washing. No analysis. No better supply, except by damming the river.
ARCOT.	Water derived from wells; tank not used for drinking; "probably produces malaria, and is a nuisance." Wells sufficient for present supply; quantity sometimes runs short in hot season; quality, "clear, wholesome, and without smell," but no chemical or microscopic analysis. Supply raised by leather buckets and distributed by water carriers.
ST. THOMAS' MOUNT.	From wells, not liable to pollution; supply abundant; water in some wells brackish, excellent in others; no analysis; raised for use by windlass and bucket. Tanks outside station, full in rains, probably producing malaria in dry weather.
WELLINGTON.	About 9 cubic feet a second, distributed by pipes from a reservoir with a head of 70 feet; no analysis; soft.
RAMANDROOG.	From a large tank and springs; tank used for bathing and drinking; it is supplied by the drainage of the adjacent country, and is a receptacle for everything the waters may carry down. Amount and chemical composition unknown; quality "excellent;" distributed by bullocks with leather bags.
POONAMALLEE.	From wells; unlimited in quantity, and "good;" contains alkaline carbonates; no analysis; raised and distributed for use "in country earthen pots."
JAULNAH.	From wells, Seo nullah and Koondulka river, and tank. River and tank water "good and wholesome;" many wells brackish and saline, containing lime and nitre; no analysis; some wells good; supply scarce in dry weather; raised by manual labour and bullocks.
RANGOON.	Wells and tanks. Never dry, and brim-full during rains. Quantity ample, except in hot months. Quality "most excellent." When drawn, it is of a whitish colour, but soon deposits sediment and becomes comparatively clear. Requires filtration. No analysis.
TONGHOO.	From river and wells. Ample and "very good," but hard. Turbid in monsoon, and requires filtration. No analysis.
XI. ABLUTION AND BATH ACCOMMODATION. FORT ST. GEORGE.	"Excellent and abundant baths and wash-houses;" 82 baths and two lavatories for men, and 19 baths and two lavatories for women and children. Water laid on. All well drained through latrines to sea. Fig. 7 shows this bathing establishment, which is the best in India.
	FIG. 7.—BATHS, FORT ST. GEORGE. (See plan of barrack, Fig. 1.)
	
SECUNDERABAD.	Lavatories have tubs, shelves for basins, and grated floors; also plunge baths. There are altogether 20 lavatories and five plunge baths. Water raised by bullocks and puckallies. At two barracks water runs off by drains. At Trimulgherry, with three baths and 10 wash-houses, there is no drainage.
BELLARY.	Nine lavatories and one large bath for men. Water obtained by channels from a well; the lavatories are drained into cisterns, whence the water is removed by hand.
VIZAGAPATAM AND WALTAIR.	No information.
VELLORE.	None.
BANGALORE.	No information.

STATIONS.	REPLIES.
<p>CANNANORE. TRICHINOPOLY.</p> <p>KAMPTEE.</p> <p>ARCOT. ST. THOMAS' MOUNT.</p> <p>WELLINGTON.</p>	<p>Six lavatories. Water supplied by puckallies. Waste water runs off into barrack drains. Four washing tubs a company; kept in verandah and filled by puckallies. Two wash-houses, drained by an open channel. Artillery barracks have no lavatory, but a plunge bath filled from a well and drained into adjoining paddy fields.</p> <p>Lavatories supplied with water from wells by carriers. Baths will be built. No proper drainage as yet; refuse water conducted by channels to openings in barrack yard wall, and thence flows away as it best can.</p> <p>No baths or lavatories. Men use tubs filled by water carriers.</p> <p>Each lavatory has a tub; filled with water by a bheestie, in which men wash. Should be abolished, and basins supplied instead.</p> <p>Plunge bath, 70 feet by 20 feet by 6 feet; water flowing continually through it. No information as to ablution accommodation, but the following excellent lavatory plans accompany the report. There are fixed basins, properly drained, with water laid on; the plans show the kind of arrangement required for all barracks and hospitals.</p>

FIG. 8.—PLAN AND SECTION OF WASHING ROOMS WITH BASINS, WELLINGTON.



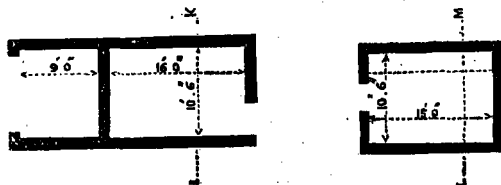
RAMANDROOG.
POONAMALLEE.
JAULNAH.

Wash-houses built on the edge of the hill; admit of easy drainage from their position. Water supplied by puckallies. No bath-house; want much felt.

Two bath-houses, one for men, one for women; also tubs. Stone trough at each corner of barracks for washing. Water supplied by puckallies.

Two lavatories to horse artillery; deficient in size and commodiousness; supplied by puckallies with water. No plunge bath, only a bath room. Figs. 9 and 10 show the arrangements for cleanliness at Jaulnah and Palaveram, and by comparing the rude construction they present with the lavatory and bath plans at Wellington and Fort St. George, the difference between what ought not and what ought to be the provision for cleanliness in barracks will be self-evident.

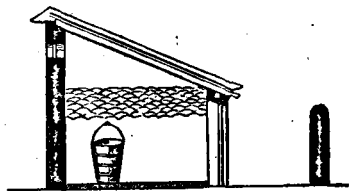
FIG. 9.—LAVATORY AND BATH ROOM, JAULNAH.



SECTION ON L.M.



FIG. 10.—LAVATORY AT PALAVERAM.



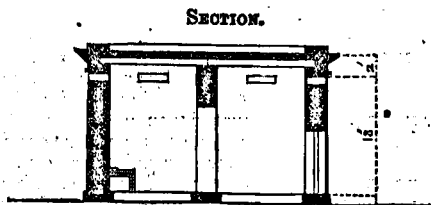
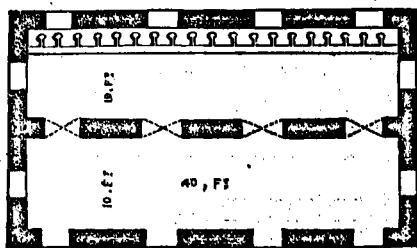
RANGOON.
TONGHOO.
XII. DIET AND COOKING.

"There are lavatories, but no baths."
Ten wooden wash-houses for men (one per company). Water supplied by bheesties.

The ration in Madras Presidency consists of 1 lb. meat, 1 lb. bread, 1 lb. vegetables, 4 oz. rice, 1 1/2 oz. coffee or 1/2 oz. tea, 2 oz. sugar, 1 oz. salt. The value is 3 annas 4 pice. The same ration is issued at all seasons and at all stations, irrespective of climate. The vegetables vary according to season. Potatoes seem to be most preferred by troops, but are not always to be had. Beef and mutton are issued at different intervals.

The usual Indian cooking apparatus is used, and the kitchens are often of a very rude character. Little complaint is made of the cooking, but notwithstanding this, improved cooking apparatus has been successfully tried at Fort St. George. The following Fig. 11 shows a common arrangement of barrack cook-houses in Madras Presidency.

FIG. 11.—PLAN OF ONE OF THE COOK-ROOMS ATTACHED TO THE BARRACKS, BELLARY.



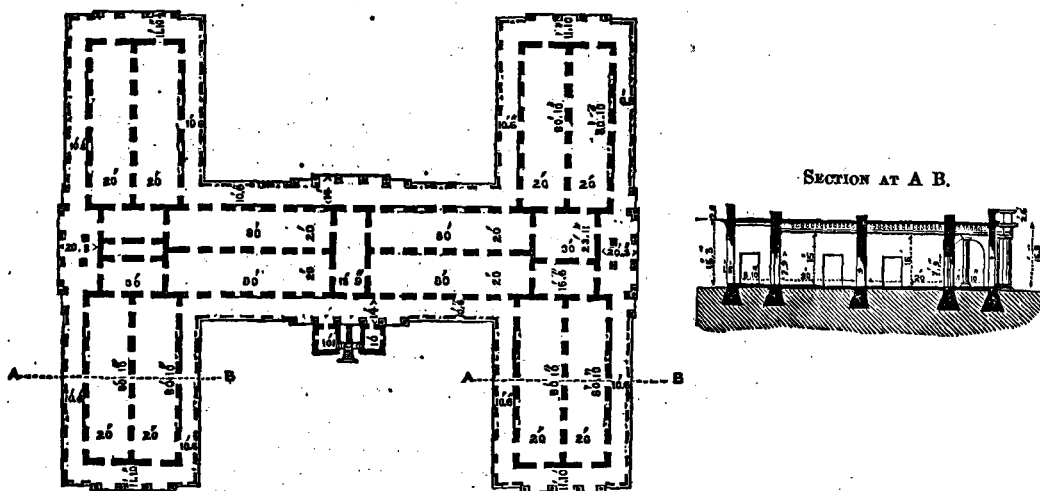
STATIONS.	REPLIES.
XIII. INTEMPERANCE. FORT ST. GEORGE.	Troops usually temperate. Few confirmed drunkards. Spirits sold in canteen. Each man allowed two drams a day without porter, or one dram a day with one quart porter. Many do not drink spirits; some only a portion, and only after dinner. Consumption of spirits, as a general rule, considered injurious; but it would be prejudicial to prohibit sale in canteen; men would get worse spirits elsewhere.
SECUNDERABAD.	"Average number of confirmed drunkards varies." In one regiment 7 per cent., in another 1 in 30 of the force. Admissions to hospital caused <i>directly</i> by intemperance, 1 in less than 24; <i>indirectly</i> , 25 out of 26 (1 in 1 $\frac{1}{3}$). Arrack and brandy sold in canteens. Spirits certainly injurious to health. Amount is not so injurious as the authority and sanction given to spirit drinking, and the desire it creates for more. Present indiscriminate issue "most pernicious." Sale should be abolished; beer, tea, and coffee used instead.
VIZAGAPATAM AND WALTAIR.	Temperate, with few exceptions. Three confirmed drunkards out of 77 men in European light infantry. In European veterans, 10 per cent. 21 $\frac{1}{2}$ per cent. of admissions to hospital from "ebrietas;" 729 per cent. from delirium tremens. Spirits sold in canteen, and "a worse description of liquor" sold to the men within a few yards of the barracks. One dram arrack, one pint beer, or two drams arrack, may be purchased daily at canteen. Spirits most injurious to health. "The habitual daily two drams ruin the health and habits of the soldier, who thinks that, as long as he takes only what the Government allow him, he cannot go wrong." "The sale should be altogether discontinued by Government." "The habit of spirit drinking, which it establishes, is what should be avoided." Malt liquor advantageous. "But health, efficiency, and discipline would be materially improved by tea and coffee in preference to spirits and malt liquor;" "as has been proved when neither spirits nor malt liquor could be procured." The only objection against this is that men, partial to spirits, would obtain it elsewhere. Committee propose that spirits be diluted with water, as one step to total abolition of spirit drinking.
BELLARY.	Spirits sold in canteens. The less consumed, the better for health. Malt liquor or wine much less hurtful. Would be highly advantageous to abolish spirits in canteen and bazaar, restricting their use to particular occasions. "The habit for spirits is maintained by their authorized use."
VELLORE.	Light wines and malt liquor at cheap rates "would be an incalculable boon to the soldier, and a saving to the state." The taste for spirits, "not easily acquired by young soldiers," would die away.
BANGALORE.	Soldiers usually "temperate;" largest number of confirmed drunkards in artillery, 5 per cent. It appears that of one-year soldiers 1 per cent. is a drunkard; after two years the proportion rises to 2 per cent., and increases with length of residence, showing the evils of bad acquired habit. In artillery, 12 $\frac{1}{2}$ per cent. of the strength admitted annually to hospital, directly or indirectly from drinking. In India temperance is the exception and intemperance the usual habit of European soldiers, arising mainly from their idle, listless, objectless lives. "But Government is much to blame. It places the poisoned chalice to the lips, bids them drink freely," and when the habit is confirmed, "denounces them as a disgrace to their country, their religion, and their humanity." "Drinking to excess of ardent spirits is directly or indirectly literally the root of all evil in the army." It causes nine-tenths of the crime, and destroys health and morals. "Unfortunately spirits are sold in canteens," "but any quantity can be obtained in the bazaar." "It is the part of a civilized Government to devise means to check and not to pamper this morbid appetite." "The fear of punishment, but no moral control, checks the consumption." Probably "not three men in five go to bed perfectly sober," and when pay is issued, not two in five. The witnesses, while all admitting the greatness of the evil, differ as to the possibility of entirely prohibiting the sale. All prefer malt liquor to spirits, but any suppression should include sale in bazaars as well as in canteens. Spirits might be issued under particular circumstances. All agree as to the necessity of providing proper amusements and occupations for the men, to keep them from drink.
CANNANORE.	"Very temperate;" only four admissions from drink out of 1,037. Arrack sold in canteen, but not allowed in bazaar; good malt liquor or wine decidedly preferable, but it would be injurious to suppress spirits, as men would find inferior intoxicating drink.
TRICHINOPOLY.	"Usually temperate." In artillery, 6 to 8 per cent. of the men undergo confinement during the month for drunkenness. 12 $\frac{1}{2}$ per cent. of admissions are directly or indirectly from intemperance. Spirits injurious to health, efficiency, and discipline; sale should be abolished in canteens, bazaars, and within a circle of 10 miles round barracks. Spirits are an irritant poison; should be abolished in toto; wine and malt liquor are better, being cordials. Tea and coffee best of all.
KAMPTEE.	A considerable number of intemperate men in artillery. Two per cent. confirmed drunkards in infantry. Two drams spirits per diem taken by five-eighths of artillery. Present manner of issue undiluted, injurious. Better to suppress sale of spirits in canteens and bazaars, and to substitute beer, tea, coffee, &c.
ARCOT.	Soldiers "temperate." In 11 months, out of 229 admissions, 2 from delirium tremens and 2 from ebrietas. Each man allowed two drams a day; injurious; should be abolished if malt liquor could be supplied.

STATIONS.	REPLIES.
ST. THOMAS' MOUNT.	Spirits not sold in canteen, but in bazaar; not to Europeans. Soldiers draw two drams arrack daily at station; not hurtful in moderation, but would be better to abolish it if malt liquor could be issued. Canteen funds are insufficient "to provide amusements to keep the men from drinking."
WELLINGTON.	About 1½ per cent. confirmed drunkards; no admissions from this cause during this year. Distilled spirits sold in canteen; average consumption per man daily, $\frac{8}{9}$ dram spirits, and rather less than one pint malt liquor. Spirits decidedly not conducive to health; malt liquor preferable in every respect; desirable, if practicable, to prohibit sale of spirits. At this station, where men are sent for health, canteen regulation is as follows:—Canteen open from 2 to 3 p.m.; arrack one dram per man. Canteen open from 5.30 to 6.30 p.m.; porter or beer one pint per man. Canteen open from 6.30 to 7.45 p.m.; arrack one dram per man. Soldiers of battalion permitted one pint of porter or beer per man with dinner.
RAMANDROOG.	No intemperance here as a rule. Arrack sold in canteen. Three serjeants consume 3½ drams a day among them; 30 privates 1½ dram each per day. Some men take none; others draw 2 drams. Serjeants "allowed as much as they want." Never given to convalescents. Spirits in moderation not injurious to men accustomed to them; otherwise injurious; malt liquor preferable.
POONAMALLEE.	A good deal of intemperance; sometimes necessary to try men for habitual drunkenness. 1 in 51 admissions caused directly, 1 in 124 indirectly by intemperance. Each man allowed 2 drams spirit at canteen, and can obtain more in cantonment. Old soldiers all take a dram before breakfast. Malt liquor necessary to health; spirits injurious, "as they are invariably abused by the men." Sale should be altogether suppressed.
JAULNAH.	"Temperate" on the whole. 14 confirmed drunkards in Royal Irish detachment. Spirits sold in canteen and bazaar; 2 drams a day allowed to artillery, 1 dram a day to Royal Irish. From 3 to 6 oz. of arrack given as a ration to convalescents. Use of spirits, as at present, detrimental; would be decidedly advantageous to suppress spirits and substitute beer.
RANGOON.	Generally temperate; no confirmed drunkards; spirits sold in canteen. Average consumption per man in Madras Artillery, 1½ drams per diem. In Her Majesty's 68th Light Infantry $\frac{1}{2}$ dram. Considers moderate use not injurious; immoderate, injurious to health, efficiency, and discipline. Malt liquor and wines much better. Objects to suppression of sale of spirits: that the soldier would obtain them elsewhere. Government should afford every aid in establishing good coffee rooms, as far as possible from the canteen. All amusements should be near them. Coffee rooms to be independent of canteens.
TONGHOO.	"Sickness, mortality, and crime occasioned by intemperance" are "so trifling" that no statistical data can be given. Daily allowance per man, one quart malt and one dram arrack, or two drams arrack. Quantity of spirits drawn "conducive to health." Total abstinence "not considered beneficial." Suppression of spirits "not recommended."
XIV. INSTRUCTION AND RECREATION.	
FORT ST. GEORGE.	Ball court; skittle ground. Schools, library, and reading room; temperance room. "No space for soldiers' gardens." No gymnasium nor workshops. A theatre permitted in a barrack room. Men confined to barracks from 7 a.m. till 5 p.m.. No sufficient shade for exercise.
SECUNDERABAD.	Ball courts, skittle alleys. Schools; splendid library and reading room, "at present occupied as a barrack." Another library and reading room, said to be very insufficient and not well lighted at night. Three regiments have gardens. No workshops. There are theatres, and two gymnasia. Means not sufficient for occupation; for want of it, men go out during the day, in search of liquor. Workshops for trades much required, also large recreation sheds, for exercise and games. Present shade not sufficient. Men only prohibited leaving barracks during extreme heat of day.
VIZAGAPATAM AND WALTAIR.	No ball courts. At Waltair, skittle ground. At Waltair, garrison and regimental library, also a school; no day room. No gardens; no workshops; no theatre; no gymnasium. At Vizagapatam, no place of recreation, but canteen; no shade nor covered place for exercise; "a sad want."
BELLARY.	Ball court under construction; skittle ground; theatre; no day room. School, library, and reading room will shortly be constructed. No gardens, no workshops, no gymnasium, no covered place for work or exercise. All very desirable.
VELLORE.	No restriction on the men exposing themselves to sun, or rain when off duty. More trees wanted.
BANGALORE.	No information. Ball courts and skittle sheds (uncovered and useless for part of the day); no gardens; no workshops; no gymnasium. Reading rooms and a regimental schoolmaster; also libraries; "day rooms, soldiers' clubs, workshops, theatre, gymnasia, and gardens are things unheard of." "Regimental library has no attractions for men who read with difficulty." "Immediately the noonday gun announces that the canteen is open, a rush is made for the raw spirit dram." "The canteen and the cot divide the hours unoccupied by the daily routine of petty duties." "Alcohol and unrefreshing day sleep contribute to engender disease and accelerate mental and physical decay."
CANNANORE.	Men allowed to leave barracks during the day. They do not expose themselves so much as formerly, but are not more healthy. They were more hardy formerly. The witnesses recommend increased means of exercise and occupation. One ball court; one skittle ground; a few gardens; no workshops, no gymnasium.
TRICHINOPOLY.	School; cantonment library; theatre; but no reading room, day room, nor soldiers' club. Any extra expense incurred in increasing the means of recreation and exercise would be more than repaid by increase of health. Men confined to barracks from 8 a.m. to 4 p.m. No shade except verandahs.
KAMPTEE.	Ball court and skittle ground; soldiers' garden, worked by the men. No workshops, except an armourer's; no theatre, no gymnasium. School; garrison, and regimental library; coffee rooms. Trades should be encouraged. Many men, such as shoemakers, tailors, mechanics, &c. would go steadily to work, if they had shops. One ball court for artillery; skittle alleys; gardens. No workshops; no theatre; no gymnasium; but there are theatricals in barracks.

STATIONS.	REPLIES.
ARCOT.	Schools; a good library, not open at night; day rooms. Means not sufficient. A large building proposed to contain shops; coffee rooms; game rooms, and reading room. No shade for exercise. Want of amusement makes restriction to barracks very wearisome. Skittle ground; no ball court; no gardens; no workshops; no theatre; no gymnasia; no library, but "plenty of books, which can be read till 8 p.m. when all lights are put out." School and day rooms.
ST. THOMAS' MOUNT.	No sufficient shade at barracks. "But there is at the infantry depot barracks, which is the hospital of the European corps, when quartered at the barracks." Ball courts and skittle grounds; but no workshops, theatre, nor gymnasia.
WELLINGTON.	Schools, library and reading room, lighted at night; but no day room or club. No sufficient shade. No restriction on the men exposing themselves to sun or rain. One ball or raquette court; four skittle grounds; a soldiers' garden.
RAMANDROOG.	No workshops. Theatre and gymnasia. School, library, and reading room; one coffee room.
POONAMALLEE.	Ball court; skittle ground; soldiers' garden, but no means of keeping it up; no theatre. Workshops and gymnasium very much wanted. No library; no reading or day room.
JAULNAH.	Church, a miserable thatched mud building, very damp in monsoon, and must be injurious to health. Ball courts and skittle grounds. No day room; no soldiers' gardens; no workshops; no gymnasia. Occasionally temporary theatre.
RANGOON.	Schools and garrison library open twice a week. Ball court; skittle ground. No gardens; no workshops; no theatre; no gymnasia.
TONGHOOG.	Libraries. No schools; no day rooms. Means of instruction and recreation altogether insufficient. No shade for exercise. Tree planting required, also a large shed for exercise; and a swimming bath.
XV. DRESS.	At this station there is a ball court; skittle grounds; schools; three libraries; day rooms; soldiers' gardens; and shops for trades; two theatres; no gymnasium. Though the means are considerable, they are not sufficient. Lofty open sheds for gymnasia are required.
XVI. DUTIES.	No ball court or skittle ground. No soldiers' clubs. No workshops. School, library, and reading room. Also a theatre. Men grow a few vegetables. No gymnasium. Cricket, quoits, boxing gloves, rifle matches recommended.
XVII. PERIOD OF SERVICE IN INDIA.	The evidence from all the stations, as regards dress, is that the changes introduced have been very important, and that the present dress is suitable as a whole. Several improvements in detail are suggested; such as improved helmets, a more uniform dye for the khakee dresses, the shades of which are so various that "no two soldiers are alike," flannel shirts, &c. But there appears to be little to complain of as regards dress at present, at least as a whole.
XVIII. HILL STATIONS.	The duties are very much alike at the stations. Drills, parades, &c. early in the morning and in the evening. Guards at varying intervals according to the strength and the number of posts. Roll calls at various periods of the day, and occasionally at night when considered necessary for discipline. There is no evidence of men suffering in health when duties are properly carried out. Even night guards are not observed to injure health, provided the guard rooms be not overcrowded and be sufficiently ventilated. All concur in advising the thorough drilling of recruits at home, as recruit drilling in India is almost uniformly carried on at the cost of health, efficiency, and life.
FORT ST. GEORGE.	The recruiting age for India should according to the reporters lie between 20 and 25 years. One reporter advises 3 years' home service before sending the soldier to India at the age of 25. There is a difference of opinion as to whether soldiers should be sent out direct to India, or in the first instance to an intermediate station. A majority of the reporters advocate the latter course, or sending recruits on landing to the hills. The minimum period of service in India recommended is 10 years; but the reporters generally recommend 12, 15, or even 20 years' service. One reporter considers that with improved conditions as to health, soldiers can serve as long in India as anywhere else.
SECUNDERABAD.	Unquestionably approve. Troops should be located on hills, with short periods of service on plains.
VIZAGAPATAM.	Most highly approve of hill stations for troops, but experience is still wanting as to the best manner of taking advantage of them.
BELLARY.	Less loss of life on hills than plains; no objection so far as health is concerned to locating troops on plains, with short visits to the hills to restore health.
VELLORE.	No experience of hill stations.
BANGALORE.	The lower hill stations in Bengal are unhealthy at some seasons. Hill sanitarium admirably adapted for convalescents and ill-formed soldiers; but once acclimatized, inclines to the opinion that service on plains, under improved sanitary conditions as to stations, would be better than hill residence.
CANNANORE.	Hill stations, such as the Neilgherries, better adapted as a sanitarium than for troops. Troops on returning to the plains are more liable to liver disease, dysentery, &c. Men on going to the Neilgherries and other higher stations, are very apt to suffer from diarrhoea and febrile attacks. Best altitudes 3,000 to 6,000 feet above the sea.
TRICHINOPOLY.	No experience of hill stations.
KAMPTEE.	Approve; but service should be on the plains, with short intervals spent on the hills; 6,000 feet altitude, best adapted for this latitude.
ARCOT.	Advisable to locate troops on the hills, with short period of service on plains; 4,000 to 7,000 feet the best elevations. Men on going to hill stations are occasionally liable to febrile attacks.
ARCOT.	No experience, but approve of hill stations for troops.

STATIONS.	REPLIES.
<p>ST. THOMAS' MOUNT.</p> <p>WELLINGTON. RAMANDROOG. POONAMALLEE. JAULNAH.</p> <p>RANGOON. TONGHOOD.</p> <p>XIX. HOSPITALS. FORT ST. GEORGE.</p>	<p>Never in charge of troops on hills, but is of opinion that long hill residence predisposes men to disease on the plains, and would prefer service on the plains, with short service on the hills. Strongly approve. Troops should have short periods of service on the hills and plains alternately. Limited experience, but considers an elevation of 4,000 feet would preserve troops efficient. Hill stations preferable.</p> <p>No experience, but consider that troops might advantageously spend the hot season on the hills. A two years' residence on first arrival would be good for troops.</p> <p>Highly beneficial for European troops. The longer they are on the hills the better.</p> <p>No experience.</p> <p><i>Site.</i>—Half a mile from fort; very densely populated village on opposite side of road; open to S.E. and well exposed to sea breeze, to which the Commander-in-chief adds,—“if the vile stinking river Koom were not under the very noses of the patients.” River Koom on south and west sides, receives town drainage, and gives off most unpleasant odours.</p> <p><i>Water supply.</i>—Hospital well water, brackish and unfit for drinking. Good water has to be brought in barrels from a well two miles away.</p> <p><i>Drainage.</i>—Two drains, outlet in Koom river, 100 yards from hospital. No provision for carrying away roof water. No surface drainage.</p> <p><i>Construction.</i>—Twelve wards, containing 16 beds each (192), at 1,397 cubic feet, and 101 square feet per bed. Wards double, and communicate by 7 arches along the side. Materials brick in chunam. Floors raised one foot above the ground; they are of brick. No ventilation beneath. All wards on ground floor. Wards back to back with four rows of beds between the opposite windows. Verandahs 10 feet wide.</p> <p>Fig. 13 shows the construction of this defective building.</p>

FIG. 13.—PLAN OF THE GENERAL HOSPITAL, FORT ST. GEORGE.



SECUNDERABAD.

Ventilation by doors and windows. No roof ventilators. Air cooled by punkahs.

Cleansing and limewashing twice a year, or oftener if necessary.

Latrines.—Placed to windward “unfortunately.” “Tubs only are used.” No urinals or water-closets. Privy washed daily, and “charcoal burned in it;” “not offensive.” An opinion in regard to which the Commander-in-chief says,—“a year ago, it was odiously offensive.”

Lavatory and bath.—Three rooms with brass basins and stands. Baths are large tubs for cold and warm water. Shower bath and douche.

Storage sufficient; but considerable improvements might be made with advantage.

Bedding.—Wooden and iron cots. Bedding of good quality.

Cooking.—Similar means to those recently introduced in barracks, promise to act well.

Attendance.—Hospital serjeant, male coolies, orderlies when required, “sufficient.”

Convalescents.—No wards. Not sufficient exercising ground. Men conveyed in doolies and bullock carts to the sea beach, morning and evening.

Female hospital.—A detached ward. Midwifery cases taken to lying-in hospital. Arrangements not satisfactory.

Sanitary state “good.” Cases of cholera have appeared, when disease was in Madras. Ulcers have once in five years shown tendency to gangrene, when whitewashing has been neglected.

Site.—Three hospitals for Europeans, five for natives scattered all over cantonment.

Water supply.—Abundant and wholesome.

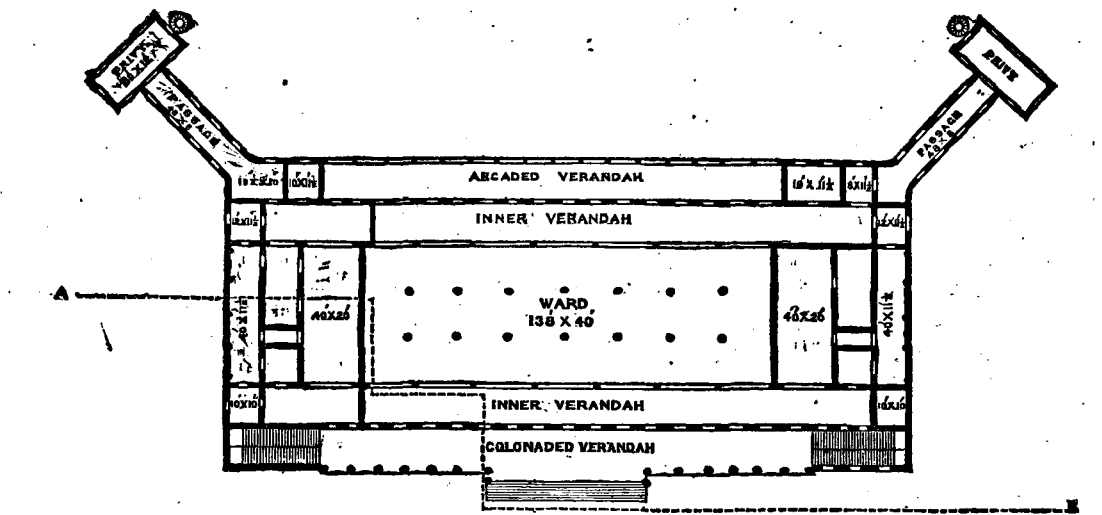
Drainage.—No drains or sewers; only surface drainage. Impurities removed daily. Small cesspools at some native hospitals.

Construction.—Wards raised 1 foot to 1 foot 10 inches above ground. No ventilation beneath. Roof water sinks into subsoil, or runs away on surface. Trimulgherry hospital is upper storied. Madras artillery is abominable, and frightfully hot. It is condemned. All have front and rear verandahs.

Accommodation in European hospitals, 10 wards, 775 beds, at from 1,000 to 1,052 cubic feet, and from 24 to 75 square feet per man. Two of the new wards at Trimulgherry hold each 228 sick, apparently in six rows between the windows. In this hospital, 486 sick have no more than 24 square feet each. The wards are no less than 42 feet high, and out of the whole number of sick in all the hospitals, only 118 have more than 46 square feet.

A plan of one of the floors is given in fig. 14, showing the large wards completely enclosed by other rooms, cutting off the ventilation.

FIG. 14.—HOSPITAL AT TRIMULGHERRY.

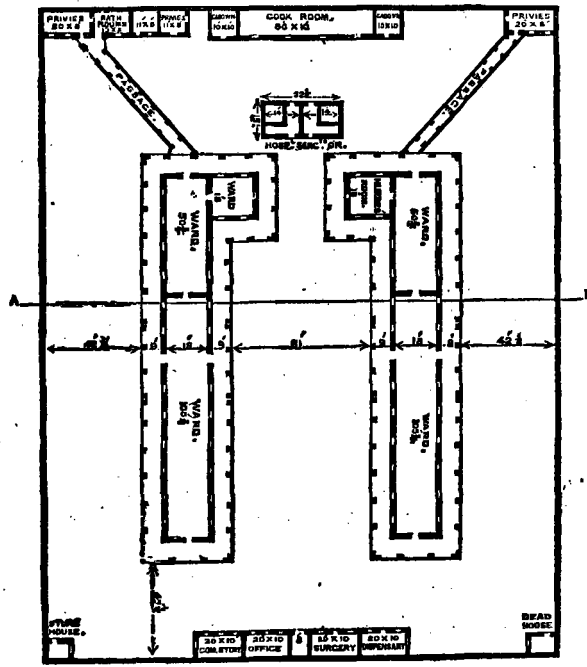


STATIONS.	REPLIES.
<p>VIZAGAPATAM AND WALT AIR.</p>	<p><i>Ventilation.</i>—All the hospitals are exposed to prevailing winds. Ventilation only by doors and windows.</p> <p><i>Cleansing</i> and limewashing whenever required.</p> <p><i>Latrines</i> not drained. Tubs with metal linings used; removed by hand. Three of native infantry hospitals have cesspools.</p> <p><i>Lavatory and bath.</i>—Madras artillery hospital has a portion of front verandah cut off, not sufficient, keeps front of hospital damp and dirty. Old barrack hospital has four bath-rooms, each with a ledge and gutters for holding basins, "sufficient for sick." At Trimulgherry, a bath-room on each floor, inadequate. Some sick have to wash in verandahs. Baths consist of nothing but bathing tubs, "amply sufficient and convenient."</p> <p><i>Hospital washing</i> by dhobies.</p> <p><i>Storage</i> sufficient.</p> <p><i>Bedding.</i>—Cots, iron and wooden.</p> <p><i>Cooking.</i>—Copper tin vessels, frying pans, earthen pots, &c., sufficient and satisfactory.</p> <p><i>Attendance.</i>—Hospital serjeant for each regiment. Nurse for female wards. Comrade allowed for "very sick men." Native females for women's wards. Native males for men in ample numbers.</p> <p><i>Sanitary state</i> generally good, with one exception. The old artillery hospital small, ill-ventilated, badly planned. Old infantry partakes of objectionable site of barracks. In one native infantry hospital, hospital gangrene frequently occurs from overcrowding, from the cachectic state of the patients, owing to the unhealthy character of their lines, and a cess-pool in the hospital enclosure. The latter being remedied.</p> <p><i>Convalescents.</i>—No wards; very much needed at this station, especially when dysentery and hepatitis prevail, and when diet and regimen require care. Exercise taken in sick carts and doolies. Fenced ground with shaded walks and seats much needed.</p> <p><i>Female hospital.</i>—One attached to every European hospital. Satisfactory; but one of them requires out-offices.</p> <p><i>Vizagapatam.</i>—<i>Site.</i>—400 yards from barracks; houses on three sides; a marsh on fourth side, from which unpleasant effluvium arises. Upper wards used for men, lower wards for women and children; shut in and in every way objectionable. Native infantry hospital in a low spot, nearly on a level with the swamp, badly placed; air shut out by hedges and gardens.</p> <p><i>Waltair.</i>—<i>Site</i> admirable; perfectly open to sea-breeze.</p> <p><i>Vizagapatam.</i>—<i>Water supply</i> abundant for bathing, but for all other purposes water is brought from a distance.</p> <p><i>Waltair</i> has excellent water from well in hospital compound.</p> <p><i>Vizagapatam.</i>—<i>Drainage</i> by open drains into a marsh. At native infantry hospital and at Waltair, no drainage.</p> <p><i>Vizagapatam and Waltair.</i>—<i>Construction.</i>—Brick and mud, tiled roofs, and verandahs. Floors raised above the ground. No ventilation beneath.</p> <p><i>Vizagapatam.</i>—<i>Accommodation.</i>—Ten wards for Europeans; 54 beds, at from 660 to 962 cubic feet, and from 58 to 74 square feet per bed.</p> <p><i>Waltair.</i>—<i>Accommodation.</i>—Four men's wards; 29 beds, at about 900 cubic feet and 64 square feet per bed.</p> <p><i>Ventilation</i> by doors and windows only. No means of cooling.</p> <p><i>Cleansing.</i>—Limewashing on requisition.</p> <p><i>Latrines.</i>—Tubs removed twice a day.</p> <p><i>Ablution and bath room.</i>—Baths, tubs, and towels in a separate room; quite sufficient.</p> <p><i>Bedding.</i>—Wooden bedsteads, sadly infested with bugs. Iron required.</p> <p><i>Cooking</i> generally good. Commissariat responsible for this. In native hospitals men cook their own diets. When too ill to do so, an orderly friend is detailed for the purpose.</p> <p><i>Attendance</i> sufficient.</p> <p><i>Sanitary state</i> bad, both of garrison and native infantry hospitals. But there has been no hospital disease in them.</p> <p><i>Convalescents.</i>—No wards. Take exercise on sea beach.</p> <p><i>Female hospital.</i>—Wards are set apart and attended by a nurse. Confinements are attended in hospital. Satisfactory.</p> <p><i>Site.</i>—A new hospital under construction. Healthy as regards elevation, natural drainage, absence of malaria, &c.</p>
<p>BELLARY.</p>	

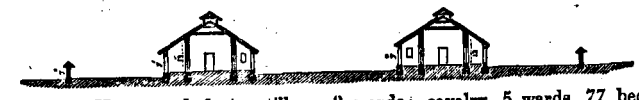
STATIONS.	REPLIES.
VELLORE.	<p><i>Water supply.</i>—Wholesome, but not very abundant. <i>Drainage.</i>—None: yet under consideration. <i>Construction.</i>—Lowest wards 3 feet above ground. No ventilation beneath. Materials, granite and chunam. Double verandahs. Building two stories high. <i>Accommodation.</i>—Seven wards for men, two for women. Total beds, 174; 1,440 to 1,714 cubic feet; 72 to 86 square feet per bed. <i>Ventilation</i> by doors and windows only, said to be "sufficient." Punkahs used for cooling. Two fireplaces for warming. <i>Privies</i> 45 feet from hospital. Communication by ventilated corridors. No drainage. Everything carried away. "If properly attended to, ought not to be offensive." <i>Lavatory</i> under consideration. Bath room with necessary apparatus. <i>Convalescents.</i>—No wards. A separate ward and separate messing very desirable. Information very defective. Hospital surrounded by other buildings. Ventilation very imperfect. Floor raised 18 inches, but without air beneath. Radiation of heat from arsenal walls very great. Windows only 3 feet by 2 feet; too small for any fresh air or coolness, for which there is no other provision. Materials, brick and chunam. Narrow verandah. No winds, save eddying currents, can touch the building.</p>
BANGALORE.	

Four hospitals, one for each corps.
Sites of artillery hospitals good, open, and healthy; of cavalry hospital too close to latrines, sick horse lines, and tank; also partly enclosed by buildings. The infantry hospital is surrounded by high walls and the barrack, interfering with ventilation.
Water supply.—Water for horse artillery hospital obtained from Ulsoor tank, which receives sewage of cantonment. "Tank just now not very clean." Water for cavalry hospital brought in pukkallies from wells into which Ulsoor tank drains. "Water cannot be the purest." "Hundreds of bullock loads of impure matter deposited in this tank are removed year after year, when the tank is low, and the smell from it is most offensive." Infantry hospital supplied from same source.
Drainage.—Horse artillery hospital drained by an open ditch into Ulsoor tank, whence it derives its water. Foot artillery hospital open-drained to some low ground 340 feet distant. Cavalry and infantry hospitals have no drainage, except the cook-room of the latter.
Construction.—Horse artillery hospital of brick and chunam. Walls much too low; insufficient for sick; "has been over and over again condemned." Foot artillery hospital of brick and chunam. Cavalry, brick and mud. Verandahs: those of cavalry occasionally used for sick. All one floor. Floors solid, more or less raised above the ground. No passage of air beneath. Of cavalry hospital it is said, "one of the flags in one of the wards having sunk, and the wards smelling disagreeably, I had it removed to ascertain the cause, and the smell from the opening was so offensive that the apothecary and myself were obliged to run away from it quickly." Roof water mostly sinks into subsoil.
 Fig. 15 is a plan of the infantry hospital, showing its construction and arrangement, the position of administrative offices, privies, baths, &c.

FIG. 15.—PLAN AND SECTION OF THE EUROPEAN INFANTRY HOSPITAL, BANGALORE.



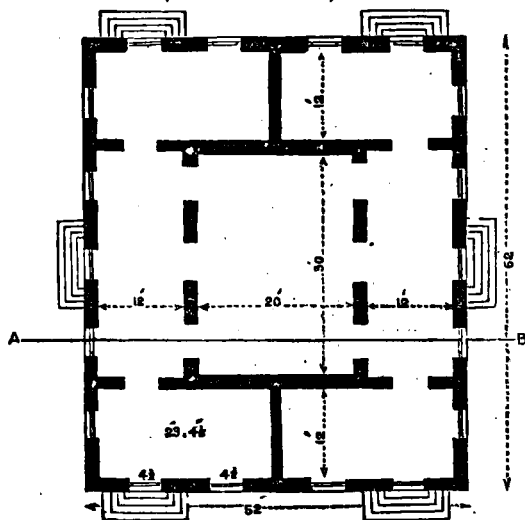
SECTION THROUGH A B.



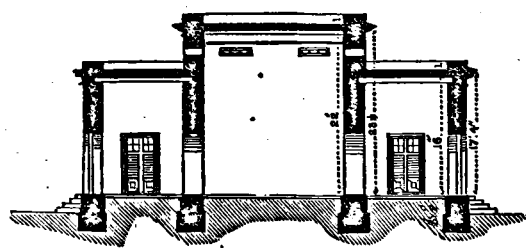
Accommodation.—Horse and foot artillery, 3 wards; cavalry, 5 wards, 77 beds, at 1,001 to 1,395 cubic feet, and 62 to 91 square feet per bed; infantry, 6 wards, 86 beds, at 1,000 cubic feet per bed.
Ventilation.—Artillery hospitals receive benefit of prevailing winds; others do not. Ventilation by doors and windows; very imperfect, subjecting wards to disagreeable draughts and

STATIONS.	REPLIES.
	<p>requiring doors and windows to be closed in rain. In artillery hospital, openings in roof. No means of either cooling or warming.</p> <p><i>Cleansing.</i>—Limewashing once a year, or oftener. Ceilings of cavalry hospital "seldom or never whitewashed."</p> <p><i>Privies.</i>—No drainage. Only tubs are used. Rather offensive. A cesspool attached to foot artillery hospital. "Are not more offensive than is unavoidable."</p> <p><i>Lavatory and bath.</i>—The artillery hospitals use part of verandah for lavatories. The others have separate bath rooms. The cavalry ones small and badly ventilated. Tubs are used for bathing. All water has to be carried.</p> <p><i>Hospital linen</i> washed by dhobies; "badly done and injured by the men employed." At cavalry hospital two tailors constantly employed mending the linen "from this cause."</p> <p><i>Storage</i> at all hospitals insufficient.</p> <p><i>Bedding.</i>—Wooden bedsteads, with difficulty kept free from vermin.</p> <p><i>Cooking.</i>—Royal artillery cook-house too small, too close to wards. Cooking sufficient. Cavalry hospital diets cannot be sufficiently varied for want of proper cooking ranges. Infantry good and sufficient.</p> <p><i>Attendance.</i>—The usual number of attendants. Of cavalry hospital it is said that the assistant apothecary has been changed 5 times in 2 years, the second dresser 8 times, the senior apothecary has just been taken away at a day's notice. System does not work well. Permanent subordinates much required.</p> <p><i>Sanitary state.</i>—Horse artillery good, but site too low, and accommodation insufficient. Foot artillery hospital has been abandoned. Cavalry hospital has been recently altered to improve it; "of very little use." A number of men were attacked in it with acute rheumatism, and 9 were invalided. Much worse for this, and for dysentery, since the alterations. Infantry: no epidemic disease, but hospital too small, and such disease may be expected on increase of sick. Artillery hospital has wards too narrow to hold dining tables. No wards for serious cases. No covered places for exercise, "except the covered way to the latrines." No nurses' or apothecary's quarters, some of whom live a mile from the hospital, and "have to go backwards and forwards all the day long." No way of regulating the temperature. Sick have to go down two steps to the close stools in the closed verandah. Hospital overcrowded. Scarcely raised above ground. Always damp in wet weather. It is so inferior that sick men are reluctant to come into it from barracks. "I have found that convalescents come round more quickly in the barrack room than in this bad hospital." Infantry hospital, 2 wards, used as nurse's quarters and female ward; exposed to men, and leading to indecency.</p> <p><i>Convalescents.</i>—No wards. No suitable grounds for exercise. Bullock convalescent carts allowed for artillery and cavalry hospitals.</p> <p><i>Female hospitals.</i>—A ward in artillery hospital. A female hospital building for cavalry, of one ward, enclosed by verandah all round; partitioned off into four small rooms for lying-in patient and female nurse. Too small and badly planned. In infantry hospital two men's wards occupied. Objectionable in every way. Fig. 16 shows the female hospital, with the ward enclosed by other rooms.</p>

FIG. 16.—FEMALE WARD, BANGALORE.



SECTION THROUGH A B.



FRONT ELEVATION.



CANNANORE.

With regard to the cavalry hospital, the Commander-in-Chief remarks that, though not a first-class building, it is not altogether so objectionable as represented, and that a new one cannot be built in the present state of Indian finance.

Site.—On a cliff; open to sea; healthy.

Water supply.—Abundant and wholesome.

Drainage.—By surface only. Over the cliff, about 110 yards from hospital.

Construction.—Wards raised $1\frac{1}{2}$ to 4 feet above ground. No passage of air beneath. Walls of laterite stone. Verandahs on all sides. One of them used for sick.

Accommodation.—14 wards, 104 beds, at 988 to 1,359 cubic feet, and 62 to 97 square feet per bed.

Ventilation.—Hospital receives full benefit of prevailing winds. Doors, windows, and openings in the walls. Always sufficient, except sometimes at night. Punkahs used; not liked by men. No means of warming required.

Cleansing and limewashing once a year.

Privies.—At a distance from wards. No drainage. Tubs used. Deodorized with charcoal, and removed at night.

Lavatory and bath.—One for each ward. Tubs for lavatory. No means of bathing, except tubs.

Storage.—Sufficient, but damp in wet season.

Bedding.—Bedsteads of wood. Iron ones preferable.

STATIONS.	REPLIES.
TRICHINOPOLY.	<p><i>Cooking.</i>—Ample and sufficient. <i>Attendance.</i>—Hospital serjeant, coolies, native servants, a nurse for sick women. Comrades allowed when necessary. <i>Sanitary state.</i>—" In every respect satisfactory." <i>Convalescents.</i>—One ward. A compound for exercise, but no trees or shaded walks. A hospital cart and dooly allowed. <i>Female hospital.</i>—One ward in hospital. Stoppage for women, 1½d. a day. None for children. Satisfactory. <i>Sites.</i>—Garrison hospital a private house. European regimental hospital, 314 yards from barracks. Cavalry hospital, 66 yards from horse lines. Shengcolum hospital on open ground. Pootoor hospital close to the bazaar. All on tolerably open positions. <i>Water supply.</i>—Just sufficient, and for the hospital "good." <i>Drainage.</i>—"The sewage is removed in casks by scavengers to a distance." <i>Construction.</i>—Floors raised from 6 inches to 3 feet 8 inches; paved with granite. Materials brick in mud or in chunam. Verandahs. No roof gutters. Rain water sinks into the soil, or is conveyed by a trench to the nearest road trench. <i>Accommodation.</i>—There appear to be 16 wards. Number of beds per ward not given, consequently not cubic space. <i>Ventilation.</i>—No ventilators; only doors, windows, and upper fanlights. Cooling by kuskus tatties. <i>Cleansing and limewashing</i> about once a year. <i>Privies.</i>—Garrison hospital has none. Other three hospitals have privies without seats. All are cleansed by scavengers, and kept pure by burning salt in them. "Arrangements admit of improvement." <i>Ablution and bath room</i> attached to end wards; "sufficient." Portable baths used when necessary. <i>Storage</i> sufficient. <i>Bedding.</i>—Bedsteads, wooden frames with tape webbing. <i>Cooking.</i>—"Complete and sufficient." <i>Attendance.</i>—"Sufficient." <i>Sanitary state.</i>—"Very healthy." No epidemic or hospital disease. <i>Convalescents.</i>—Part of a ward used. Exercise taken in doolies and sick carts. No exercising ground, except regimental parade. <i>Female hospital.</i>—An old ward fitted up. "Better arrangements are in progress." <i>Sites.</i>—Not very good. Not free of malaria. Many small nullahs near. <i>Water supply.</i>—Abundant and good. <i>Drainage.</i>—None. Only surface gutters, which convey the water only outside the enclosures. <i>Construction.</i>—Walls brick, tiled roofs, verandahs. Floors raised 3 or 4 feet, but no ventilation below. Roof water collected by guttering, and allowed to run into hospital enclosure. <i>Accommodation</i> of artillery hospital only given. 1 large and 1 small ward. 26 beds at 1,505 cubic feet and 108 square feet per bed. <i>Ventilation.</i>—Doors, windows, and ventilators in ridge; insufficient. Thermantidote for cooling. <i>Cleansing and limewashing</i> every week. <i>Latrines.</i>—24 yards from hospital. Not drained. No water supply; merely swept and cleansed by sweepers morning and evening. Contents deposited in pits, three-quarters of a mile distant. Arrangements offensive. <i>Lavatory and bath.</i>—Under construction. None hitherto. <i>Storage.</i>—None. Hospital stores kept at a distance. <i>Bedding.</i>—Bedsteads of wood; tape bottoms, 18 inches from the ground, much too low. Bedding consists of quilts, blanket, pillows. "Sheets not allowed by regulation, except in dysenteric and fever cases." <i>Cooking.</i>—Cookhouse opposite privy; of rudest construction. No means of roasting. Cooking well done, so far as means admit. <i>Attendance.</i>—As usual. <i>Sanitary state.</i>—Not good. Subject to malaria. Too low. Too far from barracks. Badly ventilated. Ill constructed. No surgery or reception room, except verandah. No lunatic ward. "Privy a disgrace to the 19th century." Kitchen requires re-construction. No quarter for medical attendant nearer than three-quarters of a mile. <i>Convalescents.</i>—No wards. Would be a great advantage. No provision for exercise, except a rough vehicle, ill calculated for convalescents. No shaded walks or seats. <i>Female hospital.</i>—None for infantry. A sick ward in male hospital used; objectionable. Artillery have a separate hospital; sufficient. <i>Site</i> open, freely ventilated, and healthy. <i>Water supply</i> "abundant and wholesome." <i>Drainage.</i>—Refuse water and impurities "removed by hand-carriage to a distance of 30 yards from the hospital." <i>Construction.</i>—Materials, brick and chunam; tiled roof; verandahs. No passage for air beneath floor. <i>Accommodation.</i>—Two European wards, 34 beds each, at 1,000 cubic feet and 35 square feet per bed. Four infantry depôt wards, 5 beds each, at 1,000 cubic feet and 105 square feet per bed. <i>Ventilation</i> by windows and ventilators in upper part of wall. Cooling by punkahs and kuskus tatties. <i>Cleansing and limewashing</i> when considered necessary. <i>Privies</i> 30 yards from hospital. No drainage. Cleansed by hand. <i>Lavatory and bath.</i>—Sick wash in earthen bowls. No means of bathing. <i>Storage</i> sufficient. <i>Bedding.</i>—Painted iron or wooden cots, with tape bottoms. Usual bedding. <i>Cooking</i> sufficient. <i>Attendance.</i>—"Any patient can have a separate orderly on requisition of the surgeon." <i>Sanitary state</i> "good." <i>Convalescents.</i>—No ward. Sick carts the only provision for exercise. <i>Female hospital.</i>—None. Sick treated in quarters. "Satisfactory, as families are so limited in number."</p>
KAMPTEE.	<p><i>Site</i> open but imperfectly ventilated, owing to surrounding walls and outhouses. Also too close to Mount. <i>Water supply</i> abundant and wholesome. <i>Drainage.</i>—No sewers; only surface drains to another drain outside precincts.</p>
ST. THOMAS' MOUNT.	<p><i>Water supply</i> abundant and wholesome. <i>Drainage.</i>—No sewers; only surface drains to another drain outside precincts.</p>

STATIONS.	REPLIES.
WELLINGTON.	<p><i>Construction.</i>—Lowest wards raised 5 feet above ground. No passage for air beneath. Materials, brick and chunam. Jalousied verandah 10 feet wide; sometimes used for sick. A surface chunam drain for carrying away roof water.</p> <p><i>Accommodation.</i>—Four wards of 18 beds each, 2 wards of 4 beds each, 995 to 1,178 cubic feet per bed; superficial area about 50 square feet per bed.</p> <p><i>Ventilation.</i>—Windows and ventilators in wall; sufficient. Cooling by punkahs and tatties.</p> <p><i>Cleansing and limewashing</i> once a year.</p> <p><i>Privies</i> in small out-houses, over cesspits. Bed stools for bad cases.</p> <p><i>Lavatory and bath.</i>—Out-house containing a bath; "quite sufficient."</p> <p><i>Storage</i> sufficient.</p> <p><i>Bedsteads.</i>—Wood and iron.</p> <p><i>Cooking by pots and pans.</i> No apparatus.</p> <p><i>Attendance.</i>—"Sufficient."</p> <p><i>Sanitary state</i> "good." No epidemic disease.</p> <p><i>Convalescents.</i>—No wards. Exercise in sick carts and doodies. Seats in verandahs, and on top of hospital.</p> <p><i>Female hospital.</i>—Sick treated in military hospital; "satisfactory."</p> <p><i>Site</i> open and healthy.</p> <p><i>Water supply</i> by pipes; plentiful and good.</p> <p><i>Drainage.</i>—Sewage emptied into Wellington stream, 600 yards from privies. Sewers flushed several times daily.</p> <p><i>Construction.</i>—Built of brick and mortar. Closed and open verandahs; former occasionally used for sick; roof water carried away in drains; floors raised, with free ventilation below.</p> <p><i>Accommodation.</i>—When completed, 10 large wards, at 22 beds per ward, 1,145 to 1,513 cubic feet and 57 to 75 square feet per bed.</p> <p><i>Ventilation</i> by windows, ventilating windows and openings; sufficient; wards warmed by fireplaces.</p> <p><i>Cleansing and limewashing</i> once in six months, or oftener.</p> <p><i>Privies</i> properly drained.</p> <p><i>Lavatory</i> "good and sufficient." A bath-room attached to each ward. A good sized wash-house for the sick who can walk about, supplied with water troughs, chatties, bathing tubs.</p> <p><i>Storage</i> not sufficient. Purveyor's store used for convalescent depot patients.</p> <p><i>Bedsteads.</i>—Wood, with tape bottoms; straw palliasses, sheets, blankets, pillow cases, quilted covers. Coir mattresses recommended.</p> <p><i>Cooking.</i>—Two kitchens; means sufficient, but iron ranges desirable.</p> <p><i>Attendance.</i>—As usual; but five European orderlies have been employed, which has "answered admirably."</p> <p><i>Sanitary state.</i>—"Perfect," but accommodation should be increased. At present only 84 beds for 1,200 men, and no special wards.</p> <p><i>Convalescents.</i>—No wards; desirable but not necessary; plenty of ground about the hospital for exercise, but not enclosed.</p> <p><i>Female hospital.</i>—A ward with nurse's quarters attached to hospital. Complete as to accommodation, but separate building would be better.</p>
RAMANDROOG.	<p><i>Site</i> very healthy.</p> <p><i>Water supply</i> "abundant and wholesome."</p> <p><i>Drainage.</i>—None, except the hill slope, down which the bath water is emptied by natives, by upsetting the tubs at a short distance from the building.</p> <p><i>Construction.</i>—Floors granite, 2 feet above ground. No passage of air beneath. No surface drainage. Verandahs on both sides.</p> <p>No account of accommodation.</p> <p><i>Ventilation</i> by windows; ventilators near ceiling; doors with Venetians, admitting damp in damp weather; stone floors become damp; bad for bowel disease; ventilation "sufficient," warming by fireplaces.</p> <p><i>Cleansing.</i>—Floors once a week, walls and ceilings once a year.</p> <p><i>Privies and urinals.</i>—None, only night stools; would be very offensive if there were many men in hospital; removed by natives.</p> <p><i>Lavatory.</i>—Two shallow earthenware pie-dishes, placed on a form in a room adjoining the ward where the night-stools are; "sufficient, but decidedly inconvenient." Two tubs in same room for bathing. Hot water carried from cook-room. After being used, tubs carried out by natives and water thrown away. In damp and cold weather the room is very chilly.</p> <p><i>Storage.</i>—None; only a small room at end of the building. "Insufficient by one half, and not dry."</p> <p><i>Bedsteads.</i>—Low cots, with tapes. Cotton quilts and blankets.</p> <p><i>Cooking.</i>—Done in part of barrack cook-house. Native cooks very ingenious in cooking with very meagre supply of utensils. "Sufficient."</p> <p><i>Attendance.</i>—"Sufficient."</p> <p><i>Sanitary state.</i>—"Satisfactory;" but in cold damp weather convalescents from dysentery and bowel affections liable to relapses.</p> <p><i>Convalescents.</i>—All the men are. Plenty of shady walks for exercise.</p> <p><i>Female hospital.</i>—None. Very few women and children. Treated in their own quarters; but a hospital is sanctioned.</p>
POONAMALLEE.	<p><i>Site.</i>—Not good. Surrounded by fort wall, excluding air; a dirty stagnant ditch, with shelving mud banks, outside.</p> <p><i>Water supply.</i>—Good.</p> <p><i>Drainage.</i>—None.</p> <p><i>Construction.</i>—An oblong square, floors on level of the ground, simply bricked over. No surface drainage; no guttering. Materials, brick; tiled roof. Verandahs.</p> <p><i>Accommodation.</i>—7 wards, 92 beds, at 480 to 600 cubic feet, and 48 to 60 square feet per bed.</p> <p><i>Ventilation.</i>—Imperfect. Hospital does not receive prevailing winds. Windows have no glass, only shutters, like doors. Cooling by punkahs.</p> <p><i>Cleansing and limewashing</i> has not been done for 12 months.</p> <p><i>Privies.</i>—Small pukka buildings with wooden boxes.</p> <p><i>Lavatory.</i>—Not at all sufficient. Hip baths and some basins.</p> <p><i>Storage.</i>—Insufficient.</p> <p><i>Bedsteads.</i>—Wooden cots with cotton web bottoms.</p> <p><i>Cooking.</i>—Kitchens much too small. No ranges. No means of roasting or baking.</p>

STATIONS.	REPLIES.
JAULNAH.	<p><i>Attendance.</i>—One hospital serjeant and 8 natives, or 1 to every 10 men. "Indifferent, and "unsuited to European sick." "European nursing, in part at least, would be very "desirable."</p> <p><i>Convalescents.</i>—No wards, but their necessity apparent. Exercise in doolies and sick carts, and walking in shady walks.</p> <p><i>Female hospital.</i>—A portion of one of the hospital wings used. More space and accommodation necessary.</p> <p><i>Site.</i>—Unobjectionable.</p> <p><i>Water supply.</i>—By puckallies.</p> <p><i>Drainage.</i>—Impurities carried away by sweepers; surplus water drained away.</p> <p><i>Construction.</i>—One story, floor of stone, raised 3 feet. No ventilation below. Walls, brick in chunam; pantile roof. Open verandahs; end ones being formed into native-wards, dispensary, &c. Verandahs sometimes used for sick.</p> <p><i>Accommodation.</i>—Two wards, 1,000 cubic feet, and 60 square feet per man.</p> <p><i>Ventilation.</i>—Doors, windows, side and ridge ventilators; sufficient. Cooling by punkahs and tatties.</p> <p><i>Cleansing and limewashing</i> as often as necessary.</p> <p><i>Privies.</i>—Contents removed.</p> <p><i>Lavatory.</i>—A small bathing room and tubs; defective.</p> <p><i>Storage.</i>—None. Building used as a female ward.</p> <p><i>Bedding.</i>—Iron and wooden cots. Straw palliasses; straw and cotton pillows.</p> <p><i>Cooking.</i>—Done in the usual native cook-house; "sufficient."</p> <p><i>Sanitary state.</i>—"Good;" but more accommodation required, and hospital should be enclosed.</p> <p><i>Convalescents.</i>—No ward; such would be advantageous. No conveyance for exercise. No fenced ground. No shady walks or seats.</p>
RANGOON.	<p><i>Female hospital.</i>—None. A small building adjoining men's hospital is used.</p> <p><i>Sites.</i>—Artillery hospital on high ground, 100 yards from barrack. Infantry hospital on a high plateau, 180 yards from barrack. Two native infantry hospitals on low ground, one on high ground; sites open.</p> <p><i>Water supply.</i>—Not abundant in hot season. Filters absolutely necessary, but not generally used.</p> <p><i>Drainage.</i>—"Defective in every instance;" merely trenches made without reference to slope.</p> <p><i>Construction.</i>—Wood; thatoh and shingle roofs; floors raised on posts, with free ventilation below.</p> <p><i>Accommodation.</i>—Infantry, 2 wards; artillery, 1 ward; cubic feet per man 1053 to 1874, square feet per man 124 to 126. In native hospitals very deficient; 360 to 455 and 826 cubic feet per bed.</p> <p><i>Ventilation</i> interfered with by buildings and position of hospitals. Windows and doors "considered sufficient," but roof ventilation advisable.</p> <p><i>Cleansing.</i>—Only one hospital has been limewashed till lately.</p> <p><i>Privies.</i>—Contents removed nightly, but not far enough away; thrown on the surface, vitiating the atmosphere. One has "never been cleaned out." Charcoal and lime used for disinfection, without success. Built of masonry; for native regiments, of matting, "which is most objectionable, as allowing the escape of noxious effluvia."</p> <p><i>Lavatory and bath</i> differ in different hospitals. Insufficient. Bathing accommodation "totally insufficient," "hitherto nothing but a tub of water, without basin, soap or towel."</p> <p><i>Hospital linen</i> washed by commissariat. In monsoon, aired over large baskets by means of charcoal fires.</p> <p><i>Storage</i> damp and insufficient.</p> <p><i>Bedding.</i>—Wooden cot frames; straw mattresses. Iron cots and coir should be substituted.</p> <p><i>Cooking</i> indifferent and not sufficiently varied. "Cooks ignorant of the art of cooking." Utensils of a primitive kind. Cooking range required.</p> <p><i>Attendance</i> usual establishment; with native corps very inefficient. Comrades allowed on requisition. "Native servants, as a rule, are very inattentive, and require great supervision, and Europeans are averse to be waited on by them."</p> <p><i>Sanitary state,</i> "on the whole, good." The sick in hospital have no eating or drinking utensils but what they bring themselves from barracks, (an old custom disused by regulation).</p> <p><i>Convalescents.</i>—Doolies for exercise, if necessary. "The convalescents usually resort to the public gardens." No convalescent wards.</p>
TONGHOO.	<p><i>Female hospitals.</i>—Detached wards; satisfactory.</p> <p><i>Sites.</i>—No European hospital. Two barracks so used; well ventilated and healthy.</p> <p><i>Water supply</i> abundant and wholesome.</p> <p><i>Drainage</i> same as of barracks.</p> <p><i>Construction.</i>—Floors 7 feet above ground. Ventilation beneath.</p> <p><i>Accommodation.</i>—42 beds, 2,302 cubic feet, and 131 square feet per bed.</p> <p><i>Ventilation,</i> by windows; "sufficient."</p> <p><i>Cleansing;</i> whitewashing not used.</p> <p><i>Privies,</i> temporary; cleansed twice a day; not good.</p> <p><i>Lavatory and bath,</i> temporary; tubs filled with water for bathing.</p> <p><i>Hospital washing</i> by dhobies.</p> <p><i>Storage</i> sufficient and dry.</p> <p><i>Cooking;</i> a good cook-house, with range; sufficient.</p> <p><i>Attendance</i> according to regulation.</p> <p><i>Sanitary state.</i>—Good.</p> <p><i>Convalescents.</i>—Discharged to barracks.</p> <p><i>Female hospitals.</i>—None.</p>
XX. BURIAL OF THE DEAD.	<p>The burial-grounds are much in the same condition as in the other presidencies. They are generally described as being properly kept, not injurious to health, and giving rise to no nuisance. In several instances they are overcrowded, and at times offensive, for want of sufficient area and depth of graves.</p> <p>Complaint is made in one return that camp burial-grounds are not properly regulated; that interments are too near to the boundary, and that new comers are apt to be injured by the practice of their predecessors.</p> <p>The dead of natives are disposed of according to caste, by burying or burning, and apparently without injury to health. One tribe, however, is accused of burying its dead within houses or compounds, a practice so directly injurious to public health that it should be put a stop to.</p>

BOMBAY PRESIDENCY.

ABSTRACT OF SANITARY DETAILS IN RETURNS FROM PRINCIPAL STATIONS WHERE IS ACCOMMODATION FOR EUROPEAN TROOPS.

Returns have been received from 30 stations in this presidency. Of these 18 have accommodation for British troops; in most cases, conjointly with native troops.

The lowest of the stations is *Bombay*, which is at the level of the sea.

The loftiest (occupied by British troops) is *Sattara*, the elevation of which is 2,320 feet above the sea.

The comparatively healthy stations, *Poona* and *Kirkee*, have an elevation of from 1,800 to 1,900 feet.

There is barrack accommodation for 2,945 men at *Baroda*, *Kurrachee*, *Hyderabad*, and *Surat*, at an elevation of less than 100 feet above the sea level.

About 1,400 men are barracked at elevations of between 100 and 1,000 feet, chiefly at *Deesa* and *Aden*.

There is accommodation for 6,722 men at elevations between 1,000 and 2,000 feet, including the large stations of *Nusseerabad*, *Mhow*, *Ahmednuggur*, *Kirkee*, and *Poona*.

At *Belgaum* and *Sattara* there are 1,500 men at elevations of above 2,000 feet, the highest, as already stated, being *Sattara*.

Dharwar a native station on the Ghauts, is the loftiest

position occupied by troops in this presidency, and is 2,482 feet above the sea level.

The more important stations are situated along the line of the Ghauts, and west coast, at a distance of about 60 miles from the sea.

Kurrachee is on the sea shore.

Mhow and *Hyderabad* are inland, and most of the small native stations are on the sea shore.

Most of the stations are situated on ground overlying trap or other igneous rock. The surface soils are generally sandy, porous, or dry. At some stations there are black loams and black cotton soil. In a few instances there are laterite and red soils. The surface of the country is generally undulating, sometimes flat. There is not much wood or vegetation, and in most cases the surrounding country is uncultivated, and not unfrequently barren.

At two or three stations the adjacent country is overflowed during monsoon.

In the following pages an abstract is given of the chief sanitary points, bearing on the health of the troops, at each of the more important European stations.

I. TOPO-
GRAPHY.—
MOR-
TALITY.

Stations.	Elevation above		Accommodation for British Troops.	Actual Occupation.	Mortality per 1,000 per annum British Troops.		Topographical Remarks.
	the Sea.	surrounding Country.			Total.	Miasmatic Diseases.	
Hyderabad	Feet.	Feet.	1,000	380	35.85	26.62	Undulating; sandy; dry; alluvium; calcareous hills.
Kurrachee	27	—	1,573	1½ regt.	33.94	21.32	Dry bed of a river; sandy; blue clay over conglomerate; salt swamp of 5 square miles adjacent.
Neemuch*	1,476	0	109	932	30.3	11.1	Undulating; rocky; red soil; trap; black soil.
Aden	123	128	490	521	16.17	4.28	On a volcanic crater; overlooking sea.
Baroda*	90	0	240	400	42.3	14.1	Flat; sandy; cultivated; swampy in monsoon.
Deesa	400	0	800	1,112	26.41	13.21	Flat; sandy; sloping to north; river Bunnass bounds station.
Poona	1,800	0	1,728	1,685	26.43	15.24	Barren; dry; undulating; Moola river, ½ mile off; trap formation.
Kirkee†	1,900	0	608	1 regt.	19.20	12.5	Barren; dry; undulating; river Moola half a mile distant.
Nusseerabad*	1,500	55	786	1,647	37.8	12.4	Sandy plain; large tank half a mile distant; overflows at monsoon.
Sholapore*	1,821	0	75	75	20.9	12.5	Undulating; gravelly soil; over sandstone.
Surat*	33	0	132	176	51.7	11.3	Flat; swampy during monsoon; black soil on clay.
Mhow*	1,862	150	temp. bks.	2,100	28.4	11.5	Undulating; black soil and pebbles resting on trap.
Belgaum	2,200	0	984	1½ regt.	18.43	10.15	Undulating; laterite trap.
Kolapore	1,797	60	468	—	—	—	Black soil; undulating; trap rock; red earth.
Malligaum	1,300	20	116	128	—	—	Flat and dry; black loam; trap rock.
Bombay	+	+	1,073	693	58.6	40.29	On sea shore; with muddy estuaries; trap with shell beaches.
Colaba	+	+	—	—	45.63	25.83	—
Asseerghur*	800	+	100	1 regt.	13.5	—	Ravines with water; trap rock.
Ahmednuggur*	1,900	+	1,200	910	27.2	10.4	Hilly; black soil overlying trap.
Kulladghee	1,750	0	—	—	—	—	Low hills, with brushwood; river Gutpurbah close to station.
Dharwar	2,482	0	—	—	—	—	Undulating; mica schists; black cotton soil.
Sattara*	2,320	0	520	640	18.9	11.17	Hilly; black soil resting on trap.
Ahmedabad*	320	0	—	—	20.8	10.4	Flat; cultivated; flooded in monsoon; otherwise sandy and dry.

STATIONS.

REPLIES.

II. LOCAL CLIMATES.

HYDERABAD (SINDE).	The local climates and their effect on health vary considerably, and are dependent on elevation, exposure, latitude, and the nature of soils and subsoils. At <i>Hyderabad</i> (in <i>Sinde</i>) the thermometer rises in May and June to 99° F. The rain-fall is of very limited amount; the atmosphere exceedingly dry; evaporation rapid for seven months in the year; weather pleasant and bracing in December and January; depressing and exhausting in hot season; predisposes Europeans to disease, but is not an exciting cause; changes of season unhealthy; malarious fevers, with lassitude, debility, and chronic abdominal affections, prevail on the change from cold to heat; same diseases of inflammatory type on the change from heat to cold.
KURRACHEE.	At <i>Kurrachee</i> the climate is good. Maximum heat, 86° to 94° F. in May and June. December, January, and February are the cold months; other months variable; fogs at times.
NEEMUCH.	The climate at <i>Neemuch</i> is cold, dry, and bracing from the middle of November to the middle of February. Heat increases till the middle of May, the mean maximum of the month being 84° F. Fierce hot winds prevail. Great diurnal variation of temperature.

* The mortality at these stations is taken from Inspector-General Rooke's report (Appendix), and includes that of Queen's troops and European troops of the Indian Army. The mortality at the other stations is that of Queen's infantry, given in the Statistical Tables (Appendix).

† Cavalry.

STATIONS.	REPLIES.
ADEN.	<i>Aden</i> has a moist sea climate, equable throughout the year, with a mean temperature in May, June, and July of from 90° to 94° F. Dust storms occasionally. May and September are the most unhealthy months.
BARODA.	The climate of <i>Baroda</i> is moist and very damp in the rains; fogs in the end of November; hot winds and dust in the hot season; climate deleterious to the troops. From November till June is the most healthy period; the remainder of the year unhealthy.
DEESA.	At <i>Deesa</i> the mean maximum temperature is above 105° F. in May; heat and dryness extreme; atmosphere often loaded with dust; little rain. Climate must be considered as rather healthy, but becomes exhausting after two years' residence. The healthy months are from November to April inclusive; remaining months unhealthy.
POONA AND KIRKEE.	At <i>Poona</i> and <i>Kirkee</i> the climate is very favourable to health. The mean temperature of the hottest months, April, May, and June, varies from 83° to 88°; but the mean maximum temperature is nearly 95° F. in April. Rain-fall moderate. There is almost total freedom from fogs; dampness in a mild degree only observable during rains. Great sensible variation of temperature between day and night. The unhealthy months are October, November, March, April, May, and June.
NUSSEERABAD.	The climate at <i>Nusseerabad</i> is dry during the hot and cold season; moist during the monsoon; fogs rare; dust storms very frequent in hot season. In May, June, and July the thermometer in the barracks ranges from 102° to 103° F. During the monsoon it is from 78° to 86°. The cold during the cold months is very sensibly felt. Europeans may be all day in the open air without injury from the sun. September to December inclusive are the unhealthy months.
SHOLAPORE.	At <i>Sholapore</i> the climate is warm and dry during the greater part of the year. The mean maximum temperature in April and May is 93°; the lowest minimum is between 69° and 70°; daily range from 7° to 12°. Rain-fall, variable, from 13 to 40 inches. Atmosphere pure. High winds at certain seasons. Climate, one of the healthiest in India. Unhealthy months, July, August, December, and January.
SURAT.	The climate is decidedly moist for nine months of the year, the sea being about 10 miles distant. Mean maximum temperature, above 100° F. in March and April; mean minimum in January, 59°. Little or no fog. Occasional dust storms. October till the middle of December is the unhealthy season.
MHOW.	The climate of <i>Mhow</i> is good; dry and cool. The mean maximum temperature of April and May is 92° to 95°; the mean minimum in December and January is 65° to 67°. Rain-fall, from 18 to 24 inches. Little dust. Health of troops affected during changes of season. Monsoon month the most unhealthy.
BELGAUM.	The climate is generally good, but variable. There is no excess either in dryness, moisture, heat, cold, fog, or damp. Dust storms occasionally. General influence of climate on health, good. Most healthy months, January, February, September, August, October, and July.
KOLAPORE.	Climate of <i>Kolapore</i> generally very temperate. Dry from November to February. Early mornings moist and fresh. In March, April, and May there is more moisture. Mean maximum temperature varying from 87° to 88°. Cool and refreshing breezes after sunset. Climate agreeable, though damp and cool during the rains. Altogether one of the healthiest in the Presidency. Diseases most prevalent in September, October, and November.
MALLIGAUM.	Climate is generally dry; very hot during May and June, when the mean maximum ranges from 100° to 104° F. Mornings agreeable to 10 a.m. Cold weather pleasant, with very few fogs. Air pure; dust storms very rare. Troops generally healthy. October most unhealthy month.
BOMBAY.	<i>Bombay</i> has a sea climate, generally more or less moist, in the rainy seasons particularly so, and very debilitating, except in December, January, and February. Mean temperature highest in April, May, and June, ranging from 84° to 85°. Annual rain-fall, about 78 inches on 102 rainy days. Evaporation almost equals average rain-fall. From January to June is the most healthy period; remainder of year unhealthy.
ASSEERGHUR.	Climate excellent; moderately dry and not very variable. Its influence on health of troops, excellent. Third quarter of year is the most unhealthy.

III. PREVAILING DISEASES AMONG NATIVE POPULATION, AND THEIR CAUSES.

HYDERABAD.	Fevers (malarious), with spleen disease, small-pox, measles, calculus. Causes.—Poverty, filth, alternate inundations and drying of soil.
KURNACHEE.	Sickness occasional at beginning and end of hot season. Diseases, fevers, spleen, bowel, scurvy, ulcers. Causes.—Swampy margin of sea; bad drinking water, causing scurvy and diarrhoea.
NEMUCH.	Fevers prevail.
ADEN.	Ulcers; small-pox; fevers.
NUSSEERABAD.	Fevers; guinea worm; small-pox; dysentery; diarrhoea; spleen; cholera occasional.
SHOLAPORE.	Diseases, quotidian, intermittent fevers; diarrhoea; dysentery; guinea worm; cholera; small-pox. Causes.—Neglect of sanitary precautions; impure water; alternations of temperature; improper and insufficient food; abuse of intoxicating drugs.
SURAT.	Station, district, and native population generally unhealthy. Prevailing diseases, spleen, small-pox; cholera. Causes.—Want of cleanliness; filthy habits; imperfect drainage.
AHMEDNUGGUR.	Intermittents; cholera; small-pox.
MHOW.	Fevers; spleen; small-pox; cholera.
BELGAUM.	Fevers, intermittent; bowel complaints; ulcers; bronchial disease; cholera; small-pox. Causes.—Imperfect ventilation; want of cleanliness of person and of dwellings; errors in diet; disregard of all hygienic laws.
KOLAPORE.	Intermittents, remittents; guinea worm; tape, round, and thread worm, and itch; cholera, small-pox, measles.
MALLIGAUM.	Fevers; rheumatism; cholera.
BARODA.	Cholera; intermittents; small-pox; leprosy; spleen disease. Causes.—Want of cleanliness; bad drainage; too many trees. The villages in Guzerat are excessively filthy; no cleansing; water stagnant in every hollow till it evaporates.
SATTARA.	Fevers, chiefly mild intermittent; sub-acute rheumatism; guinea worm; spleen disease rare; cholera.

STATIONS.	REPLIES.
BOMBAY.	Small-pox; measles; cholera, epidemic and sporadic. <i>Causes.</i> —Filtth, and almost entire want of circulation of air.
ASSEERGHUR.	District and native population essentially unhealthy; cholera and fever. <i>Causes.</i> —Excessive filthiness; total absence of all sanitary measures.
DEESA.	Diarrhœa; fever, intermittent, remittent; spleen disease not common; cholera "visited many villages in surrounding districts;" small-pox occasional; but "natives generally healthy" from "dry climate," sandy soil, and good water, absence of vegetation and of sudden changes of temperature.
KIRKEE AND POONA.	Fever, intermittent and remittent, prevailing at beginning and end of rainy season; spleen disease rare; bowel complaints; eruptive fevers; small-pox; chicken-pox; measles prevailing in hot season; catarrh and rheumatism in cold season. Population generally healthy, from elevation, trap subsoil, freedom from alluvial deposits, sea breezes, good water.

IV. PREVAILING DISEASES AMONG EUROPEAN TROOPS.

HYDERABAD.	Prevailing diseases among the European troops are,—fevers, quotidian, intermittent, remittent, dysentery, rheumatism, hepatitis. They are most prevalent in autumn. European troops at Hyderabad have never suffered from epidemic cholera. Strict attention to all sanitary measures is required. There should be no overcrowding of barracks.
KURRACHEE.	Prevailing diseases: fevers, intermittent, remittent, and continued; dysentery and rheumatism occasionally. These give 45 per cent. of the total admissions, and 33 per cent. of the total deaths. Hepatic diseases at the rate of about 3 per cent., caused by heat and the use of spirits; but also accompany severe fevers and dysentery. Pure air, disuse of spirits, proper clothing, and exercise, are the prophylactics required against hepatic diseases. Twenty per cent. of the sick of European regiments suffer from venereal disease. Prostitutes should be expelled from bazaars and marriage extended. No lock hospitals required. About 10 per cent. of recruits landed at Kurrachee from England suffer from scurvy; attributed to bad water and food, and inferior accommodation on voyage.
NEEMUCH.	Prevailing diseases at this station are, fevers, intermittent, remittent; rheumatism, dysentery, and small-pox. Zymotic diseases are most prevalent during the hot weather and rains. No unusual atmospheric conditions have been observed to accompany them.
ADEN.	The most frequent diseases among Europeans here are not those observed at other stations. Fevers, dysentery, rheumatism, cholera, happen occasionally, but in much smaller proportion than elsewhere. The fevers are chiefly ephemeral and intermittent; they are most prevalent, together with diarrhœa, and dysentery, in September.
BARODA.	Fevers are very prevalent at this station; the continued form frequently occurs. Diseases of the stomach and bowels, including dysentery and diarrhœa, are not so frequent; but epidemic cholera has been prevalent. Fever appears about October, when vegetation is decaying, and there is moist muggy heat. Cholera appears about the end of the hot season, and seems connected with the eating unripe fruit by the troops. Hepatitis occasionally occurs; small-pox and rheumatism not common.
DEESA.	The prevailing diseases here are, fevers, intermittent and remittent. Dysentery is not common. Diarrhœa most frequent in wet weather. Cholera excessively fatal. In the wet seasons fevers assume the above-mentioned types; and in the hot dry months the types are ephemeral or continued. Liver disease is very common, and is attributed to excessive heat and sedentary habits. Venereal disease amounts to from 13 to 25 per cent. of the admissions.
NUSSEERABAD.	At this station fevers afford the largest proportion of admissions. They are intermittent, remittent, and continued, acute and chronic dysentery, distinct and confluent small-pox, and acute and chronic rheumatism also prevail. Cholera is comparatively rare. Precautionary measures required are, cleanliness of cantonments; abundance of pure water; sufficient accommodation for troops to prevent overcrowding; care as to rations, &c. The principal causes of hepatic disease are, intemperance; atmospheric changes; exposure to draughts during perspiration after exercise. The preventive measures are, temperance; cool atmosphere; careful diet; avoidance of draughts. Guinea-worm prevalent, from drinking water containing ova. Five-eighths of cases in hospital are venereal.
POONA AND KIRKEE.	The most frequent diseases at these stations are, fevers, ephemeral and intermittent. Remittent are less prevalent. At Kirkee the tertian type is the prevailing one; dysentery, diarrhœa, cholera, rheumatism, syphilis, eruptive fevers also prevail, the latter chiefly at Poona. Acute dysentery is the result of chills, sometimes of intemperance. At the time of their prevalence, the atmosphere is generally close, muggy, and loaded with electricity. Hepatic disease also occurs, the result of climate and intemperance. Flannel next the skin, moderate exercise, and a limited use of intoxicating drinks are required. Hepatitis is almost entirely absent from the native army, on account of their abstinence from spirituous liquors and their simple diet. Fourteen per cent. of total sick in hospital are venereal. Lock hospitals recommended.
SHOLAPORE.	Prevailing diseases, fevers, quotidian, intermittent, some liver disease, and dysentery, but little cholera; some venereal disease. Lock hospitals <i>not</i> recommended.
SURAT.	Prevailing diseases, fevers, intermittent, remittent, continued; diarrhœa and dysentery; very little venereal disease, or liver disease.
AHMEDNUGGUR.	Prevailing diseases, fevers, ephemeral, remittent, continued, in the hot months, and intermittent after the monsoon. Dysentery occasions a large proportion of the mortality. Cholera occasional, rheumatism frequent. These, with diarrhœa, catarrh, throat affections, are the common diseases; liver disease prevalent also. Twelve and a half per cent. of total admissions are venereal; after fevers, it is the most common disease. Lock hospitals, to be of use, must have suitable establishments attached to them. Fevers are most prevalent in hot months and after the rains. Liver disease, during the hot months. Almost every epidemic in this cantonment has its origin in the crowded, ill-ventilated, and dirty village of Bhingar. It would be an immense advantage to have it removed. Want of occupation, leading to drink, lays the seeds of disease among the troops; for one man occupied in a barrack, there are six idle. Too great exertion cannot be used to furnish legitimate amusements and occupations. When men are actively engaged in the field in hot weather, there is little sickness or epidemic disease among them.
MHOW.	Fevers, intermittent, remittent, continued, are the most prevalent diseases; dysentery and cholera also occur; rheumatism occasionally; liver diseases frequent; stimulating food and drink are predisposing causes. Prophylactics: improve the vegetable proportion of the ration, and substitute malt liquor for spirits. Epidemic disease always aggravated

STATIONS.	REPLIES.
BELGAUM.	<p>by irregular habits, crowding in barracks, and inferior accommodation. Venereal disease from 60 per cent. of the sick down to 8 per cent. Lock hospitals and a good conservancy police should be established.</p> <p>The troops here suffer from fevers, intermittent, remittent, continued, ephemeral, eruptive; dysentery, acute and chronic; cholera, sometimes mild, but often most severe; small-pox, mild and virulent; rheumatism, acute, chronic, idiopathic, syphilitic; catarrh affections frequently severe; zymotic diseases most prevalent in hot season, and beginning of monsoon, when weather is hot, close, and oppressive, with frequent calms. Bazaar and native dwellings greatly wanting in cleanliness and ventilation; houses close, crowded, confined, and drainage bad, or very indifferent. European troops at present too crowded; their habits of exposure to sun, frequenting the bazaar, their irregularities and intemperance, tend to excite these diseases. To prevent them, the troops should have more space and ventilation; they should be provided with reading-rooms, and means of occupation and amusement to keep them out of the bazaars. The sanitary state of cantonment, bazaar, and native population should be improved; streets widened, dwellings ventilated; impurities removed; vaccination extended. Liver disease prevalent, occasioned by variable climate, exposure to sun, intemperance. Temperance, regularity, suitable clothing, avoidance of exposure, are requisite for preserving health. Venereal disease forms 11 per cent. of constantly sick. Lock hospitals, with proper police measures, might be useful; without these, lock hospitals have been useless, and generally abolished.</p>
KOLAPORE.	<p>The more frequent zymotic diseases are intermittent, remittent fevers; epidemic cholera; small-pox; measles; the former occur mostly at the termination of the rains; cholera and small-pox generally in hot weather. Liver disease occurs occasionally, and arises from continued exposure to high temperature and great change; addiction to spirits is a cause of the disease, malt liquor should be used instead. More active habits and daily swimming baths; lock hospitals recommended; the more varied and agreeable a soldier's occupations, the better his health; indulgence in intemperance is a cause of disease; present cesspools and urinals should be entirely abolished on account of nuisance.</p>
MALLIGAUM.	<p>Prevailing diseases: fevers of the common types, and diseases of stomach and bowels, intermittents most common; muggy hot damp weather predisposes to them. Causes among the troops: exposure to variations of climate, excess of duty, overcrowding of barracks. Prophylactics: daily bathing; flannel next skin; ventilation of barracks; keeping from exposure to sun. Liver disease not so common here as elsewhere; to avoid it are required, spare diet; no beer or spirits, little wine; exercise; flannel next the skin. Venereal disease 2½ per cent. of sick; lock hospitals, with police supervision, recommended.</p>
BOMBAY.	<p>Prevailing diseases: ephemeral, tertian, quotidian, remittent fevers; small-pox; measles; cholera; dysentery. Fevers most frequent in August, September, and October; cholera from March till June. Sanitary condition of station very indifferent; barracks built in low damp positions; bad drainage; crowded filthy natives' dwellings close at hand; regimental lines and bazaars should be kept thoroughly clean. A complete system of drainage is required; sheds for shelter and workshops for the men. Hepatic disease frequent; venereal varies. Lock hospitals abolished.</p>
ASSERGHUR.	<p>Most common diseases: intermittent, remittent, common continued fevers; acute and chronic dysentery; acute rheumatism; hepatic disease, 4 per cent. of the cases; said to be attributable to the climate. Very little venereal disease. Prophylactics: efficient cleansing of station and vicinity, good drainage, cleansing of water tanks, prevention of overcrowding in barracks.</p>

V. CANTONMENT
BAZAARS, AND THEIR
SANITARY STATE.

HYDERABAD.	<p>Drainage of bazaar principally natural; water bought by residents; no crowding; kept clean by sweepers; no dung-heaps permitted; no nuisance in barracks from bazaars; native houses generally good. Native town of Hyderabad adjoins station.</p>
KURRACHEE.	<p>No drainage in bazaars; filth removed daily, kept as clean as limited number of sweepers will allow. Bazaar very crowded; more sweepers required. Native houses mostly good, with cesspits, but contents removed daily. No nuisance in barracks from bazaar. Town of Kurrachee, with 22,000 inhabitants, 2½ miles distant.</p>
NEEMUCH.	<p>Sanitary condition of bazaar tolerably good, ventilation and drainage imperfect; water from wells good and sufficient; latrines too close to houses, not used, for lack of a proper establishment to keep them clean. People obliged to resort to surrounding country; bazaar sweepers paid by inhabitants; bazaar superintendent maintains "strict supervision," and "punishes the inhabitants." Latrines should be moved to a distance, with a sanitary police to attend to them; native houses more or less dirty, dung-heaps close to them; but not sufficiently near station to produce ill effects. Barracks "at east end of camp exposed to disagreeable emanations" from bazaar. "Could be prevented by removing bazaar or by building new barracks at west end." Town of Neemuch, with 8,000 to 10,000 inhabitants, half a mile distant.</p>
ADEN.	<p>No drains near sudder bazaar, "not required, ground being elevated and dry." Ventilation good, water from wells; one privy; no nuisance permitted "in unauthorized places." "Peons see to this." Houses not crowded; "sanitary condition" of bazaar "could not be improved." No nuisance in barracks from it. Town of Aden, with 25,000 inhabitants, close to military limits.</p>
BARODA.	<p>Bazaar well drained; badly ventilated; much crowded; streets clean, but very narrow for want of space. Inhabitants required to keep their premises clean, sweepings removed daily. Four peons allowed; sufficient for sanitary police; no nuisance to station. City of Baroda, 1½ miles distant.</p>
DEESA.	<p>Bazaar a single street along river bank; surface drainage only; ventilation of houses defective on account of structure and position; water abundant and good. Cleanliness defective except in main street, no latrines; natives resort to nullahs and river bank. Crowding in proportion to poverty. People ill-fed, worse clad; general cleanliness enforced in bazaar. Dung-heaps, a "never-failing condition of native life in India." Whether cesspits are in use or not "depends on nature of ground and weather." Nuisance in native lines from wind coming over native dwellings. Sudder bazaar, with 9,000 inhabitants, inside cantonments and extending outside.</p>
KIRKEE AND POONA.	<p>Kirkee.—Drainage of bazaar less objectionable than in most; no crowding; "little fault" in ventilation; water sufficient, from river; bazaar clean; latrines needed for bazaar people;</p>

STATIONS.	REPLIES.
	<p>"chowdrie" inspects bazaar daily, "conductor" four times a month; dust carted to jungle; native houses of average construction; no dung-heaps or cess-pits; no nuisance.</p> <p>Poona.—Bazaar not well drained, nor can it be without more water; ventilation pretty good; crowding; water insufficient; bazaar tolerably clean; no latrines; "poorer classes have to go to a distance;" one havildar, one naique, and 20 peons superintend cleansing; filth and rubbish removed daily; establishment far too small for a population of 27,000; vegetation kept under, and drains cleaned; houses generally good, or being improved; no dung-heaps; no regularity of streets or houses; bazaar close to officers' quarters; nuisance in barracks from villages of Ghorepoore and Wanowrie; cholera occurred first in Wanowrie, 100 yards from officers' lines; village of Kirkee so near that it is a nuisance—"should be removed;" city of Poona in a hole—(population 80,000)—three-quarters of a mile to windward of station of Poona.</p>
SHOLAPORE.	Bazaar clean, well drained, and ventilated; water from wells not deficient; regulations as to cleanliness sufficient; but no paid establishment for the purpose; no dung-heaps or cess-pits; town of Sholapore, with 60,000 inhabitants, a mile distant.
SURAT.	Bazaar drainage and ventilation "as good as possible," water from wells; bazaar very small, kept clean under regulations; few native houses; no dung-heaps or cess-pits; "when wind blows over native town, it is considered unhealthy;" north wind comes over bank, from which there are "noxious vapours;" south-west, the only healthy quarter; large and populous city of Surat forms north-east boundary of camp.
NUSSEERABAD.	Station bazaar contains 15,000 people; main and cross streets have covered drains, emptying into nullah on west; part of bazaar much crowded; ventilation bad; 25 latrines kept clean by sweepers; only one scavenger's cart allowed (for 15,000 people), five required; drinking water chiefly from tanks; 30 wells in bazaar, but only six contain drinkable water; in very dry seasons no drinking water procurable within a mile; each inhabitant responsible for cleanliness of street opposite his house; refuse collected in basket and removed by cart; no nuisance.
AHMEDNUGGER.	Surface drainage said to be "good;" water supply abundant; cleanliness said to be "strictly enforced," but no latrines; no crowding; "two carts and two pairs of bullocks carry away the refuse daily, which is thrown from baskets into the cart, as it passes;" town of Ahmednuggur, with 36,000 people, skirts the camp; suburb of Bhangar, with 3,000 people, is a continuation of the camp; inhabitants of both "permitted to answer the calls of nature on the very boundary of the camp;" when wind blows over dwellings to cantonment, "smell of ordure very perceptible;" removal of filth from native privies not duly attended to.
MHOW.	Drainage of bazaar said to be "good," and water plentiful; external ventilation not good, because streets not well arranged; houses said to be generally good; no dung-heaps or cess-pits; no nuisance experienced; "conservancy carts" remove refuse.
SATTARA.	Sanitary state of bazaar said to be in every point good; no native houses near; no nuisances; city of Sattara, with a population of 30,000, two miles distant.
BELGAUM.	Bazaar said to be "well drained;" ventilation, "as in all station bazaars," deficient; houses low and crowded; water said to be "good;" refuse removed by sweepers and carts, and burnt; "no want of cleanliness;" "public privies and cesspools at times very offensive;" native houses near station generally low, mean, and dirty looking, with dung-heaps and cess-pits near them, and within the enclosures. Shahpoor about a mile from the station; town of Belgaum, with 18,000 inhabitants, between fort and camp; native town affects general health of station, from "bad conservancy," but "no want of cleanliness."
KOLAPORE.	Cantonment bazaar said to be "clean, sufficiently drained, and not overcrowded;" sanitary police under the bazaar superintendent; filth and refuse collected in baskets and taken away to be burnt by Government carts; "one sweeper maintained by Government," who collects filth and throws it into a nullah, 400 yards from camp, where "the bazaar people resort for the purposes of nature;" "stagnant water" removed by sweepers every morning; "two peons" prevent nuisance being committed in camp "from 4 a.m. to 10 a.m. daily," and all offenders are "fined." These arrangements have hitherto proved sufficient. Kolapore, with 50,000 to 60,000 inhabitants, is about one mile, and Bhovra (a village) about half a mile from station.
MALLIGAUM.	Drainage and ventilation of bazaar said to be good, and water abundant; streets tolerably open, and cleansed by sweepers under the superintendent; no latrines; town of Malligaum three-quarters of a mile distant.
ASSEERGHUR.	Sanitary condition of bazaars said to be "satisfactory;" "well ventilated, well supplied with water, and kept clean" by sweepers; but "a policeman ought to be entertained to enforce the regulations in the fortress bazaar;" native houses "built in all shapes and all sizes" in the "pettah;" no nuisance.
BOMBAY.	Station close to town, which contains from 400,000 to 600,000 inhabitants; native town very defective in drainage, &c.; water can be obtained from Vehar waterworks; municipal commission, consisting of deputy commissioner of police, officer of Bombay engineers, and an European inhabitant; the first and last elected by bench of magistrates; engineer appointed by Government superintends the sanitary police; native houses generally in a filthy condition; much ordure within precincts of buildings, where it has been accumulating for years; nuisance is experienced in town barracks and Fort George, by wind blowing over native houses; butchers' shambles and public necessaries half a mile distant; site of slaughter house as bad as can well be, close to a proverbially unhealthy native town; sea breeze cut off by bazaars, large buildings, &c.; washermen's tanks particularly obnoxious.

VI. BARRACK CONSTRUCTION.

HYDERABAD.	There are ten barrack rooms, holding 96 men each; with 1,849 cubic feet, and 86 superficial feet per man; each barrack has two non-commissioned officers' rooms at each end, with a lavatory projecting from the centre; double verandahs and three rows of beds between the opposite doors and windows; verandahs 8½ feet wide; barracks constructed of pucca-brick and lime; floors partly of brick, partly of stone, raised 2½ feet above ground; would be a great improvement for barracks to be raised on arches, "from the well-known habit of malaria, in keeping towards the surface of the earth;" barracks "cleansed and limewashed twice a year."
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STATIONS.	REPLIES.
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Figs 1, 2, and 3 show a plan, internal elevation, and section of the barracks; with three rows and space for four rows of beds between the opposite windows; these figures illustrate the general construction of this class of barrack.

Construction.

Foundations and superstructure are of burnt brick and lime.
 Floor of large bricks set in lime.
 Roof consists of teak trusses, purlins, rafters, battens, matting plastered over with mud and straw and single tiles on top.
 Doors (each 4 ft. by 10 ft.) are partly venetian and partly glazed.
 Windows (each 4 ft. by 2 ft.) are fixed venetians.
 Each roof is provided with three ventilators, 11 ft. long and 6 ft. broad.

FIG. 1.—PLAN AND SECTIONS OF ONE OF THE EUROPEAN BARRACKS AT HYDERABAD (SINDH).

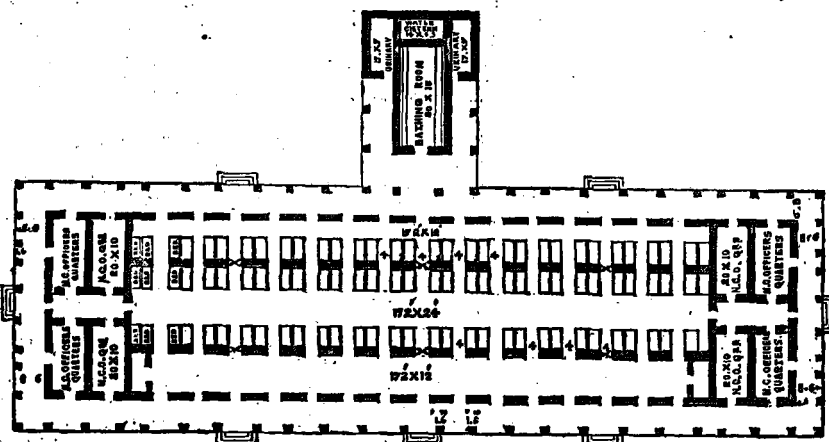
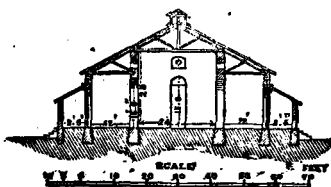


FIG. 2.—LONGITUDINAL SECTION.

FIG. 3.—CROSS SECTION.

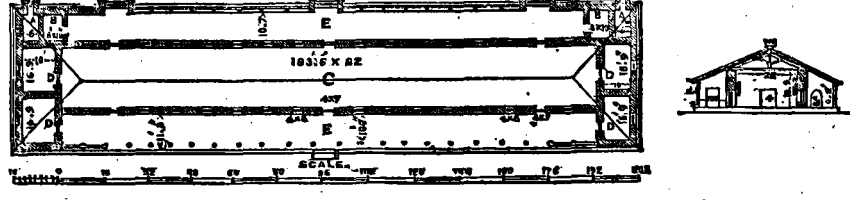


KURRACHEE.	Twenty-two European barrack rooms; ten contain 100 men each, nine contain 47 men each, three contain 50 men each; cubic feet per man from 1,175 to 1,604; superficial feet per man from 65½ to 114½; each barrack has a verandah 10 feet wide and two rows of beds between opposite doors and windows; barracks constructed of stone and lime; floors of cut stone in permanent barracks, chunam and earth in others; floors raised from 3 feet to 3½ feet above ground, no passage of air beneath; walls and ceilings cleansed and lime-washed every six months; bedsteads consist of boards on iron trestles.
NEMMUCH.	One room for 100 men, giving 1,008 cubic feet and 48 square feet per man; windows on opposite sides; verandah 10 feet wide; floors raised one foot above the ground, of stone, laid on rammed earth; no passage of air beneath; temporary barrack.
SHOLAPORE.	Two barrack rooms for 40 men each, giving 984 cubic feet and 42 square feet per man; verandah (open) along one side and end of each; doors and windows on opposite sides; beds in two rows; floors raised above ground; no passage of air beneath; where not paved with stone, the floors are of clean gravel and sand, rammed; surface plastered once a week or oftener, with cow-dung; windows are ordinary plank shutters; bedsteads iron, or planks on iron trestles; buildings of burnt bricks and lime, with thatched roofs.
ADEN.	Six rooms for European soldiers, containing 46 men each, at from 1,346 to 1,452 cubic feet per man, and from 60 to 62 square feet per man; the Isthmus barracks are built of rubble and chunam, over an arched basement 12 feet high; front Bay barracks built of wattle and daub, and floors paved and raised two feet nine inches above ground; no passage of air beneath; whitewashing twice a year; barracks have verandahs; two rows of beds between opposite doors and windows.
BARODA.	Four temporary barracks for 60 men each; 933 cubic feet, 66 square feet per man; built of burnt brick and mortar, sun-dried brick and mud. Floors, some of brick, some of chunam, raised 4 feet above ground. No passage of air beneath, verandahs all round. Two rows of beds between opposite windows; walls and ceilings washed, whenever required. Figure 4 shows the general construction of the temporary barracks at this station and elsewhere in the Presidency.

FIG. 4.—TEMPORARY BARRACK AT BARODA.



SATTARA.	Thirteen barrack rooms, for forty men each at 735 cubic feet and 50 square feet per man. Temporary wattle and daub walls; grass thatched roofs; floors of beaten earth, raised one to five feet according to slope. No passage of air beneath. Verandahs all round.
DREESA.	Eight barrack rooms contain 70 men each, and 3 containing 80 each, with from 1,100 to 1,200 cubic feet and 59 square feet per man. Space between windows for two beds 6½ feet wide.

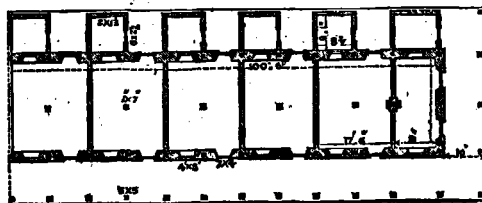
STATIONS.	REPLIES.
KIRKEE AND POONA.	<p>Verandahs 10 feet wide on all sides; used by soldiers to sleep in at their discretion; 2 rows of beds between opposite doors and windows; materials, burnt brick and mortar; floors concrete, raised 2 feet above ground. No passage for air beneath. Limewashing done at no stated period. Bedsteads, iron trestles and boards.</p> <p><i>Kirkee.</i>—Sixteen barracks containing 36 men each, with from 1,034 to 1,487 cubic feet and 64 square feet per man. Open verandah to each barrack, 5 feet to 9 feet wide; never used as sleeping quarters, except on emergency. No glass windows, only wooden shutters; materials of new barracks, burnt brick and lime; of others, burnt brick and mud; floors of the former paved; floors of the latter mud; floors of old barracks not raised above ground; new barracks raised 3 feet, but no passage of air beneath. Floors should be raised 14 feet above the ground.</p> <p><i>Poona.</i>—Thirty-two barrack-rooms containing 40, 42, 84, and 96 men per room, at from 902 to 1,314 cubic feet and from 57 to 76 square feet per man. Some barrack rooms have closed verandahs; windows and doors on opposite sides. Closed verandahs sometimes used as sleeping quarters; materials brick and lime plastered; some floors are paved and raised 3 feet above ground; no passage of air beneath. Some of the barracks have upper stories.</p>
AHMEDABAD.	<p>Twelve barracks, 50 men each, at 756 cubic feet, 55 square feet per man; temporary, of sun-dried brick and mud; chupper roofs, doors and windows of matting, nailed over jungle-wood frames; mud walls plastered and white-washed inside and out. One barrack, 100 men, at 990 cubic feet, 56 square feet per man, of burnt brick and mud, glass windows, half-glazed doors. Floors earth and broken brick, raised one to 2½ feet above ground. No passage of air beneath.</p>
NUSSEERABAD.	<p>Barrack accommodation, temporary, consists of 9 rooms, each containing 80 men, with 1,000 cubic feet and 50 square feet per man. Barracks have a single open verandah; windows and doors on opposite sides, beds being arranged in two rows between them. Foundations, plinth, and main walls stone and lime, plastered outside. Floors of flag stone, chunam, and moorum, raised from 1½ to 2½ feet above ground; no passage of air beneath; verandahs occasionally used as sleeping accommodation. Bedsteads of wood and of boards and trestles; cotton mattresses, which get damp during monsoon; bedstead harbour bugs.</p>
SURAT.	<p>Three barrack rooms, one for 63 men, and two for 25 men each; 480, 540, and 685 cubic feet, and 58 and 60 square feet per man. Windows on opposite sides; beds ranged between. Barracks of stone, or brick masonry; floors raised from 13 to 20 feet above ground; passage for air, but no thorough draught; no verandahs; floors, chunam and teak planks; bedsteads, wood. Barracks limewashed twice a year.</p>
AHMEDNUGGUR.	<p>Twelve permanent barracks for artillery, 50 men in each, at 1,135 cubic feet and 51 square feet per man. Twelve temporary barracks for infantry, 50 men in each, at 807 cubic feet and 57 square feet per man. Majority of buildings have windows on opposite sides; beds arranged between them; verandahs 10 to 13 feet broad. Part of the broader verandahs taken in to barrack-room. Permanent barracks of brick; temporary, of wood framing, wattle and daub walls; floors of moorum, raised 1 to 2 feet above ground; no passage of air beneath; walls limewashed once in six months, or oftener if necessary. Bedsteads, boards on iron trestles.</p>
MHOW.	<p>Barracks temporary. New stone barracks about to be built, apparently on the regulation plan. Two floors; windows and doors on opposite sides; each barrack to contain 264 men; distance between opposite windows, 50 feet; two intervening rows of piers and arches. Four (4) rows of beds between opposite windows. Construction bad as regards ventilation, agglomerating numbers together, and as to small superficial space.</p>
BELGAUM.	<p>Twenty-eight barrack rooms, for from 36 to 72 men per room, at from 813 to 1,430 cubic feet, and from 59 to 89 square feet per man. Barracks long and narrow, with verandahs; windows and doors on opposite sides, two rows of beds between. Built of laterite and lime; double tiled roofs; raised from 0 to 8 feet above ground, but without passage for air beneath. Limewashed at no stated intervals. Fig. 5 shows the construction of the infantry barracks, and generally of the more simple forms of barracks in the Presidency.</p>
<p>FIG. 5.—PLAN OF INFANTRY BARRACKS IN CAMP (9 of this sort).</p>	
 <p>A A. Urinary. BB. Wash-house. C. Barrack room. D D D D. Serjeants' room. E E. Verandah open in front.</p>	
ASSEERGHUR. KOLAPORE.	<p>New barracks in process of construction.</p> <p>Two artillery barracks for 56 men each, with 811 cubic feet and 58 square feet per man; six infantry barracks for 54 men each, with 792 cubic feet and 56 square feet per man. Barracks, simple construction; one long room, with a serjeants' room at each end; windows and doors opposite; open verandahs, 11 and 12 feet broad. Barracks built of timber framework; space (between posts) burnt brick and mud; roofs single tiled; floors moorum, 2 feet above ground; no ventilation beneath. Bedsteads, some iron; some iron trestles with wooden boards; some of wood; last greatly disliked for the bugs.</p>
MALLIGAUM.	<p>Two barrack rooms, one for 90 men, with 1,170 cubic feet and 61 square feet per man; one for 26 men, with 643 cubic feet and 44 square feet per man. Barracks temporary; built of sun-dried brick; roof double tiled; floors moorum, raised one foot, but no passage of air beneath; windows on opposite sides; two glazed shutters; verandahs on both sides and at ends, 10 feet wide. Linewashing when required.</p>
BOMBAY.	<p>Three barracks, viz. :—</p> <p><i>Town.</i>—Five rooms (on two floors), two of 71 men each, at 1,513 cubic feet and 132 square feet per man; three of 106 men each, at 1,415 cubic feet and from 107 to 126 square feet per man. Buildings, three sides of a square. Plan and arrangements very bad; privies, bath rooms,</p>

STATIONS.	REPLIES.
	ablution rooms, cook-house, in close proximity to men's rooms, some under their verandahs; arched doorways on inner side on ground floors; iron bars with wooden shutters in outer walls; venetian shutters on upper floors; ground floor of stone flags, one foot above ground; no passage for air beneath.
	<i>Fort George.</i> —Six rooms (on two floors; no windows, only doors) of 44 men each, at from 900 to 1,148 cubic feet and from 77 to 80 square feet per man. Verandahs, 11½ feet wide; ground floor, flags, 4 feet above ground; no passage for air beneath.
	<i>Colaba.</i> —Six rooms of 53 men each, at 1,075 cubic feet and 89 square feet per man. Long narrow rooms, with verandahs; windows and doors on opposite sides; glazed shutters on the west, plank shutters on the east side; three barracks have mud floors; three have stone floors, 1½ feet above ground; no passage for air beneath. <i>Depôt Barrack</i> at Colaba.—One centre room, completely enclosed by other rooms, without any direct communication with external air. Floors of all barrack rooms should be raised 14 feet above ground.

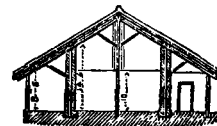
VII. MARRIED QUARTERS.

HYDERABAD (SINDE).	"Quite sufficient."
KURRACHEE.	"Sufficient."
NEEMUCH. ADEN.	Sufficient for present requirements of station. Twelve married quarters for infantry; 24 more to be added; 12 for artillery at Front Bay, and 12 at Ras Tarshyne; 24 for infantry also there.
BARODA. DEESA.	"Plenty." 84 for European regiment; 14 for troop, Horse Artillery.
KIRKEE.	"Sufficient, but extremely bad in construction, except part of superior non-commissioned officers' quarters."
POONA. NUSSEERABAD.	"Sufficient." Not yet quite sufficient, but will be provided.
SHOLAPORE.	"Such quarters as exist are not creditable to the Government. Suitable buildings have been estimated for, but no steps appear likely to be taken for securing the erection of the buildings."
SURAT. AHMEDNUGGER.	Sufficient only for three married non-commissioned officers or men. Eighty separate quarters for artillery; none for infantry in temporary barracks.
MHOW. SATTARA.	In temporary patcheries. Separate quarters.
BELGAUM.	"Not sufficient; some of the end verandah rooms occupied by married men, separate from the unmarried."
KOLAPORE. BOMBAY.	"Sufficient; but of temporary description, and damp in monsoon." No separate quarters in town barracks; lower story generally used. In Fort George, sufficient in the front and rear verandahs. At Colaba and depôt barracks, sufficient.
ASSEERGHUR.	"None whatever." "Two married people of 28th Regiment, and one of 95th Regiment, occupy barrack rooms with single men."
MALLIGAUM.	"Ample and good." The following, Fig. 6, shows their usual construction:—

FIG. 6.—BARRACK FOR MARRIED MEN AT MALLIGAUM.



TRANSVERSE SECTION.



PRISON CELLS.

At three or four stations the cells are well situated, have sufficient space and ventilation, and are said to be "healthy." At all the others the sites are more or less unhealthy, the cubic contents too small for the climate, the ventilation insufficient, as also the means of discipline. Many of this latter class of cells are "bad," or "very bad." At Bombay the military prison is part of a native gaol, situated in an unhealthy locality, and badly ventilated. The prisoners are subject to outbreaks of dysentery and cholera.

VIII. VENTILATION OF BARRACKS.

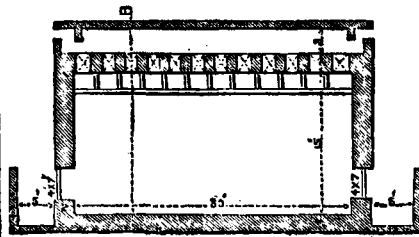
HYDERABAD (SINDE).	Barracks, guard-room, &c. have ventilators in roof, sufficient to keep air pure night and day; admitted air cooled by punkahs and tatties.
KURRACHEE.	Ventilation by openings in roofs and fixed venetians in walls, by wind shafts, and by open doors and windows; sufficient for day and night. Sea breeze ample for coolness.
NEEMUCH.	Ventilators in side walls under wall-plate in barracks; guard-rooms, openings in roof. When barrack doors and windows shut, ventilation insufficient; air cooled by wet tatties.
NUSSEERABAD.	Ventilation by doors and windows; small apertures in wall near floor; similar apertures 5 feet above each window; sufficient for night and day, but method objectionable on account of draughts in monsoon and cold weather. Air cooled by punkahs and tatties.
ADEN.	Ventilation by teak wood trellis-work in the walls over each door and window; also openings in roof; sufficient for day and night; sea breeze sufficient for coolness. Punkahs recently erected, on account of excessive sickness in a regiment recently arrived from unhealthy Indian stations.
BARODA. DEESA.	Ventilation by openings in roof of barracks, sufficient; air cooled by punkahs and tatties. Ventilation of barracks by punkahs, doors, windows, and ventilators in roof; scarcely sufficient for crowded barrack.
KIRKEE AND POONA.	<i>Kirkee.</i> —In old barracks, including all, except two, there can scarcely be said to be any ventilation. Pigeon-holes in roof, but during rains, when ventilation most needed, they have to be covered with tarpauling. New barracks ventilated by louvre boards on sides; holes of insufficient size in upper part of walls; louveres in roof; on the whole good. Ventilation not sufficient to keep air pure by night; huts and guard-rooms, no ventilation whatever, except doors and windows; no means of cooling air.

STATIONS.	REPLIES.
	<i>Poona</i> .—Ventilation by doors and windows. Ensures "some degree of ventilation." Wanowrie barracks, upper story ventilated along ridge; other barracks have cowls, objectionable from leakage during rains; weather side has to be "dammed up" during monsoon. Ventilation in all barrack rooms insufficient; guard rooms ventilated by doors and windows. Arrangements independent of these required both at Kirkee and Poona.
SHOLAPORE.	Ventilators of different descriptions fixed in ridge of roof of barracks and guard room. Sepoys ventilate their own huts. Air cooled by tatties.
SURAT. AHMEDNUGGUR.	Ventilation by doors and windows; not sufficient. Air cooled by punkahs. Ventilation in permanent barracks by cleristery windows at top of high walls. Temporary buildings have metal and wooden ventilators in ridge. Where walls low, ridge ventilation generally employed. Means sufficient, night and day. No means of cooling air required.
MHOW.	Ventilation by openings in roof, sufficient by night and day for temporary barracks. No means of cooling air required.
SATTARA.	No means of ventilation for barracks; insufficient, unless windows always open. No means of cooling air.
BELGAUM. KOLAPORE.	Small ventilators in ridge; sufficient when barracks not crowded. No means of cooling air. Ventilation as follows:—Outer walls only 6 feet high; space between top of wall and roof fitted with bamboo mat frames; sufficient by night and day, from the strong breezes prevailing. No means of cooling air. Native infantry huts have no ventilation.
MALLIGAUM.	Ventilation by openings in roof; sufficient for day and night, when windows always open. No means for cooling air.
BOMBAY.	Town barracks ventilated by iron cowls on ridges; Fort George barracks by wooden cowls; also by openings high up in walls. Colaba barracks have lofty continuous ventilators with glazed shutters. Depot barracks have cowls. Ventilation generally sufficient; "at least, there are no complaints." Improvement imperative. Air cooled by punkahs.
ASSEERGHUR.	In new barracks open ventilator in roof, and open arches into verandah; "decidedly sufficient" for day and night. No other means of cooling air.

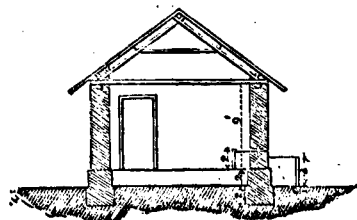
IX. DRAINAGE.

HYDERABAD.	No drains or sewers for barracks; surface and other drainage conveyed into cesspools close to the buildings; emptied as soon as filled. Cesspits, 2 feet diameter, 3 feet deep. No drainage in the bazaar; all filth carried away in carts to the kilns and burnt. Every house has a cesspit, emptied daily. Drainage of native lines "in every respect satisfactory;" received into cesspits; cleaned out every night; "contents carried in skins on bullocks' backs to a distance." Privies cleaned twice a day. In native lines, contents of cesspits are "thrown about in close vicinity to cesspits." "Anything edible is immediately picked up by birds or dogs." "Great room for reform" in native latrines; cleansing of which consists mainly in the liquid "sinking into the subsoil, so that the earth is thoroughly saturated, and a noisome odour pervades the atmosphere." "On the whole, the sanitary condition of the station is satisfactory"!!
MHOW.	No drainage or sewerage. Drainage received into cesspits 50 feet from nearest quarters, and removed by carts and bheesties.
NEEMUCH.	Drainage quite insufficient and of the very worst description; drainage of privies and urinals only on the surface. Lavatories have percolating cesspools; but soil does not admit of free percolation. These cesspits are within 15 yards of men's quarters. Cook-houses have only surface drainage; fluid refuse of barracks daily carried away by sweepers; bazaar drainage imperfect; latrines too close to the houses, and are not used at present for lack of a proper establishment to keep them clean. People obliged to resort to the surrounding country for the purposes of nature.
ADEN.	All drainage from barracks allowed to sink into subsoil,—very absorbent; contents of urinals and wash-houses received into cesspits, 10 ft. diameter, 6 or 7 feet deep; soil absorbs contents. Sudder bazaar not drained.
BELGAUM.	No drainage; fluid refuse received into cesspits; cleared out when necessary; latrines cleansed daily.
BARODA.	Roof water carried off by shallow ditch excavated round buildings; no other drainage; fluid refuse of barracks received into cesspits in rear of cook-houses, 40 yards from barracks. Nullahs with stagnant pools on all sides of station, averaging 400 to 500 yards from barracks; lavatory drainage goes into an open ditch 7 or 8 yards from the room; latrines cleaned by sweepers.
KOLAPORE.	No drains or sewers; fluid refuse received into cesspits; emptied by sweepers, and purified by lime; small cesspits attached to each bathing room, urinal, or privy. To each married man's quarters there is a bathing room, with cesspit.
DEENA.	Barracks drained by small square underground drains into circular cesspools, 2 feet diameter and 10 feet deep; emptied as found necessary. Drainage not sufficient; fluid refuse of barracks sinks into subsoil; bazaar has open channels or surface drains; no bazaar latrines.
AHMEDNUGGUR.	No drainage; night soil and all fluid refuse collected in cesspits, 3 feet by 3, at the end of each barrack, and removed daily.
KIRKEE AND POONA.	<i>Kirkee</i> .—No arrangements for draining barracks or for carrying away refuse water from wash-houses, cook-houses, privies, &c.; all waste water, filth, &c., removed to a specified locality by sweepers. In two new barracks, two small cesspits at end of each building; emptied daily; in other barracks, refuse water runs into tubs. Barracks and hospitals wet and damp during 3 rainy months. <i>Poona</i> .—No drainage; barracks and hospitals damp during rains; other arrangements, same as at Kirkee; bazaar not drained; no latrines in bazaar. Fig. 7 shows the usual latrine arrangements in barracks.

FIG. 7.—PLAN, ELEVATION, AND SECTION OF THE REGIMENTAL PRIVY AT KIRKEE.



SECTION ON A B.



STATIONS.	REPLIES.
NUSSEERABAD.	None but surface drainage; always damp during monsoon. Each wash-house, cook-house, and urinal has its own cesspit; contents removed when required. Hospital cesspit 125 yards from men's quarters; barrack cesspit not 20 yards from quarters, 97 feet from hospital. Bazaar streets have covered drains, emptying themselves into a nullah west of bazaar.
SHOLAPORE.	No sewers or drains whatever in vicinity of barracks; all refuse carried away; refuse water from men's lavatories thrown on surface, and evaporates.
SURAT.	Barracks drained by 4-inch tiles or 8-inch brick and chunam sewers, to river from 100 to 350 feet distance. Latrines not drained. Contents carried away by hand.
MALLIGAUM.	No drainage, except surface drainage into nullahs. Drainage of lavatories and urinals insufficient; received into a cesspit 40 feet from the men's quarters.
BOMBAY.	Town barracks drained by sewers 250 feet long (to sea), 1½ feet broad, 5 to 12 feet in depth. At Fort George, latrines not drained except into open ditch, always in a foul state. Main drain of Colaba barracks 2 feet square, flat bottom. Great nuisance. At Byculla stench at times <i>unendurable</i> . Drainage of native town very defective.
ASSEERGHUR.	"Construction of sewers and drains has not as yet been considered. Sewage will probably be removed by hand." One of the tanks, west side of fort, unsavoury at certain seasons. Refuse in all cases thrown over fort wall. Open space of ground near mainguard and parade, used as a latrine, always offensive, ready to nurture epidemic disease.

X. WATER SUPPLY.

HYDERABAD.	Water supply derived principally from wells filled by the Indus during the inundation. Some wells brackish; majority good. A few wells during the hot weather become dirty and offensive from not being properly attended to. In others less used, pure water is always attainable. Chemical composition not known; water soft; dissolves soap readily. "No doubt it swarms with animal life." Supply abundant; stored in an open tank; full during inundation, almost dry during May and June. Not used for bathing.
KURRACHEE.	Water derived from wells; supply never known to fail. It is rather dull in colour, and has an earthy taste, but no smell. It contains chloride of sodium, sulphate of soda, sulphate of lime, sulphate of magnesia, carbonate of magnesia, carbonate of lime (quantities not given). The best wells contain nearly $\frac{1}{1000}$ of saline matter; quality not good; injurious to health; quantity sufficient; raised by Persian wheels and hand-buckets, and distributed by water-carriers in skins and by casks in carts; there are two or three tanks filled by rain; seldom full, often dry. Water should be brought from the Mulleer river or the Indus.
NEEMUCH.	There are 39 wells, the water is hard, but good; the amount sufficient; it is raised and distributed by water-carriers; the wells not liable to pollution. (No analysis.)
MALLIGAUM.	Water derived from river and wells; quantity unlimited; colour clear and good; tastes slightly of vegetable matter; no chemical analysis; most of water hard; raised and distributed by hand-buckets.
ADEN.	Supply derived from wells; amount of drinking water limited; will be shortly increased by a condensing machine; it is raised by bullock power and distributed on donkeys and camels. The composition of four wells shows a large amount, apparently from 60 to 80 grains per gallon, of impurity from chloride of sodium, chloride of magnesium, chloride of calcium, sulphate of soda, nitrate of lime, carbonate of magnesia; there are also storage tanks.
BARODA.	Water from well; supply unlimited; clear, without taste or smell; soft, good quality, and contains no lime salts. The solid contents are mostly chloride of sodium, carbonate of soda, bicarbonate of soda, and a faint trace of lime. (No detailed analysis.) It is raised in leather buckets by manual and bullock labour, and distributed by water-carriers.
ASSEERGHUR.	Water derived from tanks; same tank used for drinking and bathing. "For the former natives slightly clear away surface. Water, in the sweet well, for Europeans, is good; that in the tanks very bad." No chemical analysis. Water raised and distributed by "mus-sacks" of water-carriers.
DEESA.	Water, from wells, abundant, clear, agreeable, devoid of smell. Chemical composition not known. Drawn for use in leather bags, lowered over rollers, and pulled up by bullocks and distributed by bullocks and carriers.
BOMBAY.	Water, derived mostly from wells, contains for the most part a large quantity of lime and brackish sea salt in addition. (No detailed analysis.) Said not to be unwholesome; raised by ropes and buckets and Persian wheels, and distributed by water carts, puckallies, and bheesties. Vehar lake water, which has been conveyed to Bombay, could be laid on.
KIRKEE AND POONA.	At Kirkee, water supplied from seven wells, averaging 50 feet in depth; wells totally insufficient, often run short (water has to be carried from the river, half a mile distant), contains from 6 to 8 grains of organic and inorganic matter in solution, sometimes as much as 14 grains of organic matter in suspension. Inorganic impurities consist of chlorides of sodium, magnesium, lime, sulphates of soda, magnesia, lime, nitrates of magnesia, lime, carbonates of magnesia, lime, silica; well water raised by leathern buckets and carried in leather skins by bheesties on bullocks. In cold weather Government pays 433 rupees, and in hot weather 617 rupees monthly to water-carriers. "No such thing as a pump known at Kirkee," and "all the arrangements are what they may have been 1,000 years or more ago." At Poona water obtained from aqueduct, three tanks, and the river, from which it is forced by pumps into camp. In hot weather aqueduct dry, and has to be fed from wells; some water stored in tanks not drinkable. 280,450 square feet of camp tanks. No precautions against drainage or surface impurities getting into tanks. During the hot weather water is insufficient in quantity; better supply absolutely necessary; well water raised by common leathern buckets, distributed in leathern skins by bullocks, and on the backs of bheesties. "Each individual has his bheestie, and each regiment its set of bheesties."
NUSSEERABAD.	Water derived from wells and tanks; 2,899,125 square yards of tank surface within half a mile of station; nearly all tanks dry at end of hot season; European troops obtain drinking water from village wells 1½ miles from barracks; 8 other wells in camp, water from which contains so large a proportion of salts as to be unfit for use; water is clear, but brackish; "flavour varies according to quantity of salts," amount varying remarkably at different times. Several times water pronounced wholesome by natives was found to contain $\frac{1}{100}$ of saline and vegeto-animal impurity, chiefly chlorides and sulphates (no detailed analysis). Water is raised by ropes and buckets, and is distributed by bheesties in "mus-sacks," and also by water carts.
SHOLAPORE.	Water derived from wells, fed by percolation from tanks, liable to dry up. Houses along the tank margins become most unhealthy; amount of good water limited, contains about 30 grains solid matter per gallon (no detailed analysis); raised and distributed in leathern vessels by bheesties.

STATIONS.	REPLIES.
KOLAPORE.	Water derived from wells; not liable to pollution; amount too limited in the dry season; quality of well water (with one or two exceptions) good and wholesome; no chemical analysis; water raised by buckets and distributed by bheesties.
SURAT.	Not a well containing good drinking water in station; all more or less salt; some very foul, with sulphureted hydrogen gas. Two brackish wells beyond camp contain best water; no chemical analysis. "No one thinks of drinking the camp water." Raised and distributed by hand in leathern buckets.
BELGAUM.	Water from wells liable to pollution both from leaves and other matters falling into them; water good; no unpleasant taste or smell; no chemical analysis; indications under tests of chlorides and sulphates of lime or magnesia, carbonic acid, and iron; quantity limited; raised in leathern skins by bullocks, emptied into troughs, and thence conveyed by water carriers.
AHMEDNUGGUR.	Water from aqueducts brought from foot of hills; said to be good, wholesome, and sufficient; no chemical analysis; water discharged from aqueducts into wells and reservoirs, and raised thence by bheesties.
MHOW.	Water from wells, not plentiful but good; composition varies, but pure wholesome water can always be procured; no chemical analysis. Drawn and distributed by bheesties in usual manner.

XI. ABLUTION AND BATH ACCOMMODATION.

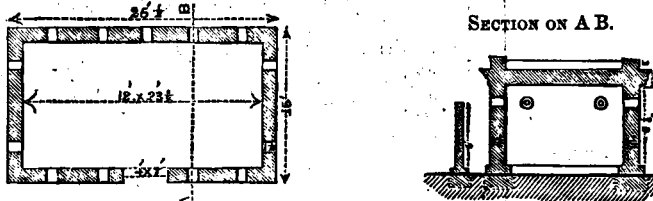
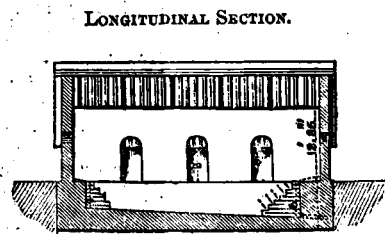
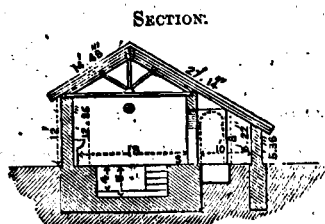
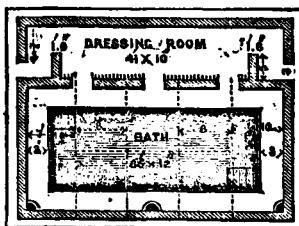
HYDERABAD (SINDE).	To every barrack is attached a "bathing room," with benches and a water cistern. No bath.
KURRACHEE.	Plunge bath, 36 feet long, 14 feet wide, 5 feet deep. Smaller bath in horse artillery barrack.
NEEMUCH.	Lavatory attached to each barrack, with two baths, one for artillery and the other for infantry; water supplied by duct, from well outside; and drained away by pipe to open watercourse; lavatory appears to have no fittings. Fig. 8 shows the usual nature of this class of ablution accommodation.
FIG. 8.—PLAN AND SECTION OF A WASHING ROOM, NEEMUCH.	
	
ADEN.	No bath accommodation; men bathe in sea; there are washing rooms, without fittings, in basement.
BARODA.	Long narrow wash-house, with a sink extending its whole length; a tub is used for washing; water carried by bheesties, and drained away into open ditch, 7 or 8 yards from room.
DEESA.	Each barrack has an ablution room, but no convenient fittings for washing. Two plunge baths, 50 feet by 20, for European regiment; one smaller bath for horse artillery.
KIRKEE AND POONA.	Kirkee.—Lavatories merely open, paved, verandah rooms, with tubs "amply supplied with water." Waste water runs into tubs placed outside. Two lavatories generally to each barrack. Poona.—Lavatory arrangements the same. No baths.
NUSSEERABAD.	Ablution rooms supplied with tubs; water brought daily by carriers.
SHOLAPORE.	No lavatories; men wash in one end of the barrack verandah. Plunge bath, 30 feet by 20, supplied from reservoir, emptied by drain to nullah, 100 yards off.
SURAT.	No lavatories; men wash on ground floor; five tubs, supplied daily by bheesties. Drainage carried through walls into river.
AHMEDNUGGUR.	A small washing room, 8 feet by 6, attached to each barrack; water, after flowing off washing bench, passes through urinal into cesspool.
SATTARA.	Washing house divided into separate rooms about 8 feet square; no fittings. Water runs into cesspits behind. No baths.
MHOW.	Three washing rooms, called baths, drained into cistern behind. No fittings.
BELGAUM.	One or more washing rooms to each barrack; water in casks, filled by water carriers, from which the men help themselves. One plunge bath in fort; two plunge baths in camp, supplied with water from wells. Waste water allowed to run by a drain on to the surface of lower ground. Fig. 9 shows the usual construction of these plunge baths.

FIG. 9.—INFANTRY PLUNGE BATH, BELGAUM.—PLAN.



KOLAPORE.	Washing places outside barrack verandahs; stone-paved floors; raised masonry platforms for hand basins; water kept in casks supplied by bheesties; waste water runs through urinal to a cesspool, emptied by sweepers; no baths; "lavatory arrangements altogether very defective."
MALLIGAUM.	Lavatory, with common basins and tubs for washing and bathing; water supplied by bheesties; waste water passes through urinals by covered drain to covered cesspit.
ASSEERGHUR.	Lavatories supplied with water by hand, and drained into cesspool near building.
BOMBAY.	Town barracks; lavatory has stone floors, and water supplied by bheesties. So also at Fort George and Colaba. It is put into barrels; drained away after use.

STATIONS.	REPLIES.
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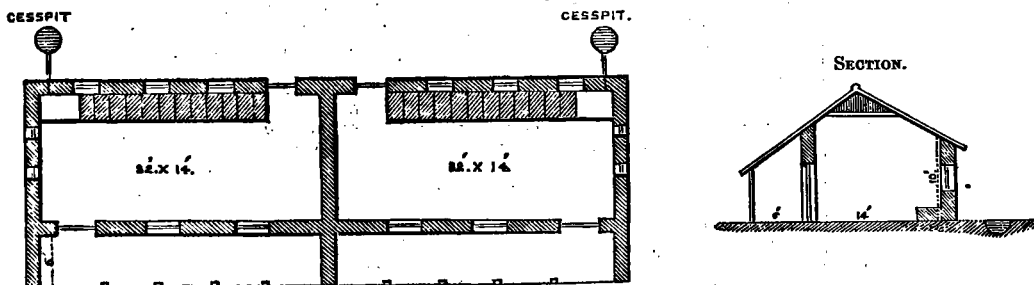
XII. DIET AND COOKING.

At all the European stations of the Bombay Presidency a complete ration is issued as follows:— Bread, 1 lb.; meat, 1 lb.; rice, 4 oz.; sugar, 2½ oz.; tea, ¼ oz., or coffee, 1½ oz.; salt, 1 oz.; vegetables, 1 lb.; firewood, 3 lbs. The stoppage is 3 annas 4 pice daily (about 5d.), which is the sum a married soldier receives if he does not draw his ration. Beef is the usual meat ration, but where good mutton can be obtained it is served out twice a week. The vegetables vary with the station and season. The supply of potatoes is in general too limited; sometimes they cannot be had. Cauliflowers, cabbage, and pumpkins constitute the ordinary vegetables; a small quantity of onions sometimes issued. Ration considered excellent as to quality, and is regularly inspected; but no change in the constituents is made to suit climates or seasons. Soldier is allowed to add additional meat and other things, often of very inferior quality. He has three meals a day, breakfast, 7 to 8 a.m.; dinner, 1 p.m.; tea, 5 p.m.; has often meat at all three, or fish and eggs at breakfast, and meat at the other two, and this in the hottest hours of the day.

Kitchens generally small outhouses, with native fire-places and native utensils; no chimnies; lighting and ventilation often defective; no water supply; all water has to be carried by hand; no drainage, refuse water either escaping into cesspits or sinking into subsoil. Cooking by native cooks; meat is boiled, fried, stewed, and made into various messes; not always very wholesome. Cooking seldom complained of, but might be improved, both as regards apparatus, economy, and the results. The use of tea or coffee before a march varies in different regiments, in some being given, in others not.

Fig. 10, showing a plan and section of the cook rooms at Kolapore, will give a good general idea of the nature of the barrack kitchens and their drainage.

FIG. 10.—PLAN OF THE COOK ROOMS, KOLAPORE.



XIII. INTemperance.

HYDERABAD (SINDE).	Soldiers "temperate;" "few confirmed drunkards;" "drunkenness always punished;" spirits sold in canteen and bazaar; in canteen "good," in bazaar "very bad;" "a cunning man may procure any amount;" "morning dram" depends on commanding officer, quite unnecessary; spirit drinking can be "done without;" is not conducive to discipline; abolition of spirit ration advised, as also restriction of sale in canteens; abolition of it in bazaars; beer or wine not so deleterious, nor coffee, tea, lemonade, &c.; drunkenness should always be punished, and sufficient recreation and amusement provided for men.
KURRACHEE.	Soldiers "temperate;" about 1 per cent. confirmed drunkards; 1 per cent. of admissions into hospital from delirium tremens; drunkenness punished; spirits sold in canteen and bazaar; prohibited to European soldiers in latter; spirit no part of ration; morning dram not allowed; spirits "not conducive" to health or discipline; certainly often injurious; difference of beer and wine over spirits only one of degree (on health); sale of spirits should be prohibited in canteen; only beer, coffee, tea, &c., should be permitted; should be done gradually, beginning with recruits; "no more than one dram" of spirits or one quart of malt liquor allowed per man at one issue at present.
NEEMUCH.	Soldiers "temperate;" "few confirmed drunkards;" "drunkenness always punished;" spirits sold in canteen, but not permitted in bazaar to European soldiers; one dram a day allowed; use of spirits injurious to health, and "not conducive" to efficiency or discipline; abolition of sale might be injurious to "habitual dram drinkers;" wine or beer beneficial as compared with spirits; coffee, tea, &c., beneficial; sale of spirits in canteen should be prohibited, and only beer, coffee, or tea allowed; there should be a reading room and coffee shop away from canteen.
ADEN.	Soldiers "temperate;" no "confirmed drunkards;" drunkenness "always punished;" spirits sold in canteen and bazaar; average consumption, ¾ dram per man per day; no "morning dram;" spirits in moderation "do no obvious mischief;" amount allowed too limited to do mischief; bazaar spirit bad; sale should be prohibited, but not sale in canteen, because bazaar spirits would be drunk; malt liquor good for health; tea, lemonade, soda water, &c., far better for health, efficiency, and discipline, than intoxicating drink; one dram of spirit or one quart of malt liquor per man issued at one time.
BARODA.	Men, as a rule, "temperate;" several "hard drinkers;" no confirmed drunkards; a large amount of fever cases indirectly caused by intemperance; in hard drinkers, "time after time;" drunkenness "always punished;" one dram of arrack and one quart of porter per man can be purchased per diem; spirit in moderation not injurious to health or discipline; but most of the crime attributable to it; malt liquor preferable to spirits; lemonade, soda water, &c., not used; if spirits prohibited in canteen, worse liquor would be bought secretly.
NUSSEERABAD.	Temperate; very few drunkards; drunkenness always punished; spirit sold in canteen, but not to European soldiers in bazaar; one quart porter, one dram arrack daily, allowed; or two drams arrack and no porter; spirits in moderation not injurious to health or discipline; should not be abolished altogether; effect of malt liquor or wine depends on constitution; better for men to drink wholesome canteen spirit than bad bazaar spirit.
KIRKEE AND POONA.	Kirkee, usually temperate; only 3 out of 580 men habitual drinkers; 10 others get drunk on every available opportunity; one admission into hospital in 361 caused directly by intemperance; drunkenness always punished; spirits sold in canteen, but forbidden to soldiers in bazaar; two drams per man per diem allowed; in moderation and diluted, spirits not

STATIONS.	REPLIES.
	injurious to health; but drinking interferes with efficiency; sale should be abolished in bazaars, but not in canteens; malt liquor or wine considerably less injurious; spirits produce same effect on system as elevated temperature.
	Poona.—One in 200 confirmed drunkards; one admission out of 113 (into hospital) caused directly, and 1 in 28 indirectly, by intemperance. Other information same as at Kirkee; but it is considered that "canteen system might be improved."
SHOLAPORE.	Two (out of 76) confirmed drunkards; drunkenness always punished; spirits sold in canteen, but not to soldiers in bazaar; "a man may have either two drams of spirits or two quarts of malt liquor, or one dram of spirits and one quart of malt liquor daily;" "soldiers manage to get drunk in bazaars, notwithstanding all endeavours to prevent it;" spirits injurious to health, efficiency, and discipline; would be beneficial to suppress spirits, if men could not get worse; malt liquor much better.
SURAT.	No confirmed drunkards; two drams of spirits, or one dram and one quart porter, per man per diem allowed at canteen; no proper restriction at bazaar; no morning dram; spirits decidedly injurious to health; not so coffee and malt liquor; would be beneficial to suppress spirits, and substitute beer, tea, coffee.
AHMEDNUGGUR.	No confirmed drunkards; drunkenness always punished; privilege to sell spirits in bazaar sold by auction for 19,560 rupees for natives; two drams per man per day allowed from canteen; injurious to health and should be abolished; old soldiers might feel the loss, but young soldiers would be benefited "beyond all comparison;" malt liquor preferable to spirit or wine; "the more of it, and the less of spirits used, the better for the men;" spirits should be sold in canteens "only on particular occasions."
MHOW.	A few drunken men; drunkenness punished; three quarts of malt liquor, without spirits, or two quarts with one dram of spirits, or one quart, with two drams arrack, may be purchased daily at canteen, but none by European soldiers at bazaar; spirits seldom "conducive," not rarely very injurious, to health and discipline; sale should be restricted or abolished; malt liquor or wine more beneficial; coffee, tea, soda water, better than either; soldiers obtain bazaar spirits, in spite of the above enormous quantities allowed, and in spite of all restrictions.
SATTARA.	No confirmed drunkards; spirits sold in canteen; prohibited to soldiers in bazaar; quantity varies in different regiments; usually about a dram per man per day; injurious to health and discipline, and should be abolished; malt liquor and wine less injurious; former sometimes necessary; coffee, tea, lemonade, as a rule, preferable; canteens should supply only malt liquor, &c.
BELGAUM.	One in 100 a confirmed drunkard; 14 admissions to hospital last year from intemperance; none among natives; other 15 indirectly from intemperance; spirits sold in canteens; repressed in bazaars, but not stringently enough; quantity consumed, one dram per man per diem; no more than two drams per day allowed; in moderation, not injurious to health or discipline; but would be better to abolish its use, if it could be done; malt liquor better than spirits; coffee, tea, lemonade, desirable in every respect; "keep the men from drinking other liquors;" "whatever diminishes drunkenness is beneficial to health and discipline."
KOLAPORE.	Five per cent. drunkards in artillery company; six cases delirium tremens in last two years; spirits sold in canteens; one dram and one quart porter issued per man at one time; spirits not injurious in moderation; if suppressed, men would substitute bad country spirit; delirium tremens has been produced here by eau de Cologne sold in bazaars; malt liquor greatly preferable to spirit; tea, coffee, &c., undoubtedly beneficial.
MALLIGAUM.	No confirmed drunkards; no canteen; spirits sold in bazaar; malt liquor much better adapted to climate; sale of spirits should be restricted or suppressed.
ASSEERGHUR.	Two or three confirmed drunkards; 1 per cent. admissions to hospital caused by intemperance; spirits sold to soldiers in bazaar; one dram allowed in morning before breakfast on march; hot strong coffee would be better; spirits injurious to health and discipline; malt liquor better; coffee or tea better than much malt liquor; spirits should be abolished, and beer and coffee substituted in canteens.
BOMBAY.	One per cent. confirmed drunkards; 37 admissions to hospital (per cent.) from intemperance; spirits sold in canteen and bazaar; one dram per diem allowed as a ration; injurious to health and efficiency; should be abolished as ration, and sale suppressed at canteen and bazaar; malt liquor better; but tea, coffee, lemonade, best; penalties for selling liquor to soldiers outside; but law almost inoperative.

XIV. INSTRUCTION AND RECREATION.

HYDERABAD (SINDE).	One ball court; one skittle ground; one school; one library and reading room; much too small and insufficiently lighted; light paid for by men; long bullets; cricket. In hot weather, men, save those who can read, "have positively nothing to do;" no restriction on exposure to sun; men always less anxious to expose themselves where no restriction; large airy workshops "would prove a boon to soldiers;" employment on public works "would also be a great boon;" work would be as cheaply done as now; it would occupy the soldier, and he would feel he was doing good; a good reading room, well lighted at night, and more suitable books, a great want; all manly games should be encouraged; savings' banks answer admirably; no shade except in north verandahs.
KURRACHEE.	Ball courts; skittle grounds; schools; library and reading room; workshops not efficient; theatre unaided by Government; means not sufficient; no day rooms, nor soldiers' clubs, nor gardens, nor gymnasia; men restricted from exposing themselves to sun; trades and gymnastics should be encouraged; restriction on marriage should be removed; savings' banks would be an advantage; no shade from trees, only verandahs.
NEEMUCH.	Skittle grounds; schools; library and reading room, former well lighted at night; day room; soldiers' garden; no workshops; no ball courts; no theatre; no gymnasia; former about to be erected; two latter would be a great addition; no shade; men kept in barracks during hot months from 8 a.m. to 4 p.m.
ADEN.	One ball court; two skittle grounds; two schools; one library and reading room; sufficiently lighted at night; no day rooms; no soldiers' clubs; no gardens; no workshops; no theatre; no gymnasia; no shelter from trees, only verandah; covered gymnasium much wanted; men kept in barracks during day; savings' banks beneficial.
BARODA.	Small library and reading room, not lighted at night; cricket; no ball court; no skittle ground; no school; no day room; no club; no garden; no workshops; no theatre; no gymnasia. Workshops, especially for carpenters, much needed; also more suitable books for library. There are savings' banks.

STATIONS.	REPLIES.
KIRKEE AND POONA.	<p><i>Kirkee.</i>—Ball courts (not covered); schools; library; reading room. The following, though much required, do not exist:—No day room; no club; no gardens; no workshops. There is no theatre; no skittle ground; no gymnasium. Persuasion and personal influence used to keep the men from exposing themselves. Foils, single sticks, &c., much required. No sufficient shade. Savings' banks are advantageous.</p> <p><i>Poona.</i>—Ball court (uncovered); skittle ground; schools; library and reading room; the latter, being attached to the schools, are objectionable, though sufficiently lighted. No day rooms; no clubs; no gardens; no workshops; no theatre; no gymnasia. The three latter much needed. Present means insufficient; men confined to barracks from 8 a.m. to 4 p.m.; savings' banks beneficial; no shade except verandahs.</p>
NÚSSERABAD.	<p>One ball court; skittle grounds. "Schools and schoolmasters exist, but schools have to be built." Libraries. No proper reading rooms; no day rooms; no soldiers' clubs; no workshops. There are gardens. A theatre, constantly used; a gymnasium; races; jumping, and other gymnastics. Workshops for trades would be a great benefit. No sufficient shade.</p>
SHOLAPORE.	<p>Ball court; skittle ground (uncovered); library (lighted at night); school (no trained schoolmaster). Gardens. No day rooms; no soldiers' clubs; no workshops; no theatre; no gymnasia. Men restricted to barracks during day. Workshops a great desideratum; also gymnasia. A large open shed wanted. Savings' banks would be advantageous if workshops for trades were established. This would keep many men from canteen. No shade. Verandahs too limited.</p>
SURAT.	<p>No ball court. A skittle ground and school. No library, nor reading, nor day room; no club; no garden; no workshops; no theatre; no gymnasia. Men confined to barracks from 8 to 5 in hot weather. No shade for exercise. Savings' banks are advantageous.</p>
AHMEDNUGGUR.	<p>Ball courts; skittle ground; schools; library; reading room; gardens; workshops; theatre. No day rooms; no gymnasia; means sufficient, but not extensive enough. There are savings' banks. Soldiers kept in barracks during day. Shade sufficient for exercise, without injury to health.</p>
MHOW.	<p>Ball courts, skittle grounds (uncovered), school, library and reading rooms. No day room, club, nor gardens; no workshops nor gymnasium. A theatre. Savings' banks answer. Shade insufficient for exercise.</p>
SATTARA.	<p>One school; theatre (barrack room); no ball court; no skittle ground; no library nor reading room; no gardens; no workshops; no gymnasia. All wanted. Savings' banks exist. Men restricted to barracks during day. No sufficient shade for exercise.</p>
BELGAUM.	<p>Ball court, skittle ground, cricket, schools, library, sufficiently lighted; no day room nor soldiers' club; some small gardens. Workshops much wanted; none properly so called. No theatre; no gymnasia. Two regiments at station; one restricted to barracks during day; the other under no restriction, except that the head be properly covered in going out, and men discouraged from exposing themselves; latter rule preferable; too much confinement is bad. Well-behaved men should be allowed to go out shooting and coursing. Not sufficient shade for exercise. Sheds wanted. Savings' banks beneficial.</p>
KOLAPORE.	<p>Skittle grounds; library, well lighted; small garden plots; station theatre; "has fallen down since the preparation of this report;" no ball courts; no adult school; no day room nor club; no workshops nor gymnasia. Artillery not restricted to barracks; permitted to expose themselves as they please, and to get up cricket matches. Infantry—men restricted to barracks, except on duty. Ball alley wanted and plunge baths, as "the men have no means of keeping themselves clean properly." Savings' banks exist; no shade except verandahs.</p>
MALLIGAUM.	<p>No means of instruction or recreation whatsoever; savings' banks would be advantageous; no sufficient shade for exercise.</p>
ASSEERGHUR.	<p>Ball court out of repair; company library; theatre in a private house; no skittle grounds; no day room nor club; no workshops nor gymnasia; men restricted to barracks during day; savings' banks "would certainly be advantageous;" no shade except verandahs.</p>
BOMBAY.	<p>No means of instruction or recreation at town barracks; at other barracks, ball courts; skittle grounds; schools; library and reading room; two barracks have no library; no workshops; theatre occasionally; cricket; men restricted to barracks till 5 p.m.; regimental savings' banks advantageous; no shade for exercise except verandahs.</p>

XV. DRESS.

Besides the usual cloth and woollen dress, the soldier is provided with light khakee tunics and trousers, and a head dress to keep out the sun; it is said to be well suited to the climate and duties.

XVI. DUTIES.

With four exceptions, the replies from European stations advise that recruits should be thoroughly drilled at home before being sent to India; one of these four recommends that recruits should be drilled in a cool climate in India. Stational duties consist of drills, morning and evening, generally before sunrise and about sunset, from half an hour to an hour or more, according to season and weather; the number of nights in bed depends on the strength, and appears to vary from four to seven successively; guards last 24 hours, and are mounted at distances off from a few yards to two miles. Except at one station, night duties are not observed to have any injurious influence on health; the number of roll calls varies in different regiments from two to seven; night roll calls are not unfrequent.

XVII. PERIOD OF SERVICE IN INDIA.

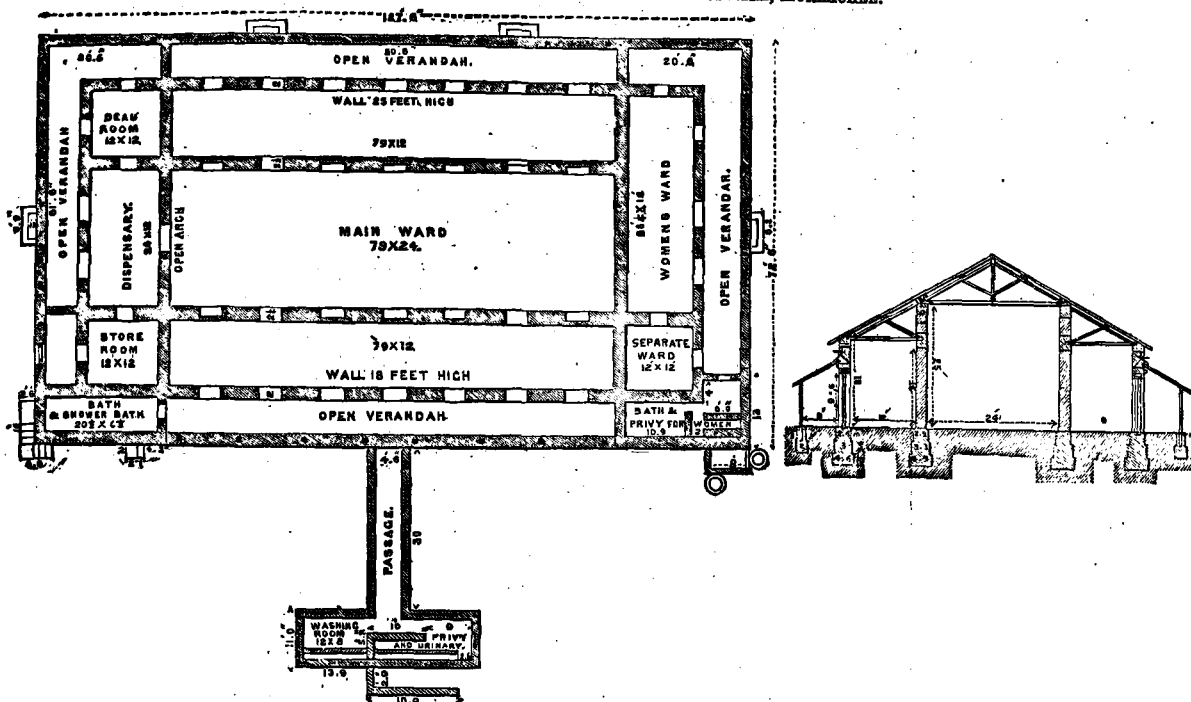
In most of the reports it is recommended that the soldier shall not proceed to India under 20 years of age. The lowest age given in one report is 18, and the highest 27. Fully drilled soldiers at from 20 to 22 years would best suit the requirements of India, as stated by the reporters. The length of service, they consider, should not exceed 10 years. In one instance, seven years are reckoned sufficient; in another, as many as 15 not too much. The Hyderabad Committee state that "a British soldier may serve as long in India as in any other part of the world. Two-thirds of the Indian stations are as healthy as any in Europe, provided the habits be adapted to the country." The stational reports concur as to the desirableness of the soldier arriving in India at the beginning of the cool season,

STATIONS.	REPLIES.
	and of his being sent at once to his regiment, great care being exercised to keep him from excess on landing. Invalids should leave for England so as to arrive in early summer.
XVIII. HILL STATIONS.	
HYDERABAD (SINDE).	Reporters have no experience of hill stations, but approve. Best elevation, 5,000 feet. "Acclimatization a myth, as generally understood."
KURRACHEE.	Approve. "Hill station is to the plain as the open air to the hot-house."
DEESA.	Mount Aboo, 45 miles distant, over a level sandy plain. Ascent by bridle path in about two hours; elevation, 4,000 to 5,000 feet. Climate favourable to residents and to children of Lawrence Asylum. Approve of hill stations, but they require care; scurvy, scorbutic dysentery, general cachexia, and anæmia have resulted from want of variety and deficiency of vegetables in ration. "Last year a company of men returned from Mount Aboo after a year's residence, suffering from intermittent fever, caused by bad barracks and unhealthy malarious position." The men were "reduced and anæmic from malarious poison, and somewhat scorbutic from defect in diet. Mutton was the only meat issued for 12 months." "At some hill stations there is malarious fever; others predispose to diarrhoea." Barracks and hospitals at hill stations of Kussowlie and Subathoo are defective in structure and plan. At Aboo the barracks were erected in a malarious gully.
KIRKEE AND POONA.	<i>Kirkee.</i> —Hill stations should decidedly be selected for troops, "but only as a change of climate." Amount of barrack and hospital accommodation at hill stations totally insufficient. Best elevation, 4,000 feet above sea; but no experience. <i>Poona.</i> —The same evidence.
SHOLAPORE.	No experience.
SURAT.	No experience of hill stations; but troops from hill stations are less liable to fevers, &c. on returning to plains. Weak men, on arrival at Mount Aboo, are liable to fever and diarrhoea. Better to locate troops in the hills, with short service on the plains.
NUSSEERABAD.	Advisable to select hill stations for troops; but no experience.
AHMEDNUGGER.	Experience of hill stations very limited, but "under certain conditions, should think that hill stations would be beneficial to European troops." "There should be 12 months' residence."
MHOW.	No experience of hill stations, but "undoubtedly it would be desirable to locate troops on the hills as much as possible."
SATTARA.	No experience; but approve of selecting hill stations for troops. Considers "any period of residence in hills, beyond the acquirement of moderate tonic, would be injurious."
BELGAUM.	No experience of hill stations; but troops, on going to hills, are liable to head attacks, hepatic affections, and rheumatism; long residence in hills and short residence on plains likely to be most conducive to health of troops.
KOLAPORE.	Residence at hill stations would lessen liability to fever, and diminish predisposition to climatic diseases of plains. Troops more liable to diarrhoea in Himalaya than at Bombay hill stations. Bowel complaints might be guarded against "by flannel, pure water, cleanliness, clearing jungle, thorough drainage, and a strict system of conservancy." Advisable that European troops be located periodically on hills, especially on high table lands. Europeans should pass one year in five in a more suitable climate.
BOMBAY.	Hill stations do well for healthy men, and for those simply debilitated from fevers, but are injurious for dysentery and structural disease. They are not beneficial throughout the year. Their peculiar diseases are, head affections, rheumatism, diarrhoea, and dysentery. Elevations above 4,000 feet are not suited to chest affections. Service in the plains, with shorter period of change to hills, might be expected to be the most advantageous to health.
ANSEERGHUR.	No experience, but approve of hill stations.
XIX. HOSPITALS.	
HYDERABAD (SINDE).	<i>Site.</i> —Open and healthy, 600 yards from barrack. <i>Water supply.</i> —Wholesome and abundant. <i>Drainage.</i> —Impurities carried away by open drains into cesspits; thence removed by hand. <i>Construction.</i> —Wards 3 feet raised above ground; no perfilation of air beneath; roof water removed by open drain; material, pukka-brick and lime; tiled roof; verandahs. Built 1854-5. <i>Accommodation.</i> —Five wards; no regulation number of beds; cubic feet and superficial feet per bed not given. <i>Ventilation.</i> —No windows; doors with Venetian shutters, sufficient to keep wards cool and free of odour. In hot weather wet tatties are used, and punkahs. <i>Cleansing.</i> —Walls and ceilings limewashed yearly, or oftener. <i>Latrines.</i> —Over cesspits, cleansed and deodorized; no waterclosets. <i>Lavatory and bath.</i> —None, except a tub and hip bath. <i>Hospital linen</i> washed and dried in sun. <i>Storage</i> sufficient and dry. <i>Bedding.</i> —Wooden cots 2½ feet high, tape bottoms; beds, chopped straw. <i>Cooking.</i> —Means sufficient. <i>Attendance.</i> —Ward boys. "A comrade can always be procured, or a nurse, on requisition." <i>Convalescents.</i> —No ward and no exercising ground for convalescents. "An unwieldy and uncomfortable cart allowed" "for exercise of convalescents;" "little used." <i>Female Hospitals.</i> —One with matron for each corps.
KURRACHEE.	<i>Site.</i> —All hospitals, except one, too near to barracks; one very close to picket ground; general hospital 200 yards from bazaar. With these exceptions, sites pretty open, and "healthy as to drainage, elevation, &c." <i>Water supply.</i> —Abundant, but not good. <i>Drainage.</i> —None; all refuse removed daily by sweepers. <i>Construction.</i> —Wards, except in one hospital, raised 3 feet above ground; no passage for air beneath; roof water not carried away; sinks into subsoil; no surface drainage or guttering. Material of older hospitals, sun-dried brick; of new one, stone. General and native hospital, double roofs and walls; others, single; verandahs from 8 to 12 feet broad. In double-walled

STATIONS.	REPLIES.
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hospital verandahs are inside; used for sick when wards crowded. Fig. 11 gives a plan and section of the horse artillery hospital at this station, showing one inner ward enclosed on all sides by other apartments, and having no direct communication with the open air.

FIG. 11.—PLAN AND SECTION OF HORSE ARTILLERY HOSPITAL, KURRACHEE.



Accommodation.—Three European and two native (one ward each), containing, four, 100 beds each, and one 28 beds. Cubic feet per bed in *European hospitals*, 1,362 to 1,867; square feet, 68 to 97. Cubic feet per bed in *native hospitals*, 316 to 633; square feet, 24 to 35.

Ventilation.—By doors, windows, and openings in roof; windows open vertically in halves. Means sufficient in new hospital; not so in old; no means of cooling the air.

Cleansing.—Limewashing once in three months.

Latrines over cesspools; cleansed daily, and quicklime put in. "Not offensive, if carefully kept." "Admit of improvement."

Abution and bath room.—Sheds with tubs; slipper baths; neither sufficient nor convenient.

Hospital linen.—Washed away from hospital.

Storage.—Sufficient and dry.

Bedding.—Iron bedsteads, but not universally so; wooden cots in European and native hospital (1 foot 2 inches to 1 foot 6 inches high); harbour vermin; straw beds and pillows; sheets, blankets, quilts, according to season.

Cooking.—Portuguese cooks. "The younger and inferior cooks, being paid less, are found in hospitals."

Attendance.—Hospital serjeant in European hospital; 10 ward boys; one added for every eight patients above 80, and one for every bed-ridden case, "and a comrade in extreme cases." Sufficient in number, inferior in kind. "A havildar and comrades attend in native hospitals."

Sanitary state.—Only one hospital out of five "adequate." Phagedæna and gangrene have occurred from crowding; want of space great defect; better privies and baths and better ventilation required, also a matron to superintend cooking and distribution of diets. Suggestions of medical officers may be acted on or not by higher authority.

Convalescents.—No fenced ground, shaded walks, or seats for exercise; only vicinity of hospital, or verandah, or ambulance cart to exercise in. No wards for convalescents.

Female hospital.—Separate hospital for women and children, with matron, assistant matron, and ward women; satisfactory. No female native hospital.

NEEMUCH.

Site.—Open, on high ground, sloping away on all sides; healthy as to drainage, elevation, absence of malaria, &c.

Water supply sufficient and wholesome.

Drainage.—Refuse collected in cesspools and carried away at night; night soil removed by sweepers.

Construction.—Floors 3 feet above ground; no passage for air beneath; roof water allowed to run away by natural slope of ground; material, stone, lime, and brick; thick single walls and roofs; no verandahs; wards in two floors; originally built as a residency; rooms of various dimensions; upper floor not used for sick.

Accommodation.—One ward, 30 to 35 sick; cubic feet per bed, 1,600 to 1,870; square feet, 62 to 72.

Ventilation.—No windows; all glass doors, with venetians; no other ventilation; other smaller wards have ventilators in roof; wet tatties used for cooling.

Cleansing.—Limewashing once in three months, or as often as required.

Latrines like those of barracks; over cesspit; emptied daily.

Lavatories and baths.—Two similar to barrack lavatories, close to hospital; no bath-rooms; "ten flat baths."

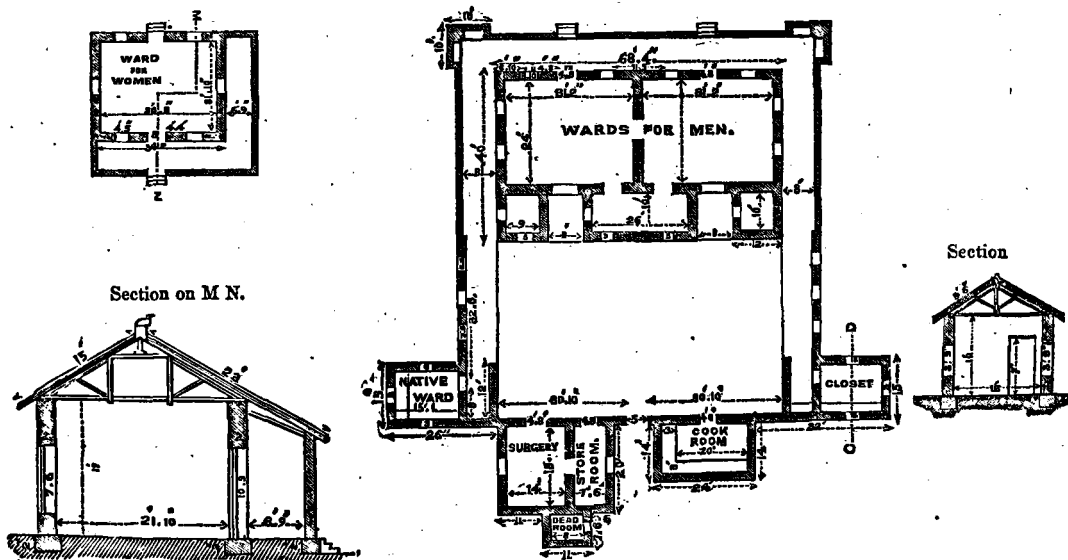
Hospital linen washed away from hospital.

Storage sufficient and dry.

STATIONS.	REPLIES.
ADEN.	<p><i>Bedding.</i>—Wooden bedsteads, infested with vermin; straw mattress and pillow; two sheets, blanket, and coverlid; iron bedsteads should be substituted.</p> <p><i>Cooking.</i>—Two kitchens, close to hospital, not large enough; usual Indian utensils; cooking properly done and sufficiently varied.</p> <p><i>Attendance.</i>—Ward coolies; "every severe case allowed a comrade."</p> <p><i>Sanitary state.</i>—"As good as can be expected in a private house." "Would be insufficient for increase of sickness." "Required" "cells" for insane patients, hot and shower baths, quarters for medical officers.</p> <p><i>Convalescents.</i>—No shaded walks, &c. "sick carts drawn by bullocks and elephants." No wards for convalescents.</p> <p><i>Female hospital.</i>—A small temporary hospital for females; too small; insufficiently ventilated; otherwise unsuitable.</p> <p><i>Site.</i>—In every respect healthy.</p> <p><i>Water supply.</i>—From wells, principally brackish; better supply is being obtained.</p> <p><i>Drainage,</i> none; refuse water absorbed by soil.</p> <p><i>Construction.</i>—Floors three to four feet above ground, paved with stone; no passage for air beneath; roof water sinks into subsoil; material, rubble and chunam, wattle and daub; walls and roof single, but thick; verandahs on two sides, used for sick when hospital crowded.</p> <p><i>Accommodation.</i>—Three hospitals for Europeans; one ditto for natives; former contain in all four wards, with 10, 12, and 20 beds per ward; cubic feet, 900 to 1,872; square feet, 55 to 90 per man. In native hospital, cubic feet, 433 to 565; square feet, 38 to 51 per man.</p> <p><i>Ventilation.</i>—Hospital exposed to prevailing winds; air renewed by windows; trellis-work over doors and windows; open ventilators in roof; sufficient; punkahs used for cooling.</p> <p><i>Cleansing.</i>—Limewashing once a quarter; privies and urinals 40 to 50 feet from hospital; drained by hand; no cesspits.</p> <p><i>Ablution and bath room.</i>—One room for washing and bathing; "sufficient."</p> <p><i>Hospital linen</i> washed and dried by washermen.</p> <p><i>Storage</i> sufficient, and dry.</p> <p><i>Bedding.</i>—Bedsteads, planks on iron trestles.</p> <p><i>Cooking</i> properly done; varied as much as possible.</p> <p><i>Attendance.</i>—European hospital serjeant, ward coolies; no nurses.</p> <p><i>Sanitary state</i> of European hospitals "good;" no epidemic.</p> <p><i>Convalescents.</i>—No convalescent ward; no provision for exercise.</p> <p><i>Female hospital.</i>—None; sick wives and children treated in quarters; sanitarium for females at Steamer Point.</p>
BARODA.	<p><i>Site</i> to leeward of station; much too close to river and horse lines.</p> <p><i>Water supply</i> abundant and good.</p> <p><i>Drainage.</i>—By a barrel drain to a nullah.</p> <p><i>Construction.</i>—Wards raised $1\frac{1}{2}$ feet above ground; no ventilation beneath; no provision for carrying away roof water; hospital built of brick and mud; verandahs 8 feet broad all round.</p> <p><i>Accommodation.</i>—Four wards of 30 beds each, giving 1,042 cubic feet; 72 square feet per man.</p> <p><i>Ventilation.</i>—No winds except those passing over station; proper ventilation next to impossible; windows, doors, and ventilators in roof; sufficient as to means; punkahs in hot weather and tatties.</p> <p><i>Cleansing.</i>—Limewashing whenever required.</p> <p><i>Privies,</i> same as barracks; "properly cleansed."</p> <p><i>Ablution and bath room,</i> "very good;" "a large room; tinned copper washing basins;" "a large tub kept constantly full by a bheestie for those men who are sufficiently well to avail themselves of it for bathing."</p> <p><i>Hospital linen</i> washed by dhobies.</p> <p><i>Storage</i> sufficient and dry.</p> <p><i>Bedding.</i>—Iron cots 18 inches high; sacking bottoms; straw mattress; coir recommended instead.</p> <p><i>Cooking.</i>—Utensils same as barracks; "well done, and means sufficient."</p> <p><i>Attendance.</i>—Hospital serjeant and ward boys; "serious cases have an European orderly."</p> <p><i>Sanitary state</i> most objectionable, as being close to a nullah used as a necessary by the natives, and as a receptacle for the filth of the whole station; when cholera occurred, hospital had to be evacuated; "sanitary recommendations of medical officers always attended to."</p> <p><i>Convalescents.</i>—No exercising ground or seats; only verandahs; no wards; "not required; convalescents live in their barrack rooms."</p> <p><i>Female hospital,</i> one; no matron, "therefore sick women and children attended at home; present arrangement sufficient."</p>
KIRKKE.	<p><i>Site</i> good and healthy.</p> <p><i>Water supply,</i> by bheesties, as may be needed.</p> <p><i>Drainage.</i>—No regular system, "not being allowed by Government regulation;" all refuse water and impurities carried away by sweepers.</p> <p><i>Construction.</i>—Floors three feet above ground; no ventilation below; roof water sinks into subsoil, which is porous; material, brick and lime; roof double tiled; walls single; floor paved; hospital cool; verandahs.</p> <p><i>Accommodation.</i>—Two wards for 10 sick each; two for 12 each; two for 28 each; cubic feet per bed, 1,425; square feet per bed, 86.</p> <p><i>Ventilation.</i>—Hospital receives full benefit of winds; ventilation by doors, windows, and roof ventilators; scarcely sufficient; air cooled by tatties and punkahs; stoves for dryness in monsoon required.</p> <p><i>Cleansing.</i>—Limewashing every three months or oftener.</p> <p><i>Privies</i> washed out frequently and deodorized.</p> <p><i>Ablution and bath room.</i>—Tubs and basins alone; permanent lavatories with shower baths much needed.</p> <p><i>Hospital linen</i> washed by commissariat; means of drying much wanted.</p> <p><i>Storage</i> sufficient and dry.</p> <p><i>Bedding.</i>—Iron cots, with straw mattress; cocoa-nut shreds recommended instead.</p> <p><i>Cooking</i> properly done, and sufficiently varied.</p> <p><i>Attendance.</i>—Hospital serjeant, ward boys; "sufficient."</p> <p><i>Sanitary state</i> good; no hospital disease.</p>

STATIONS.	REPLIES.
<p>POONA.</p>	<p><i>Convalescents.</i>—Sufficient ground for exercise, but no shaded walks or seats; doolies used for carrying; no wards; would be desirable.</p> <p><i>Female hospital</i>, one (European nurse and native assistant); too small; medical officer attends sick in their own quarters; obstetric ward much wanted.</p> <p><i>Sites</i> generally open; freely ventilated and healthy.</p> <p><i>Water supply</i> abundant and wholesome.</p> <p><i>Drainage.</i>—“Artificial drainage not allowed; refuse water, &c., carried away by sweepers.”</p> <p><i>Construction.</i>—Floors three feet above ground; no ventilation beneath; no surface drainage; rain and roof water sinks into porous subsoil; material, brick, mortar, and mud; thatched and tile roofs; floors of native hospital, clay; of European, flagged; no verandahs in European hospital.</p> <p><i>Accommodation.</i>—Two European hospitals of one ward each for 100 and 107 beds respectively, at 1,291 to 1,296 cubic feet, 72 square feet per bed; three native hospitals of one ward each for from 21 to 30 beds; at 1,267 to 1,286 cubic feet; 70 to 71 square feet per bed.</p> <p><i>Ventilation</i> by doors, windows, and ventilators; scarcely sufficient; buildings receive full benefit of prevailing winds; air cooled by wet tatties.</p> <p><i>Cleansing.</i>—Limewashing whenever required.</p> <p><i>Privies.</i>—Same as in barracks; washed out frequently by sweepers and deodorized.</p> <p><i>Ablution and bath room</i> consists of tubs and basins; permanent lavatories and shower baths much needed; no bathing places for sick.</p> <p><i>Hospital washing</i> by commissariat.</p> <p><i>Storage</i> sufficient.</p> <p><i>Bedding.</i>—Iron frames, 1 foot 4 inches high, with tape bottoms; straw bedding; blankets and sheeting; natives use their own bedding, simply a small rug or carpet.</p> <p><i>Cooking</i> properly done, and sufficiently varied. <i>Native sick diet themselves.</i></p> <p><i>Attendance</i> “according to regulation; sufficient.”</p> <p><i>Sanitary state</i>, “good;” no hospital disease; verandahs required; separate wards for special cases, and accommodation for hospital serjeant and subordinates.</p> <p><i>Convalescents.</i>—Ground for exercise; but no shaded walks or seats; no convalescent wards; highly desirable.</p> <p><i>Female hospital</i> too small; very unsatisfactory; obstetric ward and residence for matron wanted; women and children have to be attended at their own quarters.</p>
<p>SHOLAPORE.</p>	<p><i>Site</i> open, freely ventilated.</p> <p><i>Water supply</i>, excellent, “from a well distant half a mile, conveyed by bheesties. No necessity for improving it in this respect.”</p> <p><i>Drainage.</i>—No drains or sewers whatever; all fluid refuse carried away by sweepers.</p> <p><i>Construction.</i>—Floors one foot above ground; no ventilation below; no means of surface drainage or carrying off roof water; material, burnt brick and chunam; double tiled roof; verandahs.</p> <p>Fig. 12 gives a plan and section of the artillery hospital, Sholapore, to illustrate the structure and position of wards and offices, together with the plan of Deesa hospital; it also exhibits the usual hospital provision made for sick wives and children of soldiers.</p>

FIG. 12.—ARTILLERY HOSPITAL, SHOLAPORE.



Accommodation.—Two wards, 10 beds each, at 1,150 cubic feet; 75 square feet per man.

Ventilation.—Iron cowls in ridge, doors, and windows; cooled by kuskus tatties.

Cleansing every three months, or oftener.

Privies cleansed daily by sweepers; “not more offensive than the best of such places usually are in this country.”

Ablution and bath room, make shift; there is a bath room; “but all apparatus entirely wanting.”

Hospital washing done by dholobies.

Storage.—“Accommodation in every way susceptible of improvement.”

Bedding.—Iron cots; straw mattresses.

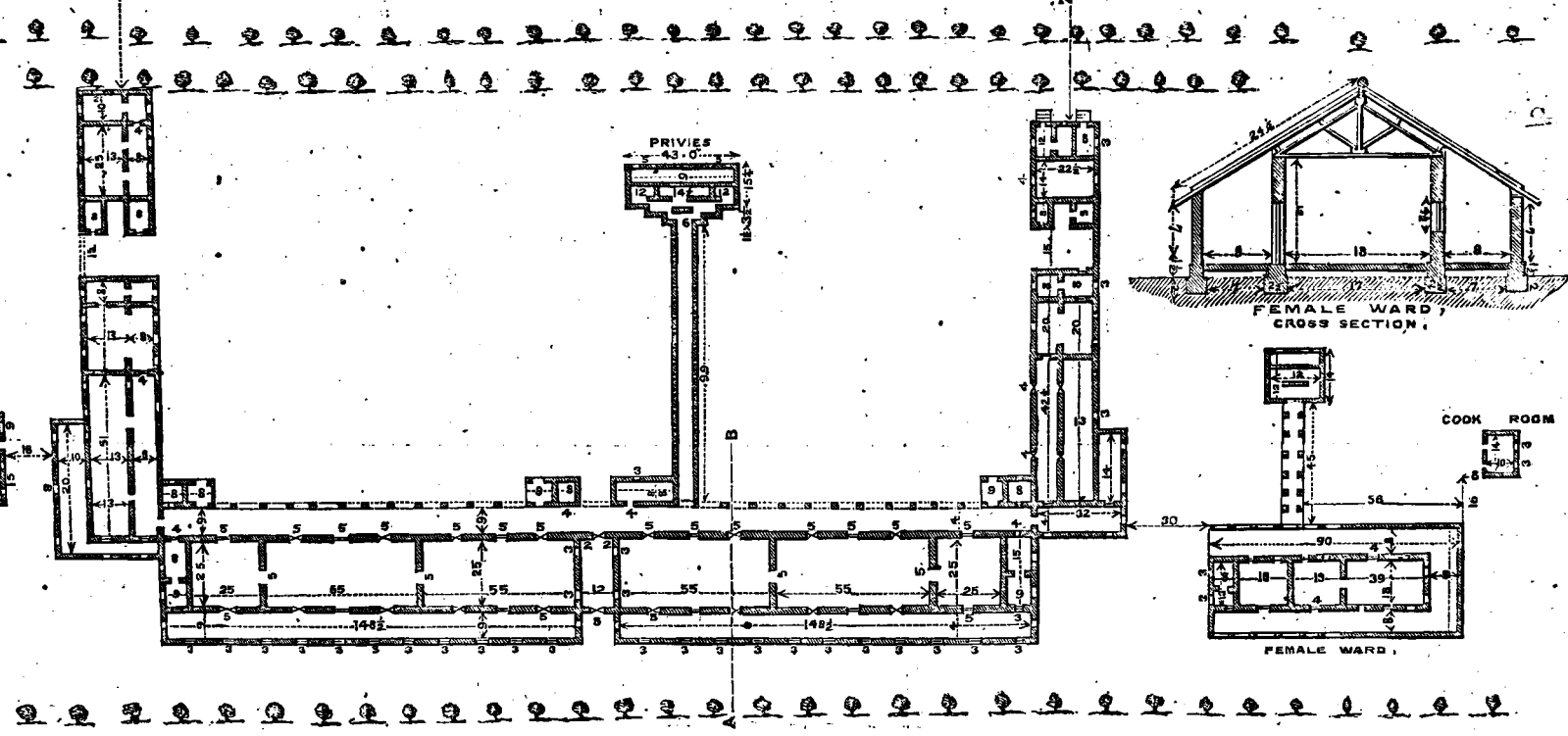
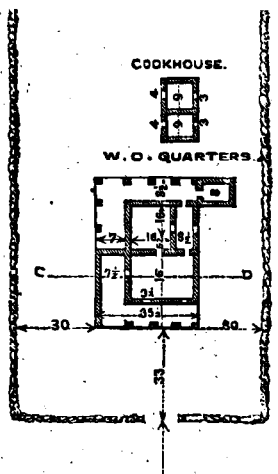
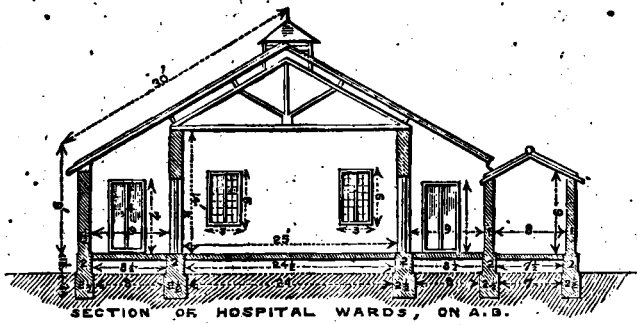
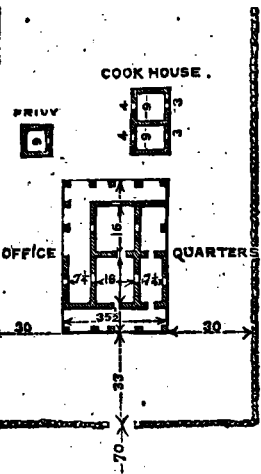
Cooking “apparatus primitive; best adapted for Indian cook.”

Attendance. “good and sufficient.”

Sanitary state, “good;” no hospital disease.

Convalescents.—No means of exercise, except in verandahs; no convalescent ward.

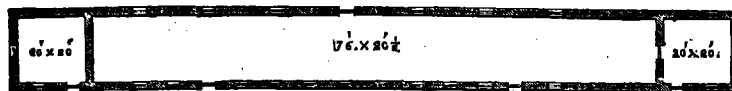
STATIONS.	REPLIES.
NUSSEERABAD.	<p><i>Female hospital.</i>—One ward in regimental hospital of 8 beds, at 1,400 cubic feet; 82 square feet per bed. Women prefer remaining in their own huts, and being attended there, with their children, by medical officer; no resident matron allowed; "present arrangement conducive to comfort."</p> <p>No hospital; only temporary accommodation in barracks and in the church bungalow; three buildings at present used by different arms.</p> <p><i>Water supply,</i> "good;" carried by bheesties.</p> <p><i>Drainage</i> by cesspits.</p> <p><i>Construction.</i>—Floor 1½ feet above ground; no ventilation beneath; roof water discharged on ground.</p> <p><i>Accommodation</i> in artillery hospital, one room, 14 beds, at 1,527 cubic feet; 76 square feet per bed; 4 verandahs; all used for sick, when necessary; 3 small "bedrooms," 1 bed each.</p> <p><i>Ventilation.</i>—Doors, windows, and openings in walls; exposed to prevailing winds.</p> <p><i>Cleansing.</i>—Limewashing on requisition.</p> <p><i>Privies</i> cleansed daily.</p> <p><i>Ablution and bath room,</i> "insufficient;" four wooden tubs and four "gindees" to each, besides 40 crockery basins; no baths.</p> <p><i>Hospital washing</i> by native washermen.</p> <p><i>Storage</i> insufficient.</p> <p><i>Bedding,</i> chiefly wooden bedsteads, some iron; straw mattresses and pillows, cotton sheets and coverlids, blankets.</p> <p><i>Cooking,</i> "sufficient;" sometimes want of good vegetables.</p> <p><i>Attendance.</i>—Usual regimental establishment.</p> <p><i>Sanitary state.</i>—No hospital diseases. Hospital should be larger; better raised; better fitted up.</p> <p><i>Convalescents.</i>—No wards; convalescents sent to barracks and put on barrack rations; "marched out under a non-commissioned officer for morning and evening exercise."</p> <p><i>Female hospital,</i> none; only two compartments of married quarters.</p>
DEESA.	<p><i>Site.</i>—Two hospitals; European hospital on highest and best ground in cantonment, but too near officers' quarters, which obstruct the breeze; artillery hospital on lower ground; ventilation similarly obstructed.</p> <p><i>Water supply,</i> abundant and wholesome.</p> <p><i>Drainage</i> by cesspools 10 feet deep; emptied as found necessary.</p> <p><i>Construction.</i>—Ward floors 18 inches above ground; no ventilation beneath; no surface drainage; roof water sinks into subsoil; material, burnt bricks and mortar; tiled roofs, which are hot; verandahs all round; sometimes used for sick. (The arrangement of parts in this class of hospitals is shown in the following, Fig. 13.)</p> <p><i>Accommodation.</i>—European hospital: two wards, six beds each; 1,822 cubic feet per bed; 104 square feet per bed. Four wards, 12 beds each; 2,005 cubic feet per man; 114 square feet per man. Horse artillery hospital, two wards, 16 and 7 beds each, with 2,387 to 1,445 cubic feet per man, 108 to 65 square feet per man.</p> <p><i>Ventilation.</i>—By doors, windows, punkahs, and ventilators in roof; generally sufficient.</p> <p><i>Cleansing.</i>—Limewashing when required.</p> <p><i>Privies</i> over cesspits.</p> <p><i>Ablution and bath room.</i>—In infantry hospital; sheds projecting from verandah, with tables, basins, chatties, and towels; sheds interfere with ventilation of wards; arrangements in artillery hospital insufficient; means of bathing, chatties, tin baths, and basins; not sufficient nor convenient.</p> <p><i>Hospital washing.</i>—By washermen.</p> <p><i>Storage.</i>—Sufficient and dry.</p> <p><i>Bedding.</i>—Iron bedsteads; rice, straw, or cotton mattresses; "hair or cocoa-nut fibre preferable;" counterpanes, blankets, sheets.</p> <p><i>Cooking.</i>—By Portuguese; tolerable.</p> <p><i>Attendance.</i>—"Ample and sufficient;" orderlies from regiments employed "during epidemics or in particular cases of importance."</p> <p><i>Convalescents.</i>—Shaded walks for exercise; horse exercise; no wards; such necessary.</p> <p><i>Sanitary state.</i>—"Excellent;" no hospital disease; but hospitals too small; no dead house; no guard house; "men on guard occupy a corner of front verandah, where they eat, drink, and smoke at their discretion."</p>
SURAT.	<p><i>Female hospital.</i>—One; arrangements satisfactory.</p> <p><i>Site.</i>—Castle hospital has native town on three sides; site not healthy; native hospital, private house; isolated and healthy.</p> <p><i>Water supply</i> abundant, and "as good as can be got in the neighbourhood."</p> <p><i>Drainage.</i>—"Several drains;" all cleansed daily by sweepers; native hospital cleansed by sweepers.</p> <p><i>Construction.</i>—Castle hospital, wards 21 feet above ground; free ventilation beneath; lower ward of native hospital two feet above ground; floor, mud; roof water falls on ground and runs away; materials, castle hospital, brick and chunam masonry; floors, chunam; no verandahs.</p> <p><i>Accommodation.</i>—Castle, one ward, 10 beds; 760 cubic feet per bed; 76 square feet per bed; one ward, eight beds; 870 cubic feet per bed; 72 square feet per bed. Native hospital, one ward, 12 beds; 1,077 cubic feet per bed; 83 square feet per bed; one ward, six beds; 989 cubic feet per bed; 82 square feet per bed.</p> <p><i>Ventilation</i> "good."</p> <p><i>Cleansing.</i>—Lime-washing once a quarter; no privies in European hospital; those of native hospital cleansed daily, but "highly offensive."</p> <p><i>Ablution and bath room.</i>—Tubs "in sufficient quantities;" "means of bathing convenient and sufficient."</p> <p><i>Hospital washing</i> by native washermen.</p> <p><i>Bedding.</i>—Wooden cots; straw mattresses; serge blankets.</p> <p><i>Cooking.</i>—Kitchen insufficient; cooking properly done.</p> <p><i>Attendance.</i>—Hospital serjeant; ward boys.</p> <p><i>Sanitary state</i> "good;" no epidemic disease; European hospital "unfit for accommodation of European patients;" "native hospital not sufficient;" "new hospital should be erected."</p> <p><i>Convalescents.</i>—No wards; no provision for exercise.</p> <p><i>Female hospital.</i>—None.</p>



STATIONS.	REPLIES.
AHMEDNUGGUR.	<p><i>Site.</i>—Hospital 200 yards from horse lines; open; healthy as to elevation, drainage, &c. <i>Water supply</i> abundant and wholesome. <i>Drainage</i> into cesspits, whence liquid carried away by hand. <i>Construction.</i>—Floors four feet above ground; no ventilation beneath; roof water sinks into subsoil; material, brick, and tiled roof; cool; verandahs occasionally used for sick; part of them also used "for eating meals in, there being no rooms for the purpose." <i>Accommodation.</i>—One ward of 20 beds; 2,016 cubic feet per bed; 84 square feet per bed; two wards, 20 beds each; 1,843 cubic feet per bed; 77 square feet per bed. <i>Ventilation</i> by double sets of windows, one above the other; "sufficient;" no means of cooling. "shutting the wards up by day in hot weather being sufficient." <i>Cleansing.</i>—Limewashing every three months or oftener. <i>Privies</i> drained into cesspools; contents removed by sweepers; deodorizers employed. <i>Ablution and bath room.</i>—"Bathing apparatus very simple;" copper hand basins; wooden tubs, with slipper baths for hot water; rooms being enlarged. <i>Hospital washing</i> at a distance. <i>Storage</i> sufficient and dry. <i>Bedding.</i>—Iron cots; straw mattresses; bed clothes according to season. <i>Cooking</i> "sufficient." <i>Attendance.</i>—Hospital serjeant; ward boys; "orderly comrades." <i>Sanitary state,</i> "good;" no gangrene or pyæmia; "cholera has appeared in it, as elsewhere." <i>Convalescents.</i>—Dining room required; "anything is better than dining in the wards in India; among other reasons, because flies, a pest of the first magnitude in India, are attracted by it; such dining rooms are required for all hospitals;" no shaded walks for exercise; no convalescent wards. <i>Female hospital.</i>—One, with matron and assistant matron; accommodation not sufficient.</p>
MHOW.	<p>No proper hospital accommodation; present hospital will be abandoned as soon as any can be provided; all the arrangements temporary.</p>
SATTARA.	<p><i>Site.</i>—150 yards from men's barracks; open; freely ventilated; otherwise objectionable. <i>Water supply</i> sufficient and wholesome. <i>Drainage.</i>—Surface drains; sewage and refuse cleared away by sweepers. <i>Construction.</i>—Floors 1½ feet above ground; no ventilation beneath; roof water carried away by trenches; material, wattle and daub; grass thatch roofs; earthen floors; walls too thin; verandahs on both sides; not sufficient. <i>Accommodation.</i>—Four wards; 12, 20, 26 beds each; 870, 890, 960 cubic feet per bed; 60, 61, 66 square feet per bed. <i>Ventilation</i> by windows and openings under eaves; not sufficient; no means of cooling. <i>Cleansing.</i>—Whitewashing three or four times a year. <i>Privies</i> cleaned by sweepers. <i>Ablution and bath room.</i>—A washing room; "sufficient." <i>Storage</i> sufficient and dry. <i>Bedding.</i>—Iron bedsteads; rice straw mattress and pillows. <i>Cooking</i> "properly done." <i>Attendance.</i>—A hospital orderly, "with occasional help of a comrade." <i>Sanitary state</i> "good;" no hospital disease; hospitals, "being only temporary, are defective in many points." <i>Convalescents.</i>—No shaded walks for exercise, nor seats; no wards. <i>Female hospital.</i>—None.</p>
BELGAUM.	<p><i>Sites.</i>—On the whole good. <i>Water supply.</i>—Wholesome but limited, "being brought by water-carriers." <i>Drainage.</i>—No sewers, rain-water everywhere flows on the surface. European hospitals have cesspools, emptied when necessary; sweepers carry away solid matter daily. <i>Construction.</i>—Floors from 2 to 7 feet above ground; no ventilation beneath; roof water carried away in open gutters. Material, laterite and lime; verandahs on both sides, only used for sick when necessary. <i>Accommodation.</i>—Artillery, 2 wards, 12 beds each, 843 cubic feet, 60 square feet per bed; European infantry, 6 wards, 12 to 42 beds each, 892 to 1,598 cubic feet, 69 to 80 square feet per bed; two native hospitals, one ward each, 32 beds, 792 cubic feet, 66 square feet per bed. <i>Ventilation,</i> doors and windows and through the roof; sufficient when not overcrowded. <i>Cleansing.</i>—Limewashing once a quarter. <i>Privies.</i>—Cleansed once a day; cesspools always more or less offensive. <i>Ablution and bath room.</i>—No lavatory; a great want, only tubs and slipper baths and one shower bath. <i>Bedding.</i>—Iron cots; straw mattress; straw or hemp pillow; cotton sheets; country blankets, of a very inferior description. <i>Cooking.</i>—Kitchen arrangements sufficient. <i>Attendance.</i>—"Sufficient." <i>Sanitary state.</i>—One ward shut out from breeze; privy, a nuisance to the other; epidemic disease has appeared; sores sometimes become erysipelatous; buildings too much crowded together. <i>Convalescents.</i>—No shaded walks nor seats; no wards. <i>Female hospital.</i>—One; sufficient.</p>
KOLAPORE.	<p><i>Site.</i>—Generally healthy. <i>Water supply.</i>—Generally sufficient. <i>Drainage.</i>—None; refuse water runs off, and is either absorbed or evaporated. <i>Construction.</i>—Floors 3 to 5 feet above ground; no ventilation beneath; roof water falls on ground; part runs down the slope; material, stone and lime; roofs double tiled, sufficient for coolness; verandahs, partly used as dispensary and store rooms; only used for sick in extreme cases. Figure 14 shows the construction of a native hospital at this station, with the ward offices usually provided for those establishments. <i>Accommodation.</i>—One ward, 32 beds, 1,056 cubic feet, 66 square feet per bed; artillery ward, 16 beds, 1,100 cubic feet, 69 square feet per bed; native infantry, 60 beds, 541 cubic feet, 60 square feet per bed; the last originally a gun shed, then a cattle shed, lately converted into a native hospital.</p>

STATIONS.	REELIES.
	<p><i>Ventilation.</i>—Infantry and artillery hospitals have revolving cowls in roof; rain beats in and renders wards so damp that charcoal has to be used to keep them dry; with doors and windows, cowls sufficient to allow escape of hot air.</p> <p><i>Cleansing.</i>—Limewashing every three months.</p> <p><i>Privies</i> drained into cesspool; regularly cleansed by sweepers, and lime used.</p> <p><i>Ablution and bath room.</i>—Artillery hospital, one tub, one slipper bath, one basin to 100 men; European hospital, one tub, one basin to 100 men; "insufficient;" no bath rooms; hospital originally native.</p> <p><i>Storage.</i>—Very limited.</p> <p><i>Bedding.</i>—Woodens cots; straw mattresses and pillows, cotton sheets, quilts, country blankets, bed carpet; iron cots required; wooden ones greatly disliked from bugs.</p> <p><i>Cooking.</i>—Apparatus insufficient.</p> <p><i>Attendance.</i>—No hospital orderly in infantry hospital; a matron "sanctioned only for a complete battalion of artillery or infantry."</p> <p><i>Sanitary state,</i> good; no hospital disease; better drainage required.</p> <p><i>Convalescents.</i>—No shaded walks or seats; no wards.</p> <p><i>Female hospital.</i>—None; treated in their own quarters.</p>

FIG. 14.—NATIVE INFANTRY HOSPITAL, KOLAPORE.



SECTION.



MALLIGAUM.

Site.—Healthy.

Water supply.—"Abundant and wholesome."

Drainage.—None; "no refuse water lodges in vicinity of hospital."

Construction.—Wards 1 foot above ground; flagged; no circulation of air; roof water sinks into subsoil; material, burnt brick and lime; walls, double; roof, tiled; verandahs all round used for sick and convalescents.

Accommodation.—2 wards, 40 beds each, 829 cubic feet, 50 square feet per bed; 2 wards, 8 beds each, 872 cubic feet, 62 square feet per bed.

Ventilation by jhilmils, "sufficient."

Cleansing.—Limewashing once in 6 months or oftener.

Privies over cesspits kept clean by sweepers.

Ablution and bath room.—None.

Bedding.—None allowed.

Bedsteads.—Wood.

Cooking done in a shed; all that is required.

Attendance.—Hospital orderly and cook; "a comrade if necessary."

Sanitary state, "good;" no deficiencies nor sanitary defects.

Convalescents.—No wards; take exercise in compound.

Female hospital.—None.

BOMBAY.

Sites.—Generally good, except at Colaba, where the hospital is on low ground.

Water supply.—Excellent from the Vehar waterworks.

Drainage.—Fort George, open drains into ditch, covered drains into cesspools; Colaba, open and covered drains to sea; depôt hospital, cesspools emptied when required; also into sea.

Construction.—Fort George lower ward, raised 6 feet above ground, free ventilation beneath; Colaba and depôt hospital raised 2 feet; no ventilation beneath; roof water at Fort George falls on ground; at Colaba, it is collected in tank; materials, lime and stone masonry; closed verandah, only used for sick on extraordinary occasions.

Accommodation.—Fort George, 8 wards, 3 to 15 beds, 1,788 to 2,223 cubic feet, 154 to 173 square feet per bed; 58 beds in all; Colaba, 56 beds in 8 wards of 6 and 8 beds, 1,953 to 2,082 cubic feet, 156 to 166 square feet per bed; depôt hospital, 80 beds in 4 wards of 20 each, 2,079 cubic feet, 126 square feet per bed.

Ventilation.—Fort George, doors, windows, windows in roof, and punkahs; Colaba, roof ventilators, doors, windows, punkahs; depôt hospital, the same; ventilation "sufficient;" charcoal burners used for warming in damp chilly weather.

Cleansing.—Limewashing every 3 months.

Privies.—Fort George, contents emptied twice a day into sea behind barracks; Colaba, the same; depôt hospital, cesspits emptied daily; waterclosets said to exist at all the hospitals from 10 to 30 feet from wards.

Ablution and bath room.—Fort George, 4 bathing places, "where the patients can bathe themselves from water barrels;" "sufficient." Colaba, one lavatory; patients "take water to bathe themselves from wooden trough lined with zinc;" depôt hospital, two lavatories, water supplied in barrels or tubs; "sick pour the water over themselves with a tin pot."

Storage.—Sufficient and dry.

Bedding.—Iron cots.

Cooking.—Appliances sufficient; diets should be more varied; "mutton might be allowed twice a week as a change."

Attendance.—Hospital serjeant; a nurse or native boy for each bedridden patient.

Sanitary state.—Generally good; no epidemic diseases.

Convalescents.—No special provision for exercise; no wards; allowing convalescents in barracks "does not answer well;" better kept in hospital till fit for duty.

Female hospital.—Arrangements quite equal to those for the men; European female nurse or matron allowed; satisfactory.

ASSEERGHUR.

Site.—In all respects healthy.

Water supply.—One well only, "good," filtration required.

Drainage.—None.

Construction.—Floors 14 feet above ground, no air beneath; roof water sinks into subsoil; no gutters round; material, brick, mud, timber, and tiles; verandahs on 3 sides, used for patients exercising.

Accommodation.—6 wards, 1 to 8 beds each, 21 in all, 724 to 1,275 cubic feet, 60 to 100 square feet per bed.

STATIONS.	REPLIES.
	<p>Ventilation by doors and windows, sufficient. Cleansing.—Limewashing twice a year. Privy close to hospital; no drainage; cleansed twice daily. Abution and bath room.—One bath room with a large tub; also a mussack, "convenient and sufficient." Bedding, iron bedsteads. Cooking.—"Properly done and sufficiently varied." Attendance.—"Plentiful supply of ward coolies;" "comrades when required," hospital serjeant. Sanitary state.—"Good," excepting the "very dirty and unwashed condition of the hospital outhouses." Convalescents.—No shaded walks nor seats; no wards. Female hospital.—None.</p>

XX. BURIAL OF THE DEAD.

All the stations have European burial grounds, in which burial is conducted much as at home. These grounds have generally sufficient area; they are not too near cantonments, and are tolerably well kept. The grave space and depth vary, and are under no regulation. Sometimes the graves are too shallow. The dead of natives and camp followers are buried or burned according to caste. The native burial-grounds and places of cremation are generally at a sufficient distance from cantonments. The reports concur in stating that no injury to public health arises from the present practice of disposing of the dead. Interment usually takes place within 24 hours, and during epidemics at shorter periods.

ABSTRACT OF RETURNS FROM THE MORE IMPORTANT NATIVE STATIONS.

STATIONS.	REPLIES.
<p>BENGAL PRESIDENCY. KHERWARRAH.</p>	<p>Accommodation for seven companies native infantry, one troop native cavalry. The station is 1,200 feet above the sea; surrounded by hills; open, freely exposed to the winds, which, when from the east, increase the frequency of intermittent fever, influenza, and chest diseases. Surrounding country partly cultivated and under irrigation, which affects injuriously the health of the station; but it is the abuse, not the use, of it which does so. The soil is ferruginous, rich in organic matter, overlying trap rocks. Water is derived from wells and from the nullah or river. Some of the wells are contaminated by leaves and percolation of foul drainage. Quantity, abundant. Quality, from native wells, semi-transparent, and "not unfrequently has a fishy taste and disagreeable organic smell." It is always safest, even with the best wells, to boil or filter the water, as guinea worm is very common. No analysis. Water very hard. Raised by hand in vessels. The well in the lines is contaminated by percolation of the foul subsoil drainage from the village and bazaar. Climate very hot and dry, and comparatively non-malarious from March till June 20th; thence till September 20th cooler, but loaded with malarious exhalation. Malarious fevers, spleen disease, &c. prevail most in the unhealthy months. But, as a whole, Kherwarrah "is the healthiest station I have seen." "But none of the stations have had fair play." "Nothing has struck me so much as the utter disregard which prevails regarding the commonest sanitary precautions. A large proportion of the sickness at Dumdum, Barrackpore, Dinapore, Ajmeer, and Kherwarrah, is owing to the absence of a properly organized and efficient executive sanitary department." There are no barracks; huts of mud or wattle and daub, imperfectly ventilated. Men sleep outside in hot weather. All barracks in India should be raised on arches. No lavatories or cook-houses. Natives cook their own food and wash their own clothes. There is no conservancy establishment for cleanliness: "beyond the lines, this is left very much to the jackal, vulture, and carrion crow." There are patrols to prevent nuisances, "except in specified localities." The lines are kept clean; but "the sweepings are deposited 30 yards to windward." The bazaar main street is kept clean. In all other places the most ordinary sanitary precautions are lost sight of. "Every family has its own cesspool." "Dungheaps close to every hut," and also holes for ordure. Huts overcrowded. "Nuisance is frequently experienced in large stations from the wind blowing over native dwellings." Animals are slaughtered to windward. The offal is thrown to dogs, jackals, and vultures. During the rains, the stench from the offal, the increasing accumulation of years, is sometimes dreadful. The native population "is decidedly unhealthy, but chiefly from causes which can be mitigated or removed," such as jungle, marshy and swampy ground, small, cramped, damp, and unventilated dwellings, defective clothing, bad food and water, sheltering cattle, sheep, and goats under the same roofs as themselves, neglected cesspools, middens, exuviae of men and animals, absence of drainage, opium eating, spirit drinking, &c. Prevailing diseases among natives are malarious fevers, splenic enlargement, splenic cachexia, diarrhoea, cholera, small-pox, guinea worm. Among the native troops hepatitis is rare, 35 cases and 1 death in 17 years. In the same period one in every six men suffered from guinea worm, caused by bad water. "Drinkers of pure water never get the disease." The troops suffer from quotidian, tertian, quartan, remittent, and typhoid fevers; acute and chronic dysentery; sporadic and epidemic cholera; simple and confluent small-pox; acute and chronic rheumatism. Fevers alone constitute nearly 40 per cent. of the admissions, and about a fourth of the deaths. Cholera has occasioned 26 per cent. of the deaths. "We shall never arrive at sanitary perfection in</p>

STATIONS.	REPLIES.
<p>SRETABULDEE.</p>	<p>" Indian military stations until sanitary officers are vested with liberal, responsible, well defined executive powers."</p> <p>The hospital is on an open site, with free ventilation and natural drainage. But malaria emanates from the nullah or river, 30 yards to windward.</p> <p>Water supply abundant, but requires boiling and filtering. No drainage.</p> <p>One ward, built of sun-dried bricks and mud.</p> <p>Tiled roof, through which hot air and radiant heat enter freely.</p> <p>A verandah surrounds it.</p> <p>There are 56 beds, at 327 cubic feet, and 25 square feet per bed. 32 beds are kept in the verandah to diminish the over-crowding.</p> <p>No windows; only doors on opposite sides, which, with openings in the tiles, afford ventilation.</p> <p>Privy of sun-dried bricks; kept clean; matter removed in earthen vessels; charcoal used.</p> <p>No lavatory.</p> <p>" Each patient defers bathing, according to custom, till he is cured, when he retires to the nearest well, draws water, and undergoes the bath of cure." " It is a bad custom." There should be a good bath room. Linen is washed and dried by caste comrades, or by the patients, when not too ill. There are wooden bedsteads. Each sepoy brings his own bedding, under direction of the surgeon. There is a kitchen, but the patients or their friends cook outside, under the nearest tree. No diet table. Dooly bearers wait on the sick, but their attendance cannot be exacted by regulation. Comrades are allowed "in extreme cases."</p> <p>By unremitting exertion the sanitary state of the hospital is good, but during the past two years gangrenous and spreading sores have been frequent from overcrowding.</p> <p>Sick wives and families are treated in their own huts.</p> <p>Number of native troops—</p> <p style="padding-left: 2em;">Artillery, 16 officers, 122 privates.</p> <p style="padding-left: 2em;">Cavalry, 54 officers, 430 sowars.</p> <p style="padding-left: 2em;">Infantry, 96 officers, 800 privates.</p> <p>Surrounding country hilly, basaltic, dry, 939 feet above the sea; freely exposed to winds. City of Nagpore two miles distant.</p> <p>Climate good. Hot from March till June; wet till end of September, cool afterwards.</p> <p>Fevers prevail after rains. Hot season the most healthy.</p> <p>Water supply from wells, moderate in quantity, said to be good; raised by a rope and native bucket.</p> <p>Bazaars cleansed by sweepers. " A sanitary police to prevent nuisance would be of great use."</p> <p>Population at Nagpore unhealthy. Severe epidemics of cholera, biliary remittent fever, and small-pox often occur and prove fatal to large numbers of the inhabitants. Intermittent fever and dysentery also common. Causes: defective ventilation, insufficient drainage, over-crowding, want of cleanliness, drunkenness, and the use of bang and opium.</p> <p>During five years, out of 640 sick of native troops in artillery hospital, not a single case of hepatic disease has occurred. In cavalry hospital, out of 3,054 cases there were eight of liver disease; when it occurs it is usually the consequence of fever and dysentery. 8.28 per cent. of the cases in the artillery from venereal. In the cavalry nearly 3 per cent. In the infantry 1.47 per cent. Remittent and intermittent fevers are endemic among the native troops; biliary remittent, epidemic. Dysentery, endemic. Cholera and small-pox, epidemic. Intermittent fever causes 31 per cent. of the admissions and 13 per cent. of the deaths. Remittent little more than 1 per cent. of the admissions, but 6½ per cent. of the deaths. Nearly 22 per cent. of the deaths are due to cholera. Zymotic diseases occasion 45½ per cent. of the mortality. Severe night duty quickly increases the number of sick in hospital. Predisposition to these diseases increased by the use of bang and opium. This should be prohibited. Infantry parade ground should be drained, and the "natives compelled to proceed to a greater distance for the purposes of nature."</p> <p>There are three hospitals, one for each arm. Sites of cavalry and artillery good. Parade ground in rear of infantry hospital almost a swamp in rainy season.</p> <p>Accommodation consists of four wards, with 102 beds, 30 of which have 706 cubic feet per bed. The remainder have 1,080. No windows. Roof ventilators and gratings. No drainage.</p> <p>Privies cleansed by sweepers. No lavatory or bath.</p>
<p>CHIRRA POONJEE.</p>	<p>Head quarters of Sylhet light infantry.</p> <p>Situated on a small table land, surrounded by hills and valleys covered with dense jungle. Elevation 4,118 feet above the sea, 3,000 feet above a glen to the east. Surrounding country mountainous, sandy, and swampy. Station freely exposed to winds. Surface generally rocky. Subsoil sand, clay, gravel. Rainfall generally runs away, but sometimes lies on the surface.</p> <p>Barometer varies between 25½ and 26 inches. Highest mean maximum temperature 73° 83 in May. Lowest mean minimum 50° 1 in February. Diurnal variation from 4° 8 to 16° 33 F.</p> <p>Highest mean sun temperature 91° 25 in July.</p> <p>Moisture excessive during six months of the year. Recorded rainfall for one year, 1859-60, 615.26 inches. Of this amount nearly 21 feet fell in the month of June. Climate cold but invigorating. Native troops and European residents very healthy. Want of shelter and severe storms render persons who come from the plains liable to chest affections. Good shelter and warm clothing are necessary.</p> <p>The sepoy huts are built of stone and mud, thatched with leaves, and raised from 2 to 4 feet above the ground. The natural drainage good. But all the buildings are damp from the moist (not to say wet) atmosphere.</p> <p>Water is obtained from mountain torrents, said to be of the best kind. A large pond, formed from damming up a mountain stream, emits unpleasant smells.</p> <p>No lavatories. Men wash in the streams. No cook-houses. All filth washed away by the rains.</p> <p>Bowel diseases are prevalent among the Khasia Hill people. Small-pox and cholera are the chief epidemics, committing great ravages, caused by the very filthy habits in houses and persons, and by the very bad food. The native troops suffer from intermittent fever, diarrhoea, and dysentery, contracted during their periodical change of stations.</p> <p>The best seasons for residence at Chirra Poonjee are spring and autumn. Great care is necessary in the rains. Liver disease very rare among native troops. Very little venereal disease. Six out of every seven admissions from miasmatic disease are caused by intermittent fever. The sepoys are temperate. No admissions, either directly or indirectly, from intemperance.</p> <p style="text-align: right;">3 M</p>

STATIONS.	REPLIES.
	<p>The hospital is 200 yards from the lines. Site good. Water abundant. Natural drainage sufficient. One ward for 50 beds, at 490 cubic feet and 17 square feet per bed. Ventilation by doors, windows, and fireplaces; not sufficient. Privy a mere mat house, with earthen pots. No lavatory or bath arrangements. Water is carried to the sick by the water carrier. Surgery and storage damp. No diet tables for the sick.</p>
<p>MADRAS PRESIDENCY. COCHIN.</p>	<p>Accommodation, 160 native troops. Surrounding country low and sandy, 4 feet above sea level, surrounded by the sea and back-water. Climate variable, moist, chilly, occasionally sultry. Occasions rheumatic affections. Water derived in part from wells, unfit for use from privy infiltration. Drinking water brought daily a distance of 18 miles. One tank used by sepoys for bathing and drinking. Sanitary condition of bazaar "as bad as it could possibly be." "Cleanliness unknown." "No drainage." "Streets used as privies without hindrance." No regulation for cleanliness attempted. Engineers' Department removed old rampart, and converted its site into a ditch, now used as a public privy. Every odd corner "in the most disgusting condition." Native houses filthy. Most common diseases, elephantiasis arabum, small-pox, and cholera, attributable to the filthy condition and dirty habits of the civil population. Barracks constructed of laterite in chunam, with tiled roofs. Huts of bamboo mats, with cudjan roofs. Floors 2 feet above ground. No ventilation beneath. Diseases of Native Troops.—Liver, very rare; none for several years. Venereal, about 1·7 per cent. of total sick. Among 160 men there were, in 1859, 20 cases of ephemeral, quotidian, and continued fevers; two cases of dysentery; two of cholera; nine of rheumatism; together constituting 26 per cent. of total admissions. Troops temperate and cleanly in their habits. Hospital contains five beds. Water supply good. No drainage. Have been unable to get the hospital limewashed, although applied for three times in 14 months. Hospital out of repair. "If left as it is, it would probably before long be a ruin." Privy, a small room, with no place in which the excrement can go to be cleared away; its drainage passes through an opening in the wall, and sinks into the ground. The place often very offensive. Lavatory and bathing arrangements consist of two tubs, out of repair. Attendants, one hospital orderly and a sweeper. If a sepoy is unable to cook his own food, a comrade is told off.</p>
<p>VELLORE.</p>	<p>Two regiments of native infantry. Station 675 feet above the sea. Country consists of irregular chains of hills. Part of the native lines subject to overflow of water from a nullah. Site faulty. "Selected on military and not sanitary grounds." An indigo factory close to the native lines creates nuisance. Subsoil, alluvium overlying primitive rock. Climate "hot but healthy." Water from wells and a tank; the former brackish, apt to cause diarrhoea in new comers. Tank water used for drinking. The native town and bazaars extensive and densely populated. "Natives appear perfectly indifferent to the condition of their houses, few of which are without those hot-beds of disease, dungheaps and cesspits." Wind blowing over these causes nuisance in the barracks. Drainage from the prison a constant source of annoyance, from the filthy habits of the followers. No latrines in the bazaar. "Cleanliness is carefully attended to." Native population suffers occasionally from epidemic outbreaks. Fevers prevail after the drying up of the paddy fields. Diseases among the troops are, ephemeral, quotidian, tertian fevers; a few cases of dysentery. No cholera this year. Most rheumatic complaints due to venereal. "Epidemic influences, though not dependent on local circumstances, are yet so controllable by sanitary measures that too much attention cannot be paid to the observance of these."</p>
<p>QUILON.</p>	<p>Accommodation for 1,042 native troops of all ranks. The station is close to the sea, slightly elevated above it. Surrounding country flat, sandy, and well wooded. The parade ground is sometimes overflowed with water during the rains. Full exposure to sea and land winds; the latter, however, causing rheumatism and neuralgia. During the rains the weather is close and muggy; parching in dry weather. January to March the most unhealthy months. Water derived from wells, 15 to 20 feet below the surface in dry weather; close to the surface in wet weather. Barracks mostly in a ruinous condition, without doors or windows, because they are to be given up. No lavatories. No cook-houses. No privies or urinals. No drainage. Ruinous buildings interfere with the ventilation, and afford concealment for dead carcases of animals. The dead body of an old woman was found on one occasion. Native huts wretched, huddled together, without cleanliness. Prevailing native diseases, chiefly of the skin, attributable to want of proper diet. Among the troops hepatitis is extremely rare. There are a few cases of venereal; but the principal disease is mild intermittent fever, with a few mild cases of dysentery. There has been no cholera. Small-pox is occasionally epidemic, and rheumatism rather prevalent. These diseases are most frequent in the hot weather. The general bazaar should be kept cleaner, and the refuse of stale fish removed more frequently. There is so little intemperance among the native troops that no effect on disease can be shown. The hospital is built on a mound 8 feet above the parade ground. There is one ward for 30 beds at 620 cubic feet per bed. Ventilation by openings in the walls. No waterclosets or urinals. Privies cleaned regularly. No lavatory; large tubs used for bathing. Iron cots. There are no kitchens. Attendance by hospital orderlies.</p>
<p>MANGALORE.</p>	<p>Accommodation for two regiments of native infantry and one-third company of artillery. Site, quarter of a mile from the sea, and 40 feet above the level. Surrounding country undulating, wooded, hilly, dry, with wet cultivation in the valleys. Tolerably open to the sea, shut in towards the land. No information as regards climate. Water supply derived from wells; said to be good and abundant. No analysis. No barracks. "Hitherto surface cleansing has been performed solely by the heavy rains falling from May to September." Authority now granted "to entertain scavengers' carts and sweepers." No public latrines. Cantonment patrolled to prevent nuisances. Most frequent disease among natives, fever, with spleen enlargement.</p>

STATIONS.	REPLIES.
HURRYHUR.	<p>Among the troops hepatic disease is very uncommon. Constantly sick from venereal: only one per cent. of total sick. Most common diseases, quotidian fevers and rheumatism; the latter chiefly during land winds. More cleanliness would tend to mitigate zymotic disease at the station.</p> <p>Drunkenness very rare among native troops.</p> <p>There are no means of instruction, except schools; none of occupation or recreation whatever at any native station.</p> <p>Hospital well placed; good water supply. Two wards, with space for 56 beds at 1,100 cubic feet and 77 square feet per bed. Ventilation only by doors and windows. One privy for each ward, over a covered drain, down which lime is thrown; and it is flushed out with water every morning. No lavatories. One large tub for each ward for bathing. Hospital cots partly iron; mostly wood. No bedding. A convenient cook-room, "used for medical preparations." Attendance by a hospital havildar, detailed from the effective strength. Orderlies also detailed. "Sufficient." Convalescents are allowed to go to their own houses, parading once a day at hospital.</p> <p>Accommodation for one regiment, native infantry.</p> <p>Station elevated 1,831 feet above the sea. Surrounding country flat; sparsely populated. Open to the prevailing winds. Surface soil, black cotton, resting on gravelly clay, with syenite and granite beneath.</p> <p>Most of the well-water unwholesome from earthy salts, and too hard to be used with soap. Drinking water almost exclusively obtained from the river, $\frac{1}{2}$ mile distant. It is carried in chatties to the men by the females of their establishments, or by servants. When the river is dry, water is obtained by digging in its bed.</p> <p>Climate dry, with considerable diurnal range in cold weather.</p> <p>Native population subject to occasional epidemics of cholera.</p> <p>Among troops hepatic disease merely accidental. Has only met with 5 fatal cases among natives in 20 years' service. Out of 4,400 admissions, regimental records show 51 from liver disease, with 6 deaths, in 9 years. During the same period there were 275 admissions from venereal. The chief diseases among native troops are fevers, cholera, rheumatism, dysentery. Intermittent the most common form of fever.</p> <p>Men barracked in huts. No ventilation. The streets not wide enough. No lavatories. No means of cooking. No privies or urinals. Drainage, "nil;" only open trenches, in which "the fluid refuse of the barracks flows for a limited distance, and is chiefly disposed of by evaporation."</p> <p>Bazaar much in the same state as the men's lines. Dung heaps close to the houses.</p> <p>Hospital on a healthy site; well supplied with water for cleansing, but not fit for drinking. No drainage. Refuse water and other impurities flow into a cesspit with no outlet. Solid refuse removed daily. Wards have verandah. There are 3 wards, containing 40 beds, at 1,243 cubic feet per bed. Ventilation by doors, windows, and roof openings. Sufficient. There is a privy. No lavatory. Sick <i>only furnished with water</i>. Convalescents go home to bathe. "The process of washing, which, of their own accord, usually satisfies them while in a hospital, is of the most superficial and unsatisfactory nature to the views of an European." There is a wooden tub and brick bath used remedially. Diets are prepared by the sick or their relatives. The kitchen is almost exclusively used for the preparation of poultices, &c. The attendance consists of a standing hospital havildar and orderlies. Others added, if necessary. "System operates very well, and seems to be sufficient for the purpose." Convalescents sent out with a non-commissioned officer. Native dressers attend the "followers;" medical officer admits dangerous cases into "the dissecting room" where the relatives attend on them.</p>
SAMULCOTTAH.	<p>This station contains accommodation for one regiment of native infantry. It is situated in a valley with about 8 miles of flat land between it and the sea. The site is from 20 to 40 feet above the general level. The nearest river is about two miles distant. The station is freely exposed to the winds. But "unfortunately a large native town (with from 8,000 to 10,000 inhabitants), with bazaars and enclosures for hundreds of cattle, &c., has been allowed to grow up" close to it, "so that the prevailing winds carry impurity and contamination into the chief parts of the cantonment for nine months in the year." Close to the cantonment is a belt of prickly pear, cut into open spaces for privies. "This is a very great nuisance, of large extent, and likely to be provocative of cholera or typhus." Irrigation from the Godavery, close to the station. It produces "no appreciable effect on health." "But the climate is cooler in consequence."</p> <p>"Samulcottah has (for the plains of India) a most healthy climate." Highest monthly mean temperature, 95° in May; lowest monthly mean, 53° in December; daily range considerable, from 8° to 25°. Rainfall about 43 inches. Out of 50 Europeans only one child has died, and this not from the climate, in three years and four months.</p> <p>The water supply is chiefly from a tank fed by the rains. Water is obtained by percolation from this tank into wells, said to be "good." The tank water is used by the sepoy. One of its feeders runs through the regimental lines, and "must always bring considerable impurities with it." The water tastes of decaying vegetation. Some of the wells cannot be used, "as they contain apparently much saltpetre and other salts." The water is raised and distributed by the ordinary leathern bucket, or Palmyra leaf.</p> <p>There are no barracks, merely a place of arms.</p> <p>No privies or urinals.</p> <p>No conveniences of any kind.</p> <p>No drainage.</p> <p>The most prevalent diseases among native population are small-pox, syphilis, and intermittent fever at certain seasons. Native population healthy. Country well cultivated. No marshes. Sea breezes. Population well off. Have double the pay they could secure a few years ago.</p> <p>Among the native troops there has been some scorbutus, apparently caused by the use of putrid fish. Have only had one case of hepatitis, and that in an European. Prevailing diseases among sepoy: intermittent, remittent, and continued fevers; dysentery at beginning of cold weather; rheumatism frequent, severe, and obstinate; some small-pox.</p> <p>There are two hospitals, garrison and regimental, under one roof; site open, well ventilated and healthy. Water supply said to be abundant and wholesome. Hospital walls not 8 feet high, with a sloping roof. Floor on level of ground. Materials, brick. A verandah 5 feet wide on one side. There are 2 wards for 30 beds at from 294 to 336 cubic feet per bed.</p>

STATIONS.	REPLIES.
BERHAMPORE.	<p>Windows are "of wood;" when shut there is darkness and no ventilation; "should be glazed."</p> <p>There is space for ventilation between wall and roof, but not sufficient for coolness.</p> <p>Walls and ceilings limewashed once a month.</p> <p>Privy a small room, cleaned by totties. No lavatory. Only one tub in the pendall; exposed to the weather. No other means of bathing.</p> <p>Bedsteads of iron and wood.</p> <p>There is a kitchen used for boiling water, arrowroot, &c.</p> <p>Natives have their food cooked and brought to them.</p> <p>An assistant apothecary is the only attendant on the sick. Not sufficient.</p> <p>Accommodation for a regiment of native infantry.</p> <p>Station 112 feet above the sea, 76 feet above the nearest lower ground.</p> <p>The sea is 8 miles distant, and the nearest marsh 3 miles distant.</p> <p>Water pits and broken ground half a mile from the station, the effluvia from which are prejudicial to health.</p> <p>Country highly cultivated. A little irrigation half a mile distant produces no effect on health.</p> <p>The town of Berhampore half a mile from barracks. Subsoil, silicious rocks and gravel.</p> <p>Surface, loam.</p> <p>Water from wells and tanks. Much of the tank water is unfit for drinking purposes. Well water generally not good.</p> <p>Climate variable. Dry from March till the middle of June. Heat very great. September to November damp and most unhealthy from fever and beriberi. The most healthy months, February to May.</p> <p>There are 820 huts, those for the privates are 11 feet 6 inches long, 9 feet broad, and 7 feet 7 inches high.</p> <p>Ventilation by doors and windows; no lavatories; no cookhouses; no privies, nor urinals.</p> <p>No drainage. There are foul ditches in the native town, a mile distant. No means provided for surface cleansing. Refuse is deposited in front of the native houses. Bazaar said to be "drained and ventilated."</p> <p>There is a good supply of water, "but it is not used for drinking." No latrines; no sanitary police; no regulations for cleanliness in the bazaar. The place is dirty and crowded. The houses poor; dung heaps before them.</p> <p>The native population suffers severely from epidemics, of cholera, and small-pox, generally once a year. Beriberi, rheumatism, syphilis, fever.</p> <p>Among the troops, hepatic disease is exceedingly rare; about 10 per cent. of the total sick are from venereal. The troops suffer constantly from quotidian and intermittent fever also from ephemeral fever, small-pox and chicken pox. Epidemic cholera occurs once a year; rheumatism frequent. About a third of the admissions to hospital, and rather more than a third of the deaths are from these miasmatic diseases. Cholera occurs all over the station;—the other diseases in the places where the general sanitary conditions are bad.</p> <p>The use of narcotics and bad food are also predisposing conditions.</p> <p>The hospital is half a mile from barracks, on a healthy site. Water supply "sufficient;" "considered good by the sepoys, but obtained from a tank used for washing as well as for "drinking." Refuse water removed by a common (surface?) "drain."</p> <p>The hospital contains two wards, for 49 beds, at about 1,000 cubic feet per bed. Ventilation by doors and windows; "sufficient." Privies cleansed by sweepers. No lavatory. A bathing tub, hip bath, and foot tub allowed for the sick. No kitchen. Attendance, one hospital havildar, with an orderly comrade if necessary.</p>
MERCARA.	<p>Accommodation for one regiment native infantry.</p> <p>Elevation above the sea said to be 4,500 feet, and about 1,200 feet above the table land of Mysore.</p> <p>Average height of barometer at 10 a.m., 26.6 inches. Thermometer 72° F.</p> <p>Surrounding country hilly, partly wooded. Sea 40 to 50 miles distant.</p> <p>The town of Mercara is in two parallel streets, about half a mile long. Population about 1,000. The sepoy huts are built near the fort. The ground falls in all directions.</p> <p>Climate excellent. Thermometer falls to 62° F. before sunrise. During the day it is rarely 75° F. The highest observed temperature is 76° F. Rain falls for 6 months and fires are needed.</p> <p>Water supply unlimited. Said to be pure; but no analysis. Drawn from a well by bucket and rope.</p> <p>The sepoys hut themselves, receiving only two rupees hutting money (4s. to build themselves a house). The huts are of mud, and with long rain and wind they often fall. The sepoys would be more healthy if they were better housed.</p> <p>There is no drainage.</p> <p>There are no lavatories, no latrines, no cook-houses.</p> <p>Surface cleansing efficient.</p> <p>Bazaar "well ventilated, drained, and kept clean."</p> <p>Station and native population are healthy. Epidemics scarcely known. Prevailing diseases: fevers and bowel complaints. Hepatic disease is very rare.</p> <p>Among the troops 3 cases in 20 are from venereal disease.</p> <p>Intermittent fever, diarrhoea, and rheumatism are the chief affections.</p> <p>The hospital is 20 yards from the fort. Site freely ventilated. Water abundant and wholesome. A large cesspit has just been completed to receive the hospital drainage. "Cannot say how it will answer." Two wards; no regulation as to cubic space per bed, and no beds. Those in use appear to have been removed from a small European barrack and are of wood, with tape supports. Floors 6 inches above the ground. No ventilation beneath. Materials brick and chunam. Verandahs 10 feet wide. Windows on three sides; afford sufficient ventilation. Privy close to the hospital, in part of a building intended for a cook room, but not used on account of the smell. No lavatory. Native sick wash in the open air "according to their custom." Or they go to their huts for ablution. There are bathing tubs.</p>
BOMBAY PRESIDENCY. RAJCOTE.	<p>Accommodation for one regiment native infantry, one squadron cavalry, and a detachment of artillery.</p> <p>Site about 450 feet above the sea level, and 100 feet above the country, which is a vast undulating stony plain. The town of Rajcote, with 7,000 inhabitants, half a mile distant. The</p>

STATIONS.	REPLIES.
	<p>surface black soil; stony subsoil, with underlying sandstone and trap. Climate on the whole healthy. Highest mean maximum temperature 99°·1 in May. Lowest mean minimum 58°·7 in January. Mean daily range from 4°·8 to 21°·3.</p> <p>Water supply from rivers, but chiefly from wells, which, unless constantly used, become very foul from pigeons' dung and rubbish from their nests. No analysis. Water is raised by leather bucket and rope, and distributed by bullocks.</p> <p>The huts are constructed of unburnt bricks and mud, roofed with tiles. Dimensions various. No windows or verandahs. Doors the only ventilators. Ventilation might be better. No lavatories. No cook-houses. No latrines. Filth removed by sweepers. No drainage. Rain-fall lies on the black soil.</p> <p>Bazaar drained into a nullah. No artificial drainage. Ventilation indifferent. Water supply "good." Great want of cleanliness. No latrines. Bazaar overcrowded.</p> <p>Prevailing disease among native population: intermittent fever. Skin diseases not uncommon. Cholera occasional. Healthiness of population attributable to fine climate. Sickness, when prevalent, to filth of houses and streets, and entire want of ventilation.</p> <p>Among native troops there have been five cases of scorbutus in two years. No liver disease. Venereal disease has formed 2·9 per cent. of admissions. Prevailing diseases: ephemeral and intermittent fever, yielding together 67 per cent. of the admissions, and 26·6 per cent. of the deaths. Rheumatism; dysentery, rare. Neither cholera nor small-pox. Fevers occur in the transition from wet to dry weather. Health of the troops might be improved if Government rations were issued, as they hoard their pay and do not procure sufficient food. Ventilation of huts is also required. Native troops temperate. No admissions directly or indirectly from intemperance. No means of instruction or recreation, except a library and <i>gymkhana</i>, supported by European officers.</p> <p>There are two hospitals, with one ward in each. No limitation as to number of beds. Sites healthy. Water abundant. No drainage. Materials: sandstone and chunam. Verandahs. Floors 18 inches above the ground. Ventilation by opposite doors and windows, sufficient when wards are not crowded. Privy 17 yards from hospital, cleaned out every morning. No lavatory. Tepid baths available. Wooden cots; iron better. No kitchens or diet tables. One hospital orderly, with servants. Comrades allowed when necessary. Native women will scarcely submit to any medical treatment. But sick children are frequently brought to the medical officer.</p>
<p>SEROOR.</p>	<p>Accommodation for 400 irregular cavalry, 25 native commissioned, and 32 non-commissioned officers.</p> <p>The station is 1,752 feet above the sea, and on the level of the adjacent country, open and exposed to winds. The most prevalent of which is the sea breeze.</p> <p>Town of Seroor, with 7,000 inhabitants, contiguous to the lines.</p> <p>Subsoil trap rock.</p> <p>Climate dry except during monsoon. Influence on health favourable.</p> <p>Highest mean maximum temperature, 107° F. in April. Lowest mean minimum 50° F. in December and January.</p> <p>Water supply unlimited, from the river Goar. Water hard, but very good. No analysis.</p> <p>There are no barracks, only huts. Principal streets of bazaar kept clean, but the native houses generally exhibit carelessness and negligence as to repair. Fever is usually prevalent among the native population after the monsoon. Cholera and small-pox the most frequent epidemics. The comparative healthiness of Seroor is due to open situation and the absence of sources of malaria.</p> <p>Among the troops intermittent fever is prevalent. Cholera is epidemic in the hot season. There is a little mild dysentery. Chronic rheumatism is the chief cause of admission into hospital during the cold months. 27 per cent. of the admissions and 18 per cent. of the deaths are due to fever. 4 per cent. of the admissions and 20 per cent. of the deaths are due to cholera. No admissions to hospital from intemperance. No case of drunkenness on record. There are 6 or 8 cases of venereal disease in the year.</p> <p>The hospital is a detached bungalow on an open freely ventilated site. Water from wells. No drainage. Impurities removed by sweepers. The hospital is built of burnt bricks. It is on one floor, with a verandah 6 feet wide. Ventilation by open doors and windows. No lavatories or means of bathing.</p>
<p>DHOOLIA.</p>	<p>Station in a valley 1,000 feet above the level of the sea. Partially cultivated. Black soil with moorum subsoil.</p> <p>Climate hot and muggy. Seems beneficial to health of native troops. Highest mean maximum, 101°·39 F. in May. Lowest mean minimum, 60°·7 in December. Mean sun temperature as high as 115° F. in May.</p> <p>Water supply from rivers and wells. Abundant. Colour, "rather blue." Soft and of good quality.</p> <p>Accommodation consists of 372 native huts and pendalls (open sheds). Men place their bedding on the ground. Materials, burnt brick. Roofs, double tiled. Floors of moorum. Pendalls should have ventilators in the roof. No lavatories nor cook-houses. No privies nor urinals. No drainage. Cleansing efficiently done by sweepers; the refuse used for brickmaking.</p> <p>Bazaar clean; not crowded.</p> <p>Most prevalent diseases at station, fevers, cholera, and spleen disease. Population said to be "healthy" from pure air and good water. <i>Diseases of native troops</i>:—Liver, very insignificant; sick from venereal, 1 in 40. Most common disease, quotidian fever. Fevers occasion about 55 per cent. of the total admissions. Cholera occurs every hot season.</p> <p>Troops temperate. No confirmed drunkards.</p> <p>No means of instruction, except regimental schools. No means of recreation. Troops amuse themselves with quoits and skittles. Not restricted to barracks, either for sun or rain. Native troops should be instructed in field works, road making, making their own clothes, boots, &c., building huts.</p> <p>Hospital consists of one centre room, with a verandah; 12 beds. About 925 cubic feet per bed. Verandah will hold 20. Verandah beds would have about 185 cubic feet per bed. Accommodation too small. No means of ventilation but doors and windows. No drainage. Privies cleansed daily. No lavatories or baths. Common wooden bedsteads. Sepoys bring their own bedding, including two clean sheets. Cooking in an open shed. Attendants, a hospital orderly, a comrade to nurse when required.</p>

STATIONS.	REPLIES.
DAPOOLEE.	<p>Site in a hilly country, between the western coast and the ghats. Dry during the monsoon, swampy in rains. 600 feet above the sea level. Sea, nine miles west. Soil, volcanic; laterite, decomposed trap.</p> <p>Climate consists of three seasons. Cold, December to February; hot, March to June; rainy, June to October. Rheumatism and chest affections prevail in the rains.</p> <p>Water derived from wells. Amount varies with the season. There are 77 wells for a population of 3,425.</p> <p>Accommodation consists of 358 huts; one per man. They are 18 feet long, 8 feet broad, and 10 feet high. They have a door and opening opposite for ventilation. Size too small for families; and they are overcrowded.</p> <p>No sewerage. Dampness pervades every building during the monsoon. No lavatories. Cleansing tolerable.</p> <p>Bazaar has only surface drainage to the nullahs. Water tolerably plentiful. Five labourers employed for cleansing. Dung or dirt heaps are common. Crowding considerable. Among the native population little disease in hot and cold seasons. In rainy season diarrhoea, dysentery, and chest complaints; cholera, choleraic diarrhoea, measles, small-pox occur at intervals. Fever "attributed to insufficient food, exposure, and hard labour." Cholera, measles, and small pox, "to unripe fruit, contagion and unknown causes, chiefly atmospheric." Among the troops there is very little hepatic disease; no syphilis; quotidian intermittent occasions about 28 per cent. of the admissions, and rheumatism about 11 per cent.</p> <p>The sepoys are temperate. No confirmed drunkards.</p> <p>There is a native school, but no other means of instruction. No means of recreation, except plenty of shade.</p> <p>Hospital on a good site; supplied with well water from two wells in the compound. No drainage. On one floor; no ventilation beneath the floor, which is composed of hard beaten earth, "cow-dunged every week." There are two wards containing 30 beds each, at 1,250 cubic feet per bed. Materials, laterite stone, with lime plaster. A verandah 8 feet wide. No means of ventilation except the windows. Wards cleansed once a quarter. Privies are 75 feet from hospital. No drainage nor water. Cleansed by sweepers. No lavatory. There is a bath room, with means of heating water for each ward, but they are never used by native sick. Their usual way of bathing is to throw hot or cold water over themselves. Bedsteads of wood, infested with bugs. Iron ones should be introduced. Native sick use their own bedding. Two cook-rooms for castes to each wing. No apparatus. The sick either cook for themselves or a Brahmin cook does so. Attendance by an orderly from the corps, and a comrade when required.</p>
JACOBABAD.	<p>There is at this station accommodation for 2,400 native cavalry, and 1,600 native infantry. It has an elevation of 220 feet above the sea.</p> <p>The surrounding country is desert, flat, sandy, and dry.</p> <p>Climate said to be the driest in the world. The highest rainfall in any year since 1851 has been 8 inches; the lowest 2½ inches. Summer heat excessive. Mean temperature from April till end of October varies from 80° to 99° F. The variation is very great, and the climate "totally unfit for European soldiers."</p> <p>Water is brought in canals from the Indus, 52 miles distant, and stored in tanks. There are wells supplied by soakage of this water. It is raised by the Persian wheel and buckets. It is yellow at first, but becomes clear on standing. Amount sufficient. Quality not injurious to health.</p> <p>Bazaar kept "scrupulously clean." Country thinly populated. Prevailing country fever: intermittent, quotidian, tertian, complicated in winter and spring with chest diseases; diarrhoea and dysentery; spleen disease common; chronic rheumatism frequent.</p> <p>Among the troops there is little hepatic disease. Annual proportion of admissions from syphilis less than 15 per 1,000 of admissions. Endemic fever the chief disease. Dysentery not very frequent. Cholera unknown. Only one apparently sporadic case in six years. Small-pox rare. Chronic rheumatism and neuralgia "common."</p> <p>Troops accommodated in pendalls, which give 612 cubic feet and 72 square feet per man. No windows. Each man has his own door. Men sleep out altogether in the hot weather and inside in the cold.</p> <p>No lavatories; natives wash in the open air, with the aid of bheesties. No cook-houses. Each man has his own cooking arrangements. No privies or urinals. No drainage.</p> <p>Hospital on one floor, built of brick and mud. Verandah all round. Hospital "used more as a dispensary—only the worst cases requiring constant attendance being kept in it; " these are placed wherever it is coolest." Ventilation said to be "good." Water supply from the same source as in barracks. No drainage. Refuse water and other impurities removed by sweepers. No privies. No kitchen. Men "make their own arrangements for "cooking." Men "supply their own bedsteads and bedding." No attendance. "When there are bad cases, the patient is allowed to have a comrade." No sanitary defects "to remark upon or improvements to suggest."</p>
DHARWAR.	<p>Accommodation for 900 native infantry.</p> <p>Station 2,482 feet above the sea. Country barren hills; undulating. Said to be one of the healthiest stations in the Bombay Presidency. Climate very good; not very hot; never very cold; occasionally foggy; equable. Geological formation, metamorphic clays, mica schists, &c.</p> <p>Water derived from wells and tanks; said to be "very good and wholesome;" but said "to give rise to guinea worm among the natives." Amount generally sufficient for drinking and cooking, but scanty for other purposes in hot weather.</p> <p>The bazaar is crowded and narrow, with very imperfect ventilation. Said to be clean.</p> <p>Prevailing diseases among natives are fevers, bowel complaints, rheumatism, guinea worm, cholera "every now and then;" scarcely any spleen disease.</p> <p>There are no barracks. Liver disease very rare among native troops. About 8 per cent. of the cases of sickness are guinea worm, supposed to arise from the water. Venereal cases about 8 per cent. Intermittent fever is the most prevalent disease. There are a few cases of mild remittent; very little dysentery. But there is cholera in its most virulent form, and chronic rheumatism is common. Above 77 per cent. of the deaths have been due to cholera, and 4½ per cent. to dysentery. But the total mortality is small.</p> <p>Hospitals, one floor buildings, with verandahs. Ventilation not very good in permanent hospital. Ridge ventilation in temporary hospital answers admirably. Contents of privies removed daily.</p>

ADDITIONAL ADDENDA SUBMITTED BY SIR RANALD MARTIN.

On the SANITARY MANAGEMENT of EUROPEAN TROOPS in the EAST INDIES, by T. E. DEMPSTER,
Deputy Inspector-General of Hospitals.

IN the following notes, which I have now the honour to submit for the consideration of the Royal Commission, it is my design only to refer to subjects on which my personal experience has had a direct bearing, and as this experience has been entirely confined to the Presidency of Bengal, it is only of the customs, climates, and diseases of that portion of the British Indian dominions that I shall presume to speak.

I have never held medical charge of troops on board ship, and therefore the only remark I shall venture to make regarding the sanitary management of soldiers on the voyage to India is, that the fresh European about to encounter the risks of a tropical climate should abstain from the use of ardent spirits in any shape on the voyage, and that stimulants of this kind should only be allowed under special circumstances, and with the express sanction of the medical officer in charge. A moderate allowance of some light wholesome malt liquor may, however, be substituted for the usual spirit ration.

In 1834-35, while in medical charge of the 4th Battalion Bengal European Artillery at Dum Dum, I witnessed such dire effects from the then common practice of landing European recruits in Calcutta in the hot and rainy seasons, that, although a much better system now obtains, I feel myself constrained to reiterate the caution, that all Europeans should leave England so as to ensure their arrival in Bengal during the cold weather. I consider the 15th of November as the earliest safe date of arrival in Calcutta; this will leave three and a half good months, at least, for forwarding the new arrivals to some of the best up-country stations, whether in the plains or in the mountain ranges. Fresh troops may march in the cold season, not only with safety but with advantage. If expedition is required, I presume that good arrangements can now be made, for sending them on by railroad; but I strongly object to the river route, whether country boats or steamers be employed, for then it is scarcely possible to avoid overcrowding, or to ensure the requisite degree of cleanliness and ventilation. It is well known that large bodies of troops proceeding by the Ganges route are liable to suffer severely from cholera and other diseases, even in the cold season of the year.

The whole of my experience leads me fully to concur with Sir Ranald Martin in the opinion, that fresh European soldiers should be at first located in the hill districts, and that to wait until the constitutions of the men shall have suffered serious deterioration by long exposure to the heat and malarious influences of the plains, and then to send them to the hill stations, is just to reverse the proper order of things. I believe that a residence of two or three years in the hills during the hot and rainy seasons of the year, with drill and exercise in the adjoining plains in the cold weather, would greatly tend to acclimate the newly-arrived European, teach him the habits and modes of life of the Indian soldier, and so render him more tolerant of the effects of the climate when his turn should arrive to serve for a period in the plains.

The duty of keeping meteorological registers at hill stations was, unfortunately, imposed upon the resident medical officers, that is, examination of instruments at regular stated periods was looked for from men whose professional duties rendered such regular examinations altogether impossible. At Darjeeling alone, an excellent set of meteorological instruments was placed under the general superintendence of the resident medical officer, but the observations were made and recorded by an instructed subordinate staff. The Darjeeling register is, therefore, the only one really to be depended on; all the rest are loose and unsatisfactory in the highest degree. This defect has, I believe, been recently remedied by the elaborate and scientific observations of the German brothers Schlagintweit. Their observations on the meteorology of these regions is, doubtless, to be obtained at the India House, and may prove of great value to the present inquiry.

A brief general account of the climate and course of the seasons at the *Landour Convalescent Depot*, perhaps the most healthy of our hill stations, may not be without interest on the present occasion; and I shall commence my rapid sketch from March, the month in which convalescents

from the plains begin to congregate in the hills. March, the beginning of the hot season below, is often cold and changeable at Landour, with sudden showers of rain or hail. With April begins the steady summer weather, which continues until about the 20th of June, when the "chota bursat," or little rains set in. The maximum summer heat, in a *perfect shade* at Landour seldom rises above 74°, and the diurnal range of the thermometer rarely exceeds three or four degrees. On the other hand, it should be borne in mind, that we are there under an almost tropical sun, whose rays reach us through a rarer and clearer medium than in the plain below; and I have ascertained by repeated experiments (with rude instruments it is true), that the heating power of the ray of the sun is almost as great at Landour as at Meerut; but then, there is no accumulation of reflected heat as in the plains. The lightest fleecy clouds break the force of the sun's ray; the slightest shade secures a cool retreat. At certain turns of the hills, where the bare rock is screened from the cool breeze, and is exposed to the direct rays of the sun, the heat is often very oppressive; and this is especially the case in the "khuds," or steep mountain declivities, and narrow valleys. It thus appears that he who is content to remain chiefly in the shade may enjoy, in the hot season at Landour, one of the most equable and temperate climates in the world; but if he is much out in the sun, and especially if he descend into the neighbouring "khuds" and narrow valleys during the day, and return to the cold mountain tops at sunset, he will subject himself to great and trying alternations of temperature. Agreeable and salutary as such a climate may be to the healthy European, as compared with the burning plain below, he should never forget it is not the climate of his native land. These appear to me to be important considerations to the European resident in general, and to the European invalid in particular. During the summer months the night wind invariably blows from the north, or the direction of the great snowy range. For some time after sunrise it is usually calm, and where the oblique rays of the morning sun fall at right angles to the steep hill sides it is often very hot; but about 10 a.m. a cool refreshing breeze sets in from the south, or from the direction of the heated plain below, which continues until sunset. This cool wind, familiarly known as "the Dhoon breeze," occurs in summer with the same regularity as the well-known "sea breeze" on the Madras coast. But the explanation which accounts for the diurnal cool sea breeze will not serve in the present case. The cause is somewhat obscure. Rain seldom falls at Landour in summer; the sky is generally cloudless, but the atmosphere is often obscured with a dry mist, probably caused by minute particles of dust borne into the upper regions of the air from the hot plain below. Towards the latter third of June, the higher elevations first become enveloped in clouds, and then occur "the little rains." After an interval of variable duration, the regular periodical rainy season sets in, and continues with little intermission until about the 15th or 20th of September. This is the most dreary and unpleasant portion of the year in the hills. Rain falls with a copiousness and persistency altogether unknown in Europe; the air attains its maximum of humidity, and the whole station, often for weeks together, is wrapt in dense clouds.* Some time in September the periodical rains break up, and are succeeded by a season which is by far the most delightful and salubrious of the whole year. The sun has now lost its power; the air is cool and bracing; and the atmosphere has a purity and transparency of which I can convey no adequate conception in words. It is from the commencement of this beautiful season that the invalid usually dates his first real improvement in health. As the year advances towards its close the weather continues clear and steady, but gradually becomes colder and colder until December and January, when the thermometer often stands at or near

* The mean elevations are comparatively free from this inconvenience, and are therefore much less damp in the rainy season. This causes Subathoo to be often resorted to in the rains by invalids, but they avoid it as much too hot in May and June, when the thermometer, in a good house with open doors, often rises to 90°.

the freezing point. Several falls of snow occur during the winter months. The heaviest I ever witnessed took place at Landour on the 20th of February 1842. The first houses erected at Landour were placed on the highest eminences, and were constructed on the model of an ordinary Indian bungalow. These situations are now avoided as too cold and exposed. The favourite sites at present chosen are lower down on the southern face of the hills, and the plan of the buildings is more European, and better adapted to the climate. The northern aspect of the hill is rejected as damp and dreary in the rains, and sunless and often blocked up with snow in the winter season.*

Much has been said and written regarding the effects of the hill climate on the European constitution, and on the class of invalids likely to benefit by a residence at the hill sanitary depôts. All I have seen leads me to sum up the whole question in a very few words, viz., sound European adults, if moderately careful, retain their health and vigour unimpaired at good hill stations; and children, the offspring of pure European parents, are there as joyous, rosy, and active, as in any part of Europe. The young and naturally robust, although reduced by recent illness, and provided they do not labour under serious organic disease, generally recover rapidly and completely in the hills. Slight and recent cases of organic disease, especially if the spleen is the organ affected, often do well; but they require very careful management and a residence of two or more seasons at the sanitary depôts. On the other hand the old and worn out, the afflicted with organic disease of long standing, and those whose constitutions have been seriously impaired by long exposure to a high temperature, instead of deriving benefit will generally find their complaints aggravated by removal to the hills. Such, I believe, to be the general rules which should guide our selection of cases to be sent to the hill stations, to which doubtless there may be some especial exceptions. *Diarrhœa* is the endemic of these elevated regions, but assuredly it was not prevalent at Landour the year I had medical charge of that convalescent depôt. The quality of the water of the hill springs and streams may have something to answer for, but I am inclined to believe that the well known cause of this complaint everywhere, viz., *suppressed perspiration*, is really principally to blame. Most of the European residents have previously had their vital energies reduced by disease or exposure to a high temperature; and on their arrival in the hills they are very liable to have their morbidly sensitive bodies *first overheated, and then suddenly chilled*, under the circumstances set forth above. The grand prophylactic I conceive to be flannel, and especially the broad flannel abdominal binder, worn next the skin. If this should really turn out to be the common cause of bowel complaints at our present hill stations, the risk would be greatly reduced by keeping the men in well chosen localities at a lower elevation; but then certain classes of invalids would lose the curative effects of the cool bracing air of the upper regions.

European regiments which had previously suffered severely at unhealthy stations in the plains, are well known to have lost great numbers of men on being transferred to the hills. I think Her Majesty's 13th and 29th regiments of foot will be found to have furnished striking instances of this nature. I am of opinion that it would have been more judicious to have sent such sickly corps to a healthy locality in the north-west provinces,—such as Meerut,—where there is good barrack accommodation, and ample supplies of excellent meat, bread, fruit, and vegetables.

The following precautions are recommended to be observed by all invalids from the plains proceeding to the more elevated hill convalescent depôts,—such as Landour and Darjeeling. The ascent should be made in a slow and gradual manner, and the patient should be provided with an ample supply of warm clothing,—including flannel shirt and abdominal binder,—to put on as he comes into the upper and colder regions. If the invalid is much reduced in strength, and especially if he is labouring under disease of internal organs, the whole ascent should not be accomplished at once; but he should remain for a day or two at some convenient mean elevation, where proper shelter should be provided for the sick. It is at such half-way house that a complete change of clothing should be made before ascending to the highest point. Invalids often perform the whole journey from Rajpore, at the foot of the hills north of Deyrah, to the depôt hospital at Landour (about 7,600 feet above the level of the ocean),—*in less than four hours!* In this short space of time they exchange the

heat of the plains of India for an almost European climate, and a greatly reduced atmospheric pressure. That the robust and healthy human frame should be able immediately to accommodate itself to such entirely new conditions, without injury to its delicate and complex organism, is surely one of the wonders of nature. But when the body is enfeebled by sickness, and vital organs in a state of actual disease, this sudden plunge into a cold and rare atmosphere is too apt to chill the surface, disturb the balance of circulation, and cause congestion of weak internal organs. Nor is it surprising that serious derangement, or even fatal mischief, should occasionally result from such an ordeal.

The same general precautions should be observed by corps ascending the hills, more especially that one which relates to a proper change of clothing on attaining a certain altitude. I am persuaded that not a little of the blame that has been cast on the hill climate is fairly to be ascribed to a neglect of the above obvious and reasonable precautions.

I am well aware of the objections which may be urged to the proposal to locate a large proportion of our European troops in the hill districts of the Bengal presidency. These are:—The absence of extensive table land in the lower Himalayan ranges; the difficulty of finding a sufficient number of easily accessible sites, of the required elevations, among such rugged and precipitous mountains; the difficulty and expense of properly feeding European troops in such situations; and the dangerous character of the "Terai" jungle to be traversed before some parts of the lower ranges can be reached. But I am convinced that many eligible sites may be discovered in this and other parts of the country, if searched for in a proper manner; and that all the other objections can be mainly obviated by the construction of branch railroads up to the foot of the hills.

But supposing the search for eligible sites in the hills to have been attended with complete success, I much fear it will still be necessary, for years to come, to retain a considerable number of European troops in the plains, to overawe by their visible presence populous turbulent cities, or disaffected districts, and in such a case the sanitary management of Europeans in the plains of India must still remain a subject of vital importance.

Of all the deaths of European soldiers which I have witnessed in India the great majority have occurred from diseases of undoubted malarious origin and their sequelæ. The first and most indispensable rule, therefore, for preserving the health of the British soldier in the plains, must ever be to place him in as good and healthy a locality as possible. And I would here especially direct attention to the fact, that there are few districts in the north-west and central provinces of Bengal which are either wholly good or wholly bad; that in almost every district unhealthy and comparatively healthy localities exist; and, that unhappily, we have too often chosen the *former* as a site for our European cantonments. This, I believe, to be especially true with respect to Cawnpore, Kurnool, Dinapore, Delhi, Ghazepore, &c. Nearly all these stations are irretrievably vicious, and yet I believe good localities exist at no great distance from every one of them. The *close proximity* of some of the worst and some of the best localities, examined by the Canal Sanitary Committee, was one of the most curious and important facts elicited by that inquiry. With regard to rules for the selection of proper sites in the plains for standing camps or cantonments, I have nothing to add to what I have already written on this subject in the Appendix to the Report of the Canal Sanitary Committee, and in the note forwarded by Sir Ranald Martin to the Court of Directors.

A proper site being found, the next considerations are, accommodation, ventilation, personal and local cleanliness, clothing, food, use and abuse of stimulating drinks, exercise, and amusements; and on each of these important points I would offer such brief remarks as my experience in India suggests.

Barrack Accommodation.—Of the old style of barracks in the upper provinces, now so universally condemned, I need not here speak; they are, it is hoped, among the old things that have passed away. I have a personal knowledge of the new European barracks at Umballa, erected by Sir R. Napier, the horse artillery and infantry barracks at Meerut,* and the new horse artillery barracks at Loodiana, all of which, if properly ventilated, I consider generally good. Although all built of a single story, they are lofty and spacious,—stand on terraces raised from six to ten feet above the general level of the ground, and are supposed to afford about 1,000 cubic feet of air to each inmate. They have all deep double verandahs, the inner one being furnished

* I am no professed geologist, but I can state from my own observation that Landour is situated on stratified rocks of the metamorphic series, which are covered with a scant and not very fertile soil; and that the ground generally is very lightly timbered, and almost free from underwood.

* The European cavalry barrack at Meerut is wretched, and ought to have been abandoned years ago.

with well-fitting glass doors all round. I have not seen the new barracks erected in the Punjab under the auspices of the late Sir Charles Napier, but believe they are still better than those above referred to. Such accommodation, with due attention to safe ventilation, leaves little further to desire as far as the unmarried soldier is concerned. But wherever I have been the arrangements for the accommodation of the married man and his family have been most defective. At Dinapore, so recently as 1856, I found the married men of Her Majesty's 10th regiment living in a range of low out-houses, close to the public necessaries, and in a filthy ill-drained locality.

On my recommendation Government hired an ample private barrack for their accommodation; but had the married families themselves been consulted, I strongly suspect they would have rather remained and endured the inconveniences of the locality from which I caused them to be removed, for reasons to be noticed hereafter. At some stations a whole or portion of a barrack is assigned to the married men of a regiment, and the space divided off into separate compartments for each family by means of *low cloth screens*. This expedient interferes with ventilation and cleanliness, and goes but a small way to secure the decent privacy of a married family. At other places the separate compartments are formed with low slight brick walls, which leave all the space above open, so as to permit the large barrack "punkahs" to swing freely over two or more of them. This is a somewhat better arrangement, both for decency and cleanliness. Constructed as up-country barracks now are, and probably must continue to be, it is only by adopting such like expedients that the married families can be accommodated within the walls of the main buildings. But I have generally found that the married soldier is ready to submit to almost any other inconvenience to secure a detached lodging for his family, where his conversation is not overheard, and the ears of his wife and children are unassailed by the too common ribaldry and obscenity of the adjoining "unmarried" barrack room. Many of the steady married men of the Company's European artillery obtained permission to reside in small detached private bungalows in the rear of the barracks. Such a group of bungalows or huts constitute what in Anglo-Indian barrack language is called a "*Patchery*," probably a corruption of the Hindoostanee word "*pecharee*," "behind or in the rear." The desire of married men to remove their families from the contamination of barrack life is surely most right and praiseworthy, and, therefore, I think it would be well to place such families in small detached bungalows, at a convenient distance from the barracks. Such erections might be slight and not expensive, the chief points to be attended to being a good site, a good thick, lofty, and projecting *thatched roof*, and a clear space in the direction of the prevailing winds. All unthatched *small buildings* are altogether uninhabitable by Europeans in the hot season. The whole of this subject, viz., the proper accommodation of married soldiers, is worthy of far more attention than it has yet received in India. Important as good barrack accommodation unquestionably is, a well chosen locality is of more importance still. I have met several striking instances, in which the troops lodged in the very *worst* barrack suffered in unhealthy seasons far less than those living in the *best*, at the same station, simply because the former had the advantage in certain local conditions.

Ventilation.—If the necessity of good ventilation is now fully recognised in Europe, its importance cannot be over-estimated in India, where the exciting causes of endemic and epidemic disease are so much more active and virulent. I beg to submit a separate minute on cooling, agitating, and renewing the air of barracks and hospitals in the upper provinces of the Bengal Presidency. I shall only further remark, in this place, that wherever the exigencies of the service may oblige troops, for a time, to occupy an insufficient space, the grand antidote to contingent mischief is a good and safe system of ventilation.

Personal and local cleanliness are also sanitary considerations, the importance of which becomes greatly enhanced in a climate in which the secretions from the surface of the body are so profuse and irritating, and all dead animal matter so rapidly undergoes decomposition. All Anglo-Indians of the upper classes, not actually ill, daily use either a bath of some kind, or perform equivalent spongings and ablutions of other parts of the body than merely the hands and face. So essential is this generally considered to the health and comfort of the European resident, that there is not a private house, or even staging bungalow anywhere to be found, which does not possess a *bath room* as an indispensable adjunct. Until of late years, however, the European private in his barrack had no proper means at his disposal of so keeping his person clean. A

few of the men bathed in the neighbouring muddy tanks and rivers, but the great majority adhered to the good old English custom of washing the face and hands once a day, and the feet as seldom as possible. Some years ago, however, a movement set in in a different direction, and the necessity of providing proper wash-houses for European barracks was generally admitted. When I left Meerut, in 1854, admirable arrangements of this nature had just been completed for some of the barracks at that station. A wash-house for the artillery hospital was about to be commenced, but when I came away my simple and cheap expedients remained just as I had originally planned them. On joining the Dinapore division as superintending surgeon, in 1855, I found both barracks and hospitals absolutely destitute of regular wash-houses; and the one I got built for the Dinapore European hospital was the first thing of the kind ever erected in those provinces. When transferred to the Cawnpore circle, in 1856, I found things precisely as at Dinapore; and I was surprised to learn that it had never been the custom to "indent" for soap for the personal use of the sick. Heretofore, a few tubs of water and a few "rack-towels" had been placed at one end of the hospital verandah, neither of which could be taken to the bedside of a patient unable to rise. I pointed out to medical officers that there was no occasion to wait the erection of expensive wash-houses, and how simple a matter it was to secure for the sick ample means of performing daily personal ablutions. It was only necessary to clear out a side room or out-house, to procure a few rude long tables and benches, a supply of cheap country earthenware basins and water-pots, bar soap cut into squares, tin soap-dishes, a good stock of coarse country cotton towels, and the whole was complete. All these articles I took upon myself, as superintending surgeon, at once to pass and sanction.

Bathing.—A good plunge or swimming bath is a troublesome and expensive affair, and as it can only be used with safety by the most healthy, vigorous, and temperate of the men, I am inclined to dispense with it altogether. The ordinary Indian "*douche*" or *affusion bath* is comparatively safe, while it is, at the same time, simple and easily managed in the extreme. A number of water-pots of convenient size, and made of the very cheap country porous earthenware, are placed on a bench, or on the floor of the bathing room or tent. If a cold bath is to be used, the porous water-pots are filled the night before; if a temperate bath is desired, the pots are filled just before being used. Tepid affusion is easily managed by adding the necessary quantity of hot water. But, in general, the pot of cold or temperate water is lifted up by the bather himself, and emptied over his head and naked body, a second, third, or fourth pot following in rapid succession. The body is then quickly dried and vigorously rubbed with coarse cotton towels; reaction speedily follows; and a safe, refreshing, and invigorating bath is completed.

During the *hot* season in the plains, such a bath as that above described,—if superintended by an intelligent non-commissioned officer,—may be used with comfort and benefit, under ordinary circumstances, by a majority of the men. I have given the above details to show how cheap and simple are the means, and how easily the arrangements can be made wherever there is a good well and a supply of earthenware water-pots, that is to say, in almost every inhabited part of the country. A spare tent can always be turned into a convenient enough bathing room in camp. The weak and sickly, the afflicted with organic disease of any kind, and the confirmed drunkard, must, of course, avoid cold affusion altogether. Still, they too should observe personal cleanliness, and wash parts of the body cautiously and in succession with tepid water. The condition of all such persons ought to be fully known to the medical officers of the regiment, who can, without much additional trouble, at the regular medical inspections, class the men for the different kinds of ablutions. Very simple and efficient arrangements can also be made to enable all to wash the feet, nates, and genitals, in cold or tepid water; but I shall again advert to this point when I come to speak of the prevention of syphilitic and other sores on these parts. Whatever is really conducive to strict personal cleanliness in a hot climate can never be deemed trifling or unimportant, therefore I have no hesitation in here recommending for general adoption in the barracks, a decent and salutary custom, borrowed from the natives of India, and universally practised by all Anglo-Indians of the upper classes, viz., to wash with pure water whenever the bowels are moved. Arrangements for conveniently doing this are of the simplest possible nature.

Local Cleanliness.—Of late years attention has been much directed in India to the necessity of proper conser-

vancy arrangements, in and about barracks and military cantonments generally. Commanding officers are no longer content to see that nothing is done to offend the eye, but efficient establishments have been entertained to regularly collect and remove all offensive matter to a safe distance. The habits of the natives in the sepoy lines, and in the regimental and station bazaars however, still present formidable difficulties to a complete conservancy system. The native of India, though cleanly in his own person, is disposed to leave all the rest to the care of such scavengers as the pigs, kites, vultures, &c.

Food and Drink.—The English are notorious for adhering to their national customs and modes of life in all parts of the globe. When I visited the Mauritius in 1832, it was generally understood that the English residents, including the garrison, were then suffering much from various forms of tropical disease, while the French and Creole inhabitants of the island were comparatively healthy. The English, it was said, ate, drank, slept, and walked abroad pretty much as they had been accustomed to do at home; but the French and Creoles, on the other hand, rose early for outdoor work or exercise, partook sparingly of concentrated foods and stimulant drinks, and in other respects adopted habits more suited to the tropical climate in which they were living. Such was the story told, and the explanation given of it, on the spot; but whether strictly true or not, it unquestionably points to a sanitary truth of grave import. I do not mean to assert that the Englishman in India should live precisely as the native of the country does, for the conditions are not the same, each differing from the other in race, inherited temperament, and acquired habits; but without pinning my faith to all the modern chemical theories of alimentary substances, I do maintain that both instinct and wide experience teach that the former cannot, with safety, either eat or drink in India as he did in England, and that the same quantity of animal food and stimulant drinks, taken with advantage by a working man in a cold moist climate, is not only unnecessary, but positively injurious to the almost idle European soldier in the burning plains of Hindostan. Of the recruits drawn from Ireland and Scotland, it is certain that the majority must eat in the hot weather in India many times the bulk of animal food ever consumed in their native country while working hardest in the coldest season of the year. The same, however, cannot perhaps be said of the consumption of ardent spirits.

The raw materials supplied by the commissariat as food for the troops in India have been greatly improved of late years, and especially since the promulgation of Lord Dalhousie's orders on this subject. Not only are the beef, mutton, and bread of better quality, but a liberal supply of the vegetables of the season has been added to the soldier's ration. The power to reject inferior or unwholesome articles of food now rests entirely with the officers of European regiments. It was not so in former times. The present scale of barrack diet is ample, and not improper for men using active exercise in the cold weather; but I am strongly impressed that too large a quantity of concentrated "nitrogenous" aliment is consumed by men confined to an up-country barrack, and leading a life of monotonous inaction, during the long dreary months of the hot and rainy seasons in the plains. A good barrack dietary for the hot season is still, I think, a great desideratum; and I am persuaded that there is always to be found abundant material, if properly dressed, to furnish such a variety of wholesome, palatable, but not too nutritious food, as would render it easy considerably to reduce the allowance of solid beef and mutton, without trenching on the real comfort of the men. Of good food there is now no deficiency, but a good wholesome system of cookery is still a great want. The soup and boiled beef have long disappeared from the mess tables of the Company's European troops, and their daily bill of fare presents a sufficient variety of dishes; but the cookery is generally of a very objectionable character, all meat being made into rich pies, or hot curries, or fried with fat in common frying pans. Beyond this, their barrack culinary art does not at present go. While on the subject of food, I must not neglect to warn all concerned against the use of the flesh of the common village swine. The natives of India, as the Israelites of old, go beyond the camp to relieve the calls of nature, but they do not observe the salutary Mosaic injunction, to have a paddle on their weapon and "turn back and cover that which cometh from them." The ground so defiled is generally quickly cleared by herds of swine, literally fed upon human ordure, which they devour with surprising greediness. The men of newly arrived European regiments, if not duly cautioned, are often delighted to find both *pork* and *bacon* so abundant and cheap everywhere; and much to the horror of the high caste Hindoos and Mussulmans, and not

a little to the scandal of the old Anglo-Indian, a number of these disgusting country pigs have sometimes been permitted to follow in the rear of a British regiment as part of its "flocks and herds." I need not say that all such "ordure fed" pork and bacon should be strictly interdicted as unwholesome in the highest degree. Such food is looked upon by old European residents with as much disgust as by the Jews or Mussulmans. Strange to say, the Indian *sheep* too, if not watched and properly fed, is scarcely more cleanly in this respect than the pig; and it becomes necessary to ascertain that sheep killed for the use of the men have been well and properly nurtured.

Consumption of Ardent Spirits.—This is a subject on which I have long looked with deep and painful interest. I have lived too long with European troops in India not fully to coincide with Dr. J. Johnston and Sir Ranald Martin when they say, "that as drunkenness leads in a moral point of view to every crime, so in a physical point of view, it promotes the invasion, and retards the cure of every tropical or other disease." In this sense, the abuse of ardent spirits has been the fertile source of a large amount of the moral and physical degradation I have witnessed among my countrymen in the East. Fully persuaded of this, I considered it my duty, so long ago as 1836, at Agra, to endeavour to establish a society among the men of the 4th battalion of artillery, the members of which pledged themselves to abstain altogether from the use of spirits in any shape; a fair number joined, and for a time it seemed to promise well; but the officers of the corps looked coldly on, and the scheme, after a trial, fell to the ground. Years afterwards a temperance movement was renewed at Meerut, in the 1st brigade, horse artillery, and this time the officers were its chief promoters. The detestable *morning dram* was abolished altogether, and no spirits allowed until after dinner. This was a great step in the right direction, for I have never known either officer or man who could not dispense with a dram of raw spirits when he got up, who did not go to bed drunk, if he had the means of doing so. The men were encouraged to receive a money compensation in lieu of spirit rations, or to drink a certain quantity of good ale or porter instead of rum. After a time I learnt that only 20 men of Major Dawe's troop (2nd troop, 1st brigade, horse-artillery,) drew spirit rations, and that all the rest either drank a moderate quantity of ale, or abstained from stimulants altogether. The effect of all this on the health, efficiency, and good conduct of the men was excellent. I had never before seen European troops in India in so good a condition in all respects. This troop had arrived from the sickly station of Loodiana with 50 per cent. actually in hospital; and after a residence of nearly four years at Meerut, where the above-mentioned reformation took place, they marched to Sealkote with a *clean bill of health*; no death having occurred among the men for a period of two years. I have no records to refer to at present, but the above is, I believe, substantially a true and faithful statement of what then took place. In congratulating ourselves on the results of this temperance movement, however, it is but fair to state that Meerut is one of our most healthy localities.

At the Landour convalescent dépôt not a drop of spirits is allowed to the men unless prescribed by the medical officer in charge. This salutary regulation was originally enforced at the recommendation of a most admirable military surgeon, Dr. Robinson, then surgeon of Her Majesty's 13th foot, and for which he is said to have incurred so much odium, that some of the old confirmed drunkards attempted one night to cast him over the precipice. However, he carried his point, and I can fully testify to the great benefit of this judicious regulation to the health of the convalescents. Although I am of opinion that the freshly arrived European does best to confine himself to pure cold water or slightly acidulated drinks, yet if good malt liquor is only to be considered a substitute for rum, I would advocate its use from the very first. After several years' residence in India, good pale ale is often drunk with advantage; and to the weak anæmic female in India, it is often one of the real necessities of life. My testimony on this point may be of more value from the consideration that I have no personal predilection for malt liquor, having never been able to drink it in my life. Beer or ale is however an expensive and bulky article to carry, as compared with spirits. Great care and attention is also required in transporting it up country, large quantities having become bad and undrinkable on reaching the commissariat stores at Meerut by the old modes of conveyance. But *railroads* should now be able mainly to obviate this, objection to supply the troops with ale or porter instead of rum. A good wholesome beer is now brewed in the hills; but as yet the price is too high, and the quantity too limited for general regimental use.

Clothing.—If the European is out in the open air before sunrise in the cold season of the upper provinces, he will experience the *sensation of cold* even more acutely than he ever did at home in ordinary winter weather, and will confess that good warm clothing is at least equally necessary in both situations. The temperature of the early morning air is not very low, it is true, as measured by the thermometer, probably from 36° to 40°; and, occasionally, it touches the freezing point; but the heat in a tent at 2 p. m. of the same day will often be found from 70° to 80°. Even in the cold season it is found necessary to begin a march before sunrise, so as to reach the new ground before the sun is very high; and this extensive diurnal range renders the European system morbidly sensitive to the morning cold. I say the *European system*, for it has often excited my wonder on a march to see robust horse artillerymen dismount from their horses at the first halt benumbed with cold, and running up and down to restore the circulation in their extremities, while half naked native children were playing about as if nothing unusual were the matter; but if a good supply of warm clothing is necessary in the cold, light cotton garments are equally indispensable in the hot, dry, and rainy seasons. And here I would especially urge the necessity, *at such seasons*, of keeping the soldier's neck in every situation as free and unincumbered as the neck of the British sailor is at all times. Nothing so much interferes with the comfort and free action of the whole body as any warm, tight, or stiff covering round the neck. Who has not experienced the relief of removing a hot neckcloth, and opening the shirt collar after being overheated? A turnover collar loosely tied with a narrow black band, is surely as graceful and seemly as any military stock ever invented.

Flannel.—A good deal of difference of opinion exists among experienced medical men as to the necessity of wearing flannel next the skin in India. I venture to give the following as the result of my own experience. If the robust and healthy European has never worn flannel at home, he may continue to dispense with it on his first arrival in India. The coarse flannel supplied for the use of the British soldier is very apt to irritate the skin, produce profuse perspiration, and so cause more harm than good, and this is especially the case if it be of the sort that *shrinks on washing*, and flannel in India must be well and frequently washed. But after a residence of a few years, when the system has been lowered and rendered sensitive to all atmospheric changes, a good *light flannel shirt* worn next the skin is unquestionably an excellent safeguard against contingent evil. A proper fabric of this kind is procurable by the more wealthy classes; but I have never seen any flannel served out to the soldier in India that his officer could be induced to bear next his own skin in really hot weather. This is a point which I am sure calls for attention and remedy. I succeeded in effecting a sort of compromise with many of the men under my medical care, who had suffered from fever or bowel complaint, viz., by not insisting on the flannel shirt, and so inducing them to wear the flannel *abdominal binder*, this I am persuaded was often attended with the best results.

Exercise and Amusement.—On these important subjects I have but a very few words to add to the excellent observations to be found in Sir. R. Martin's "Influence of Tropical Climates." The question is often asked, should the European soldier be strictly confined within the walls of his barrack during the heat of the day in the warm weather, or may he be permitted occasionally to walk abroad, as in other and more temperate climates? The alternative will be found a perplexing one. If you confine him to his barrack-room, how is the uneducated man to get through the long dreary day? The officer has walked or ridden out in the early morning; on his return home he has looked in at "the coffee-shop" or reading-room, and has seen and conversed with persons not always before his eyes. During the day he visits his friends, spends some time at the billiard-room, or more profitably employs his time in reading, or other intellectual amusements at home. But the uneducated soldier, shut up in his barrack, has literally nothing to do but to lie down and try to sleep,* until the hour shall come for dinner, and the long-looked-

for *dram* to relieve, for a short period, his utter vacuity of mind and lassitude of body. Rather than force men to lead such a life, is it not better, say many well-informed persons, to give the soldier a reasonable indulgence to walk abroad, even in the heat of the day, not buttoned up to the throat and in red regimental jackets as some martinets will have it, but in loose white cotton clothes, open collars, and proper white covers to their caps. But *where* are the men to go? They have no acquaintances to visit, few out-door amusements to join; and it is too likely they will find their way to the nearest bazaar, and add the dangers of intoxication and other debauchery to that of a fierce tropical sun.

The whole case is truly a perplexing and pitiable one, and loudly calls for the humane and judicious consideration of all interested in the welfare of the British soldier in the East.

I have, &c.

T. E. DEMPSTER,
Late Superintending-Surgeon,
Bengal Establishment.

ADDENDA.

No. 1.

PREVENTION OF SYPHILITIC and other DISEASES of the GENITALS.

THIS is, in every point of view, a subject of importance to the health and general efficiency of a regiment. According to my experience, certain forms of disease of this class keep men longer from duty than any other complaint to which the soldier is especially exposed.

In India it is hardly possible for the European soldier to have intercourse with any females but those of a recognized and well-known class, whose numbers and names can at all times be correctly ascertained by the police; and it would not be difficult, through the agency of an intelligent sub-assistant surgeon or native doctor, quickly to detect the first appearance of disease among them, and so to guard the men from contamination. When I first arrived in India there were Lock hospitals at every large European military station, under the superintendence of one of the medical officers of the place, but the duty involved was a disgusting one, was ill or carelessly performed, and did very little good. Such hospitals were abolished a great many years ago.

In conducting the usual medical examinations, I have often been shocked, especially in very hot weather, to observe the filthy state of the persons of many of the unmarried men; but they had a ready and reasonable excuse to offer. How could they keep their persons properly clean without indecent exposure, seeing that there were no private wash-houses and no place in which they could perform ablutions but *an open barrack verandah*? I am well satisfied that this state of things is one of the great predisposing causes of syphilitic disease,—for integuments in a state of irritation, and often partially excoriated by increased and unremoved natural secretions, are precisely in a condition to be at once inoculated by the slightest contact with venereal virus of any kind.

The remedies I propose are as follows:—

1st. To conduct the usual medical examinations of the unmarried men with much regularity and care.

2ndly. To subject the public women to a similar examination, through the agency of a sub-assistant surgeon or native doctor of trustworthy character, and who should be held responsible for any extensive undetected disease.

3rdly. To cause all the men to *wash the genitals in cold or tepid water, at regular stated periods, during the hot season, and to afford them the ready means of at once doing so after suspicious contact.* A few simple verbal cautions may be communicated by medical officers to men who will expose themselves to such risks.

If all this were strictly attended to, I am persuaded two-thirds of the disease, which at present renders so many of the men inefficient, might be effectually prevented.

Of course, I have only dealt with the physical, not the moral prevention of disease of the nature under consideration.

T. E. DEMPSTER,
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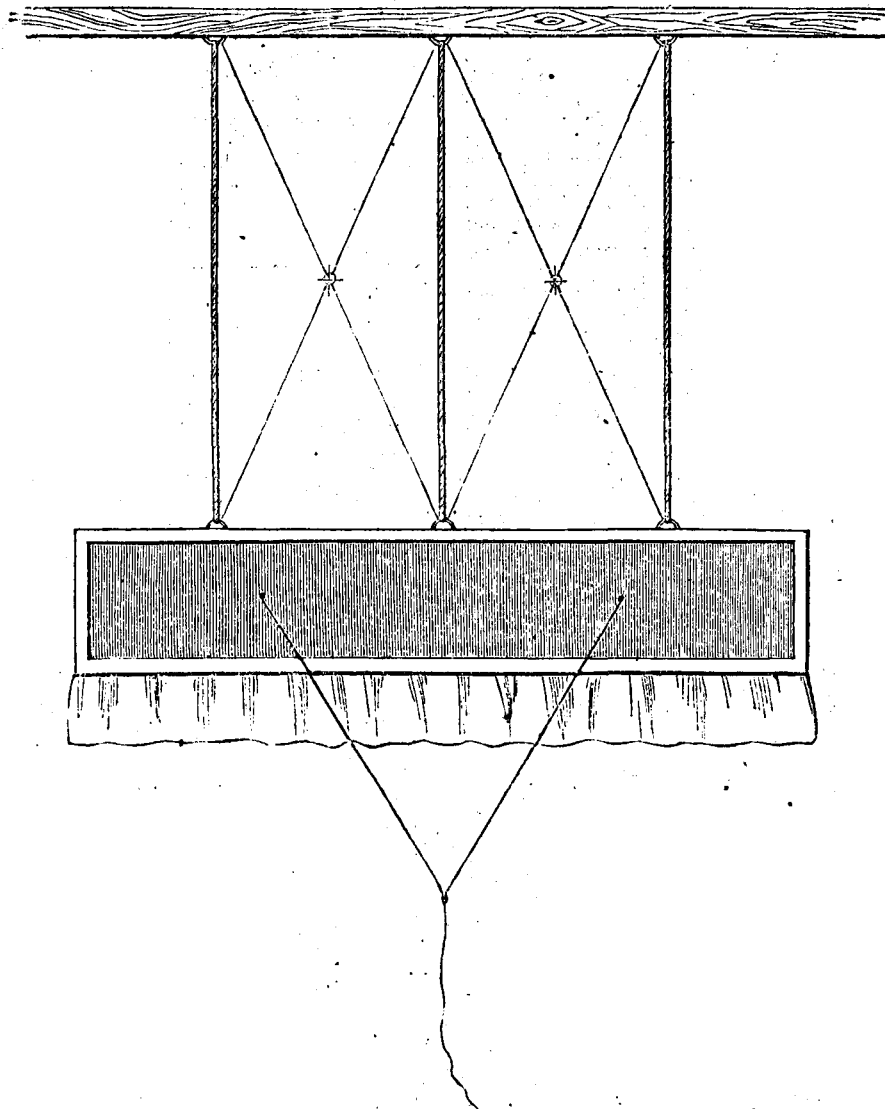
* If the barrack cots are taken up, as is sometimes the case to prevent the men sleeping during the day, they will still be allowed to have hard measure, by all who reflect how often they themselves seek the *horizontal position* during the hot season.

No. 2.

NOTE ON THE VENTILATION AND COOLING OF BARRACKS AND HOSPITALS IN THE N.W. PROVINCES OF BENGAL.

Preliminary Remarks.—A brief description of things so well known in India as swinging *Punkahs*, *Tatties*, and *Thermantidotes*, may be necessary to those who have never resided in that country.

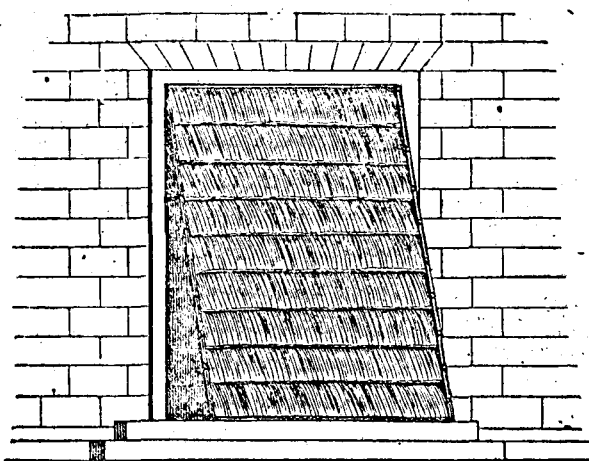
The common house punkah is merely a long substantial wooden frame, covered with cloth, and suspended to the roof of an apartment by strong ropes. A deep, full, cloth fringe is usually attached to its lower edge, which greatly increases the volume of air displaced by its motion. The punkah is made to swing forwards and backwards by means of a thin strong cord attached to it in the manner represented below.



Punkah suspended to the beam of an apartment, with pulling cord attached.

The size and dimensions of punkahs vary according to the size and proportions of the apartments in which they are to be used. All Indian barracks and hospitals occupied by European troops have, during the hot season, punkahs suspended at short intervals, which are kept swinging over the heads of the men day and night, and are pulled by a class of native servants called "coolies," who are relieved every four hours.

The relief afforded by the punkah in the hot weather, and especially during the hot oppressive nights of the rainy season, can hardly be conceived by



"Kus kus" tattie applied to common doorway.

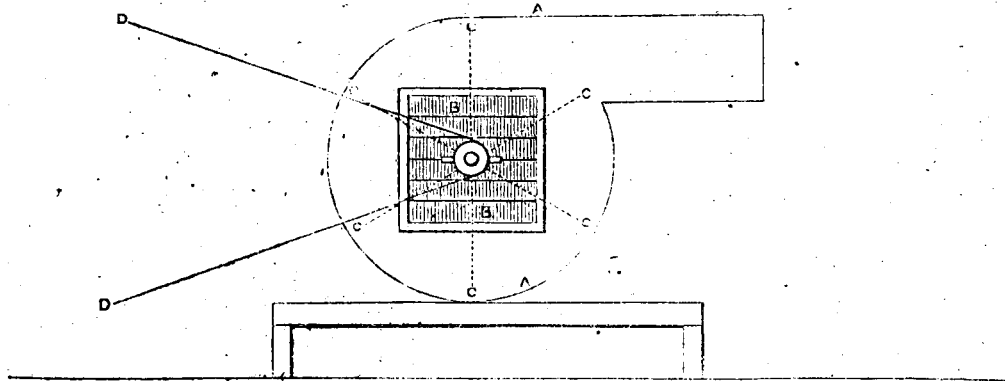
those who have never lived in such a climate.

Tatties are light bamboo frames, made accurately to fit a doorway, and into which are neatly, but not too closely, arranged the slender roots of a fragrant grass, "kus kus." These roots readily absorb and retain moisture like a sponge, while they admit a strong current of air to pass freely through them. Hot dry air, at a temperature of from 105 to 108 degrees (the average temperature of an up-country hot wind), passing through a well-wetted "kus kus" tattie, is instantly reduced to 76 or 78 degrees of Fahrenheit.

So long as a steady hot wind blows, these tatties afford the ready and effectual means of keeping our houses, barracks, and hospitals at a very moderate temperature; indeed, at such times nothing is easier than to make a large apartment *too cold* to the feelings of an old Indian. The drier and stronger the hot wind, the greater is the cooling

power of the tattie. But when the wind becomes very light, or loaded with moisture, the effect of the tattie is either greatly diminished, or altogether lost. It is, therefore, in light winds or calms that the "thermantidote" becomes so useful, especially if the air is, at the same time, tolerably dry.

ThERMANTIDOTE.

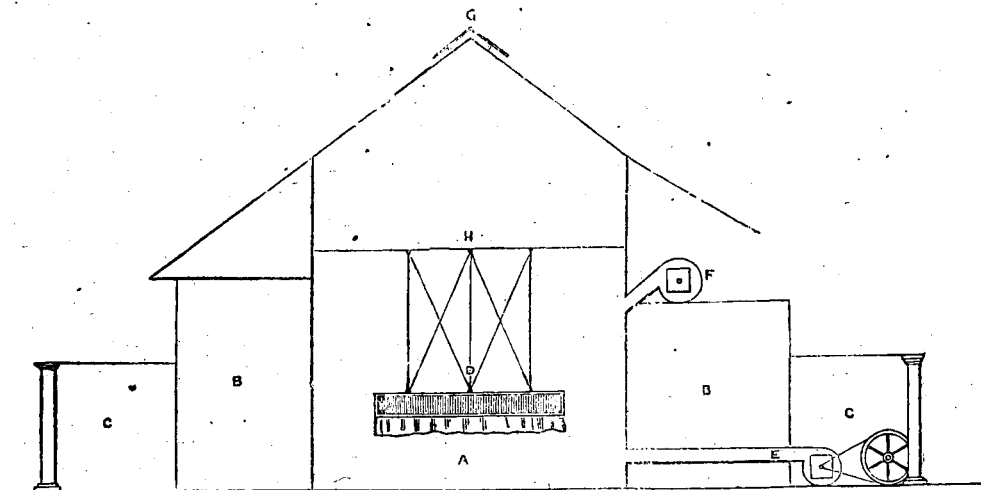


For several years past this cooling machine has been in common use in the north-west provinces of Bengal. It was invented, or rather first applied to its present use, by the late Dr. James Ranken, formerly Postmaster-General of Bengal. It is a mere modification of the old fanner or winnowing machine. Large openings are left in the sides of the box, in which the fans (c, c,) revolve, and into these openings "kus kus tatties" (b) are closely fitted and kept well watered.

Great improvements have been made of late years in the construction of thermantidotes. A moderate sized machine of this kind worked by a single man, will now throw a

stream of cold air so as to be perceptibly felt at the extreme end of a room thirty feet long. All bungalows, barracks, and hospitals in the upper provinces of Bengal are furnished with well-fitting glass doors, all round the inner verandah, which are kept closed during the day, so as completely to exclude the hot wind.

P.S.—During the hot winds, a thermometer kept in a deep well-shaded open verandah having a northern aspect, stands at 2 p.m. at from 105° to 108°; but if placed in the open plain, and under the small double roof used by the Royal Engineers as a perfect shade, it will usually rise to 116°.



Transverse section of an Indian barrack or hospital.

- a, main ward.
- b, c, inner verandahs enclosed with glass doors.
- c, c, outer verandahs, open.
- d, punkah.

- e, present position of thermantidotes and tatties.
- f, proposed position of ditto.
- g, old roof ventilator.
- h, punkah beam.

An efficient and safe system of ventilation must ever form a subject of prime importance in the sanitary management of troops in all parts of the world; but it must be borne in mind that, during the hot season in the upper provinces of Bengal, it is essential to the health and comfort of the European soldier that the air of barrack rooms and hospitals should not only be frequently renewed, but cooled and agitated at the same time.

The very simple and ingenious patent ventilator invented by Mr. McKennell, which is found to act so effectively in cold and temperate climates, I am sorry to say, must entirely fail during the hot season in the plains of upper India, except, perhaps, for a very short period in the twenty-four hours.

The action of this ventilator essentially depends on the supposition, that the impure air of a crowded apartment is *always much warmer* than the external atmosphere; that the foul air, therefore, will always rise, and pass out through

the inner tube of the apparatus fixed in or near the roof; and that a counter-current of pure cold air will be created through the outer concentric opening, and freely descend towards the floor by its comparative gravity. But all these conditions will be found to be reversed in a barrack or hospital in the upper provinces during the hot season. There the internal air, however impure, will always remain *colder than the external hot wind*. Under such circumstances there can be no ascending stream of foul, no descending counter-current of pure cold air. Even in the rainy season, and after the cessation of the hot winds, the difference of temperature between the internal and external air will ever be too small to create active currents without the aid of some propelling force; and it will be remembered that air once breathed is specifically heavier than pure air at the same temperature.

A little before daybreak, and until sunrise, in the hot season there occurs a sudden and considerable fall of

temperature; and during that short period the external air is decidedly cooler than that of an inhabited apartment. At this time such an apparatus as Mr. McKennell's would act well, and if properly proportioned to the size of the building, would probably cause the whole internal air of a barrack to be *completely renewed* before the wind begins to get hot, and it is necessary to shut the glass doors. In the cold weather in the plains and in the hill districts at all times, I believe, no other ventilators need be employed; but during the hottest periods of the day and night other means of ventilation must be resorted to. I have given above a brief account of the appliances and means in common use for this purpose, as well as for cooling and agitating the air of an inhabited apartment in upper India. While a steady hot wind blows, an apartment of any size can be kept sufficiently cool and well ventilated by the application of the requisite number of well watered "kus kus" tatties. But then, as at present used, the stream of cold moist air must pass directly across the lower part of the barrack-room, and many of the inmates must be exposed to a *thorough draught*. The most delicate and sensitive persons delight in the "punkah;" but to lie, and especially to *sleep*, in a stream of cold moist air from a tattie or thermantidote is well known, often to be attended with very serious consequences. The thermantidote, now very generally used in up-country barracks and hospitals, combines the advantages of a refrigerator and ventilator, even in light winds and calms. As it is now applied, the tube is carried across the inner verandah (an awkward arrangement, by which much power is lost), and opens either immediately below or a little above the cots of the men (see plan). I would retain both tatties and thermantidotes, but as I do not think it desirable ever to keep a barrack-room so cold as to subject the men to great alternations of temperature in passing out and in, and as I am convinced it is most desirable to avoid thorough draughts of cold moist air, I would remove both from their present position (which is nearly on a level with the barrack floor) to the top of the roof of the inner verandah, as shown in the subjoined rude sketch plan. Any required number of thermantidotes placed in this position can be readily turned, and all the tatties kept constantly wet, by the simple machinery proposed by Mr. Moorsom in his plan for revolving barrack "punkahs." The cold pure air from tatties and thermantidotes so placed would quickly descend by its own gravity, and be freely mixed up and dispersed through the whole apartment by the action of the punkahs, thus effectually renewing and cooling the air without subjecting any of the inmates to cold thorough draughts. The glass doors (for there are no windows in Indian barracks) should be closed below, with the exception of a certain number in proper positions to *leeward*, to serve as counter openings.

The only novelty in my scheme is the proposal to draw the supply of pure cold air from a *considerable elevation*, and not from the ground floors, as is at present the universal practice in India; and in this respect my plan entirely coincides with that of Mr. McKennell. By this arrangement I conceive we shall not only avoid all dangerous thorough draughts, but draw the supply of fresh air from a safer and purer source than from the *malaria laden stratum nearest the ground*. This appears to me to be a consideration of real importance in certain unhealthy localities.

T. E. DEMPSTER,
Late Superintending Surgeon,
Bengal Establishment.

No. 3.

REMARKS ON SOME OF THE PRINCIPAL MILITARY CANTONMENTS OF THE BENGAL PRESIDENCY at which I have either resided for considerable periods, or have carefully examined for special purposes.

The period of my service in India extended over 37 years, during which I was absent only 18 months, on sick leave in Australia. I have, during my long Indian career, served with European or native troops at the following stations in the Bengal presidency, viz., Dum Dum, Barrackpore, Dinapore, Buxar, Allahabad, Secrora, Cawnpore, Agra, Kurnool, Almorah, Landour, Nusseerabad, Umballa, Loodiana, Muoltan, and Peshawur.

Peshawur.—I accompanied the field force under the command of Sir W. R. Gilbert, G.C.B., on our first occupation of that city and district after the second Sikh campaign, and, as superintending surgeon of the Bengal column, I was nominated a member of the special committee of which Major-General Sir C. Campbell (now Lord Clyde) was president, assembled for the purpose of selecting an eligible site for a new cantonment.

I beg to submit a copy of a memorandum drawn up by me on that occasion, and signed also by Dr. Straker, the

other medical member; together with a copy of a note on the same subject which I subsequently addressed to Sir W. R. Gilbert on the breaking up of the field force under his command.* The main object of the first of these docu-

*NOTE by the MEDICAL MEMBERS of the COMMITTEE on the necessity of prohibiting CANAL IRRIGATION within certain limits round the SITE of the NEW CANTONMENT, and REMARKS on some other points connected with the MEDICAL TOPOGRAPHY of PESHAWUR and its VICINITY.

The distance which secures safety from the effects of malaria varies according to certain circumstances, some of which can only be accurately ascertained after considerable experience. With such a stiff clayey soil, and with such unlimited facility of swamping the land which exist in the neighbourhood of Peshawur, we consider two miles a prudent distance; but *one mile* at least, in our opinion, essential to safety, under such conditions as here present themselves, unless where any part of the city may intervene between the malarious locality and the ground occupied by the troops.

According to almost universal experience, there is no more ready mode of generating malaria in such a climate as this than by profusely irrigating a stiff retentive soil; and therefore we believe it imperative not only to prohibit all canal irrigation within one mile of the cantonment pillars, but to take steps for securing the perfect drainage of the space included within this line.

Although the soil generally all round Peshawur has a large proportion of stiff clay, and water is everywhere abundant, yet there appear to be very few natural swamps or stagnant pools. The water in the numerous streams and springs is generally in a state of rapid transition; and the fall of the country admits of easy and perfect surface drainage. These are the great saving local conditions we observe.*

There is an old but extensive musselman burying-ground, between the site of the new cantonment and the city. It is highly desirable that no more dead be interred in this situation.

That the site selected by the Committee was the one formerly occupied by the Sikh troops is alone a presumptive proof of its relative salubrity. With the precautions above recommended, it appears to us by far the best, in a sanitary point of view, of any locality available in the vicinity of Peshawur, bearing in mind other and equally important military considerations.

In occupying a new country with our troops, it is always important to come at the results of the experience of its inhabitants in all matters connected with health or disease. With this view we assembled five of the most respectable and intelligent of the native physicians or "hukeems" of the city, and obtained from them answers to the following questions:—

1. What are the prevailing diseases in the city of Peshawur?
1. In the cold weather coughs, colds, and complaints of the throat and chest, &c. are common. In the fall of the year intermittent fever and bowel complaint are the most severe and prevailing diseases.
2. What is the most unhealthy season of the year?
2. The months of July, August and September. It is during these months that fever and bowel complaints are prevalent.
3. Is the mortality in the city generally considerable or is disease often widely diffused without being fatal?
3. Fevers and bowel complaints are often very prevalent, but the mortality is usually small.
4. Have you remarked any peculiarities of the weather which indicate a healthy or unhealthy season?
4. If heavy rain falls in July, August and September, the season is observed to be unhealthy. It seldom rains at Peshawur in these months; much rain usually falls at the present (April) season, and it is attended with no harm. If the prevailing winds are westerly in the three hot months, the season is unhealthy; but the reverse is the case if the prevailing winds are easterly at that period of the year. Numerous "falling stars" also indicate a sickly season.
5. Of the past ten years how many do you consider to have been decidedly unhealthy?
5. There have been some severe and very fatal visitations of cholera and small-pox during that time, but we remember no extensive mortality from the ordinary local diseases.
6. Did actual famine or great scarcity of food occur within that period?
6. There has been neither famine nor unusual scarcity of food in Peshawur during the past ten years; indeed, not for a long series of years.
7. Is enlargement of the spleen a common complaint in and about Peshawur?
7. The disease exists in the city, but is not very common or severe.
8. What class or classes of the people suffer most from disease?
8. The poor are ill lodged.
9. Is it considered necessary to health to avoid sleeping on the ground floor at particular seasons of the year?
9. During the very hot weather it is proper to sleep in the open air on the tops of the houses; at all other times of the year people sleep below. It is dangerous to sleep on the tops of the houses in the months of October and November.
10. What articles of food and what kinds of fruit are generally reckoned unhealthy?
10. None of the common articles of food are considered unwholesome. Of the fruits, the pomegranate, grapes, oranges, limes, water melon, small cucumbers, and a sort of plum "beer" are good and wholesome. Stone fruits generally, the melon, and large cucumber are unwholesome. The "surda" or cabul melon is however good.

* These remarks only apply to the immediate neighbourhood of Peshawur. To the north of the fort and city the land suddenly becomes low and flat, and at about a mile from the walls in this direction commences the low marshy district noticed hereafter as the "Tappa" or division of Dowdsace.

ments was to remonstrate against the practice of excessive irrigation in and about the new cantonment. In the second, I considered it my duty to point out the sanitary objections inseparable from any locality between Peshawur and the mouth of the Kyber Pass; to indicate a far more promising position in an opposite direction, and, if possible, to

11. What drinking water is reckoned most wholesome? Is the water of the running streams or that of wells preferred by those who can command either?
11. All who can obtain it, drink the water of the *Bara* river. A running stream from the *Bara* passes through the city, but this contains so many impurities as to be unfit for drinking purposes. The poor, who cannot afford to send for the *Bara* water, are obliged to use the water of wells, but this is the cause of much sickness among them.
12. What parts of the city do you consider most healthy?
12. All parts of the city are nearly alike; but if there is a difference, it is in favour of the most elevated quarters.
13. What are the healthy and unhealthy localities outside the walls?
13. The "Tappa" * of Dowdzæe, where much rice is cultivated, and where there is a great deal of marshy land, is very unhealthy; fever and enlarged spleen are there very common. Of the four "Tappas" round Peshawur, *Dowdzæe* and *Dooba* on the north are decidedly unhealthy; *Kulleel* and *Monund* on the west and south of the city are healthy.

One of the "hukeems" said, but the remark was contradicted by the other, that Peshawur was more healthy than Cabul. The above replies are not literally translated, but we believe we have given the correct substance of what the "hukeems" said. The conversation took place in the presence of Lieut. Lake, through whose aid they were brought together.

Before meeting the "hukeems," careful medical examinations of the inhabitants were made in four separate quarters of the city, and were conducted in the manner formerly practised by the late Canal Committee. The following are the results:—

Proportion of persons having had fever during the past three years	{	1848, 16 per cent.
		1847, 22 do.
		1846, 28 do.
Proportion of persons labouring under spleen disease	}	8 do.
		and all of small size.

This corroborates the statement made by the "hukeems." Two villages outside the walls were afterwards examined in the same manner. 1st. *Nowlay*, situated on relatively low ground about a quarter of a mile to the south of the cantonment.

Proportion of persons having had fever during the past three years	{	1848, 30 per cent.
		1847, 40 do.
		1846, 40 do.
Proportion of persons labouring under spleen disease	}	5 do.

N.B.—Only a very small number of people could be got here for examination.

2nd. *Thakal*, situated about a mile to the west and a little to the north of the cantonment site, on rising ground, but having much broken ground and deep ravines immediately to the south and eastward.

Proportion of persons having had fever during the past three years	{	1848, 40 per cent.
		1847, 33 do.
		1846, 33 do.
Proportion of persons labouring under spleen disease	}	13 do.

These results are considerably less favourable than what were obtained within the walls. In *Thakal* the aspect of many of the children was sickly. In this village too were found for the first time two cases of considerable enlargement of the spleen. It should, however, be particularly borne in mind that both these villages are surrounded with luxuriant cultivation, and that all the fields bearing crops are copiously irrigated by canal streams.

In conclusion, we beg to say a few words regarding the important subject of drinking water. All classes agree in lauding the good qualities of the "Bara" water, and we have no doubt that it is really wholesome; but that all well water is uniformly the reverse is not so obvious. The natives ascribe all diseases to the water they drink; and their notions on this subject are often fanciful and absurd.

The poor of the city drink from the wells, and are comparatively sickly; but the poor are everywhere exposed to many causes of disease from which the better classes are exempt.

Before condemning the water of wells in every instance, it is desirable to procure an accurate chemical analysis of both kinds; but, meanwhile, it would be imprudent and unsafe to reject advice so confidently stated to be founded on the experience of the inhabitants of these parts.

(Signed) T. E. DEMPSTER,
Superintending Surgeon,
Bengal Column.

(Signed) C. D. STRAKER,
Superintending Surgeon,
Bombay Column.

Peshawur, 3rd April 1849.

(True copy.)

T. E. DEMPSTER,
Late Superintending Surgeon,
Bengal Establishment.

COPY of a MEMORANDUM on the NEW MILITARY CANTONMENT at PESHAWUR, forwarded to Major-General Sir WALTER R. GILBERT, commanding the LAHORE DIVISION. 6th April 1849.

The choice of a site for a new cantonment at Peshawur having, for political and military reasons, been restricted to the immediate

guard against the immediate erection of such costly and permanent buildings as would render a change of ground hardly practicable, if, on trial, the site then chosen should prove decidedly objectionable.

I have never visited Peshawur since these papers were written, and cannot say whether or not our recommendations regarding irrigation have ever been attended to; but I have reason to believe that extensive and costly barracks and other buildings have been erected on the original site, and that the troops have, on many occasions, suffered most severely from fever and other malarious diseases. It is, however, very possible that military and political considerations alone may still render any change of ground not to be thought of.

Loodiana.—I resided four years at this station as surgeon of the 1st brigade European horse artillery. It has now been entirely abandoned as a cantonment for European and native troops, and is not likely ever again to be fully occupied. Any minute description of that old cantonment, therefore, is hardly now called for; but as *Loodiana* is remarkable in having been sometimes one of the most healthy, and at other times one of the most unhealthy stations in upper India, it may be both interesting and instructive if I can satisfactorily indicate the causes of these remarkable changes in its sanitary condition. This I shall

neighbourhood of the city, it became, in a certain degree, a choice of difficulties.

The position selected by the Committee is, undoubtedly, the very best within the limits thus prescribed; but it is by no means free from objections in a sanitary point of view. These have already been fully noticed in the minute by the medical members, and may be here repeated, viz., a stiff clayey soil, great abundance of surface water, and the long practice of excessive canal irrigation at all seasons of the year. If it is probable that the state of the country will soon admit of the troops being removed from the immediate vicinity of Peshawur to the eastward of the city, and if a site for a permanent European cantonment can be pointed out in that direction, which shall be free from the medical objections inseparable from any position between Peshawur and the mouth of the *Khyber Pass*, it will be prudent to delay the erection of expensive buildings until circumstances allow of the occupation of the best and most healthy locality. For some miles to the east of the city the land is low, the soil clayey, and the face of the country generally much flooded with water. As we proceed farther to the eastward (on the Lahore road) the aspect of the country improves in all these respects; and at a distance of from six to eight miles from Peshawur, we come to an extensive well-cultivated tract, which, judging from its external features, appears as well suited to the location of European troops as any I remember to have seen in the Punjab. The country here is a fine open, fertile, and unusually dry plain, with a light permeable soil, and a gentle fall from north to south. In some parts the soil has a large admixture of sand, which, however, little impairs its fertility. Although the present (April) may be considered the rainy season in these parts, and the most obvious marks of the late heavy falls of rain are everywhere visible all round Peshawur, hardly a drop of surface water is to be perceived in this direction. Irrigation is generally practised, but obviously to a moderate extent with regard to the quantity of water used, and in other respects carried on under the most favourable conditions, viz., in a light permeable soil, with a perfect natural surface drainage. The watercourses were, without exception, found perfectly dry, and presented sandy or dusty channels. It is clear, therefore, that the whole country can be kept perfectly dry and well drained, even in the wettest seasons of the year. Perhaps the command of water for irrigation is here much greater after the rise of the larger rivers in the hot season; but it is obvious that no stream of water flows naturally in this direction, and that all, or any portion of the supply, can easily be excluded. The water in several of the wells which I examined is about eighteen feet from the surface (a good mean distance), and the country people assert that it is good and wholesome.

However favourable the mere external features of a place may appear, it ought never, in my opinion, to be hastily chosen as a proper position for European troops until *authentic evidence* of some kind can be produced that its inhabitants are not unhealthy. I had no opportunity of making my usual medical examinations in the surrounding villages, but I stopped and interrogated many of the country people, and several respectable travelers whom I met between Peshawur and Phubbá. The witnesses, in this case, could have had no collusion with each other; and I carefully shaped my questions so as to give no intimation of the nature of the answer expected. Without a dissenting voice they all concurred in pronouncing the climate ("Huhwa Panee") of this part of the country excellent; and all agreed in declaring it *much more healthy* than Peshawur and its immediate neighbourhood. On the other hand, the inhabitants of the villages to the west of Peshawur uniformly stated that they were much afflicted with fever and bowel complaint in the hot weather, but at the same time always admitted that the mortality was small.

Should these statements of the people be hereafter fully confirmed on careful inquiry, the beautiful and extensive tract of land just described (of which the villages of Kassim and Jabba may be considered about the centre) will, I am persuaded, be found well deserving of the attention of Government as an eligible site of a cantonment for British troops.

(True copy.)

T. E. DEMPSTER,
Late Superintending Surgeon,
Peshawur Field Force.

* "Tappa," a local term for the districts into which the country is divided.

* The air and water.

endeavour to do as briefly as possible. The old cantonment of Loodiana was built along the margin of the high ground overlooking an extensive tract of low, moist land, which formed the ancient bed of the Sutlej. That river has now passed over to the opposite high bank, and flows under the Fort of Phillour, nearly seven miles from Loodiana. In the low ground immediately under the Loodiana bank ran, in ordinary seasons, a narrow but well-defined watercourse, the water in which flowed in a pretty strong stream all the year through, and which served to drain not only the cantonment itself, but the low ground immediately under it. The surrounding country is studded with elevations of fine loose sand, which is driven before the strong dry wind in the hot season, and has, of late years, so advanced on the cantonment as often to cover a great part of its surface several inches deep, with a fine sand drift. Much of this sand found its way into the watercourse above mentioned; but, under ordinary circumstances, the force of the current was sufficient to keep its channel clear and prevent its being choked up. The periodical rains, so regular in the lower and central provinces of Bengal, are most irregular and precarious in the part of the country under consideration. The first year I was at Loodiana a fair quantity of rain fell; the watercourse above alluded to flowed continuously and with a rapid stream, and the season proved healthy. Next year a few showers only fell during the expected rainy season; the watercourse became dry, and its channel completely choked up and obliterated with drift-sand, which so advanced on the station generally as to threaten the destruction of all the arable land. But this year also proved remarkably healthy. The *third* year was different in all respects. Much rain fell at the usual season, but the now abundant drainage water, no longer finding an outlet through its usual channel, spread itself over a large surface of the neighbouring low ground, where it formed extensive shallow stagnant pools, soon covered with an abundant crop of aquatic plants. For some time after the breaking up of the rains the station continued healthy, and I was beginning to hope we had escaped the danger, when, in the first week of October, almost every inhabitant of the place was prostrated with fever. Next year an attempt was made to clear the channel of the nullah, or watercourse, by letting in from above a small stream of the Sutlej, as that river rose in the rainy season; but the scheme failed, the water so let in refused to confine itself to the old narrow channel, spread far and wide, and perhaps did more harm than good. That *fourth* season was quite as bad as the third, and the men of the first brigade horse artillery marched, in the ensuing cold weather, towards Meerut, prostrated by disease, and having 50 per cent. actually in hospital.

There are some points deserving of particular attention connected with these almost universal invasions of endemic fever:

1st. The type of the disease was very virulent, and a patient not immediately seen, and judiciously treated, ran great risk of dying in the cold stage.

2nd. The men of the horse artillery, all picked men from the whole body of artillery recruits, were, at that time, lodged in one of the best and most commodious barracks then built in those provinces, yet they suffered far more severely than the European foot artillerymen, a decidedly inferior class in all respects, and who occupied a barrack of the oldest and most objectionable construction. The explanation I conceive to be as follows. Between the horse artillery barrack and low ground (the true source of the malarious poison) there was no effectual screen of trees or houses interposed; while, betwixt the foot artillery barrack and low ground there were not only more trees, but a considerable *smoky* native bazaar.

3rd. After a year's residence at Meerut I particularly remarked the curious fact, that the Loodiana fever hung more obstinately to the officers and their families than to the men and women of the corps generally; and this, I believe, may be accounted for by the consideration that the former had lived in bungalows close to the verge of the high land, and had probably received a more concentrated dose of the marsh poison.

The whole circumstances of the case above related appear to me strikingly to illustrate the conditions under which malaria is eliminated in the N.W. provinces of India, and farther to demonstrate the danger of locating troops either on the banks of large up-country rivers or on the margin of the low moist tracts of land which once served as the beds of such rivers.

Meerut.—I resided at this station from December 1850 to September 1854, holding, during that period, medical charge of the 1st brigade European horse artillery and headquarters of the regiment of Bengal artillery.

Meerut is deserving of special attention, first, because it has, during a long series of years, proved one of our most healthy up-country stations; and, secondly, because it is an

example of a large up-country European military cantonment, situated neither close to the banks of any large river, nor in the immediate vicinity of the low moist land in which such rivers once held their course. It was here that the men of the 1st brigade horse artillery and 1st Bengal European fusiliers quickly regained a high state of health and efficiency, after having been completely prostrated by malarious disease at Loodiana and Lahore.

The cantonment is built on an open and generally fertile plain, and is about thirty miles from the nearest point of the Ganges. I have mislaid the notes I made regarding the nature of the soil, but I believe I correctly describe it when I say it is neither remarkably stiff and retentive, nor strikingly loose and permeable, being generally a due admixture of humus clay and sand. The water in the subsoils is unusually near to the surface for an up-country station, averaging from 11 to 14 feet in the cold season, and being considerably nearer during the periodical rains. This renders moderate *well* irrigation generally practicable in and about Meerut, and doubtless tends to moderate the temperature in the hot and dry season. The periodical rains are usually regular and copious, and the course of the seasons differs little from that experienced at Kurnool, Delhi, and Agra. As a general index to the climate and soil, I may mention that Meerut produces the best and most abundant supply of strawberries, peaches, grapes, and European garden vegetables anywhere to be found in the Bengal presidency.

The general drainage of the country is good, but it was defective towards the north-west portion of the cantonment; and before I left Meerut in September 1854 the Government of Agra had undertaken the drainage of that quarter on regular and scientific principles. Numerous unseemly irregular excavations in various parts of the station were then also being drained and filled up, or, where that was impracticable, converted into deep circumscribed tanks capable of holding water all the year through. These excavations had been chiefly formed by the removal of soil for the erection of barracks, bazaars, &c.

The nature of the ground obliged the executive engineer to carry the drainage from the European lines directly across the space occupied by the officers' bungalows. These drains were "*pukka*," that is, constructed with burnt bricks and lime, but all were *open*. The main shaft crossed at right angles the space between the European infantry and artillery lines, was conducted under the public mall, and finally discharged its contents into a natural channel on the other side. The urinous odour from these open drains was often most offensive during the hot weather, although they were carefully washed out and sprinkled with lime once in the 24 hours. It was proposed either to cover in these drains altogether, or to keep them constantly flushed by a stream of water from wells in the European lines. Both these propositions involved considerable expense and trouble, and neither had been adopted when I left Meerut.

The only sanitary suggestion brought from Lombardy by Colonel Baird Smith, which had not previously been recommended by the canal committee, is the proposal to use a stream of water from an irrigation canal for the purpose of constantly flushing the drains of cities and towns near to which such canals pass. This might, perhaps, be done with benefit at Meerut and elsewhere in the vicinity of the Ganges canal, provided always great care is taken to prevent this additional supply of water from percolating into and saturating the subsoils, a contingency which might exercise a most unfavourable influence on the salubrity of the whole locality.

Much attention has been paid of late years to conservancy arrangements in and about military stations, and such arrangements are as complete at Meerut as anywhere. I will here notice a difficulty in such matters peculiar to the East, and which will require both judgment and tact fully to meet. As remarked in another place, the native of India goes beyond the camp to relieve the calls of nature, and usually resorts for this purpose to some waste piece of ground in the immediate vicinity of the cantonment. The ordure is thus scantily spread over a large open surface; much is quickly removed by the pigs and kites, and in the hot and dry seasons what remains soon dries up and becomes inodorous. In the rains such "*public fields*" are necessarily much more offensive, but at all times they are less so than if the same quantity of ordure were collected together in common moist heaps. Public bazaar necessities have been erected at Cawnpore and other places, but it is extremely difficult to induce the natives generally to use them. Let it be remembered that in all military stations there are probably 20 natives to every British soldier, and supposing the whole native population could be induced or compelled to use the public necessities, I am persuaded that, unless the most efficient arrangements exist for quickly removing to a safe distance or otherwise disposing of all

offensive matter, more harm than good will accrue from forcing the native of India to depart from his natural and usual habits in this respect. During the long siege of Mooltan in 1848, I recommended that deep narrow trenches should be dug in the rear of regiments and used as public necessaries; after a short interval one trench was covered up and another opened. This simple arrangement tended greatly to keep the entire camp sweet and wholesome.

Cawnpore.—I resided at this station for 12 months in 1856-57, in the capacity of superintending surgeon of the Cawnpore division.

Cawnpore has long been notorious as one of the largest, hottest, and most unhealthy of our up-country military stations. The cantonment extends nearly seven miles along the edge of the high bank overlooking a very wide portion of the bed of the Ganges. This broad irregular river channel is wholly submerged in the periodical rains, but has nearly nine-tenths of its surface exposed to the action of the sun and air at all other seasons of the year. A main stream of the river flows close under the cantonment bank, and along both margins of this stream abundant crops of melons, cucumbers, &c. are raised after the annual recession of the waters. The high bank on which the station is built is a solid mass of light coloured adhesive clay, containing, in many parts, much "kunkur," an impure vesicular limestone of recent formation well known in Upper India. The ground nearest the river bank is very broken and irregular, and is everywhere traversed by deep rugged ravines. The "compounds," or spaces in which each bungalow stands, were until recently surrounded by high mud walls, which impeded ventilation and gave the whole station a most unseemly appearance. In the hot winds the whole surface of the ground (where not irrigated) is absolutely bare and devoid of vegetation, but in the rainy season becomes rapidly covered with a luxuriant crop of high grass. Trees, however, remain green all the year through. A magnificent new range of European barracks was in the course of erection at Cawnpore when the mutiny broke out. The manner in which the site of these barracks was determined on is a good example of how these things have usually been managed in India. The committee, I was credibly informed, assembled in the cold dry weather, and only saw the ground at that season. A high, dry, and apparently well-drained plain was observed about a mile and a half from the river bank, and, without one inquiry being made as to the sanitary state of the natives residing in its immediate neighbourhood or the condition of the ground during and after the periodical rains, this plain was fixed on as a proper site for one of the most costly ranges of European barracks ever erected in that part of the country.

I carefully examined the ground under consideration during and after the periodical rains of 1856. I found the soil a stiff retentive clay, the surface covered with rank grass, and everywhere ankle-deep with water; in fact, at this period of the year, it remained an extensive concealed marsh. Although the ground in question is well raised above the highest level of the river, and has deep trenches cut from it into the Ganges, the whole of the water cannot be drained off from a surface which is either a dead level or has a scarcely perceptible inclination in an opposite direction, and where a retentive soil prevents the surface water from finding its way into, and being carried off by lower and more permeable strata. All this tends to keep the locality long in the mid-condition betwixt moisture and dryness after the cessation of the rains; that is, in the very condition universally admitted to be most dangerous to health.

The native cavalry lines are on the same high open plain, and about half a mile to the south of the new European barracks. After the rains of 1856 fevers were more prevalent in these lines than in those of the native infantry, situated in an ill-drained locality, close to the crowded and filthy native city of Cawnpore.

Savada.—A large building situated about one mile south of the new barracks, and on the same plain, was formerly occupied by the Cawnpore missionary establishment, but had been abandoned (it was said) in consequence of the unhealthiness of the locality. The missionaries have removed to a position some miles to the west of the city and civil lines, and have, I have reason to believe, judiciously taken up the very best locality anywhere to be found in the neighbourhood of Cawnpore. Cholera may be said to be endemic at Cawnpore, and Sir A. Tulloch's tables will show what the mortality of European troops has been in past years.

The excessive heat of the climate, the nature of the soil, the broken and irregular character of some parts, the difficulty of completely draining others, and lastly, its close proximity to a most objectionable reach of the river Ganges, all combine, in my opinion, to render Cawnpore an unfit locality for European troops.

Lucknow.—On the annexation of Oude the whole of the European and native troops holding military possession of that province were placed under my medical superintendence, and it became my duty frequently to visit the cantonment, city, and residency of Lucknow during the years 1856-57. In November 1856 I was called upon by the officer commanding the Oude field force to examine the ground in the vicinity of Lucknow with a view of pointing out an eligible site for barracks for European troops, should circumstances render their permanent location in that quarter necessary; and the following is a copy of the report I drew up on that occasion:—

"An eligible site for the erection of permanent barracks for European troops may, in my opinion, be found in almost any part of a tract of ground comprising an area of several square miles, and situated immediately to the north, north-east, and north-west of the old Sepoy cantonment of Lucknow. I went over this ground on an elephant immediately after rain so heavy and continued that it flooded all the low parts of the province of Oude, and yet I found the ground almost uniformly dry and free from swamp. The low unmetalled country roads which pass through it became perfectly free from water or 'poachy' ruts a few hours after the cessation of heavy rain. This last is an excellent test of the good drainage of a country. Considered as a whole, the ground under notice has a gently undulating surface, and a light permeable but not unfruitful soil. There are small sandy patches here and there, but generally it was covered with grass, or bearing fair grain crops. The natural surface drainage is excellent, and with a little artificial aid could be rendered perfect. A few pools of water had collected in isolated spots, and there are one or two larger 'Jheels' which are either easily drainable or convertible into deep wholesome tanks. The ground in question is at a safe distance both from the city and banks of the river Goomtee. The external features above enumerated usually characterise a healthy locality, and this character is corroborated by the following important and indispensable evidence. 1st. The old cantonment of Lucknow is built on ground of precisely the same general character as that above described, and although little attention has been paid until lately to artificial drainage, its past medical statistics, as far as my examination and general repute go, will prove it to have been, in past years, one of our very healthy Indian stations. 2ndly. I made particular inquiries regarding the sanitary condition of the native inhabitants residing within the tract under consideration, and found them, even in the rainy season, generally healthy and free from endemic fevers. There is one village due north of the cantonment, immediately in front of which a considerable marshy pool had collected, in consequence of some obstruction to the natural drainage channel which runs past the village; here I expected to find fevers if they were to be found prevailing anywhere, but concurrent testimony prove the inhabitants to be generally healthy.

"In my letter No. 224, dated 20th of August 1856, to the address of Brigadier Wheler, commanding the Oude field force, I fully stated my objections to quartering European troops in or in the immediate vicinity of a large crowded native city.

"(Signed) T. E. DEMPSTER,
"Cawnpore, 18th November 1856." "Superint. Surgeon."

In 1856 the men of H.M. 52nd Foot were, for want of other accommodation, lodged in the King's mews within the city of Lucknow, where they suffered severely from an invasion of cholera, under peculiar circumstances which it would occupy too much space here fully to relate. At the recommendation of a medical committee, of which I was president, the regiment was removed into camp, and there kept during the remainder of the hot and rainy seasons. After the second change of ground, cholera entirely disappeared, and, what was hardly to be looked for, the men continued during the rest of the year singularly free from the common diseases of the country and season. There can be no more striking proof than this of the general salubrity of the locality. Lucknow is only fifty miles from Cawnpore, and this short distance can, at all times, be easily passed by rail in a couple of hours. When the projected railroad from Cawnpore to Lucknow is completed, European troops will become as available for any sudden emergency at the one place as at the other. If therefore the opinions I have above stated as to the comparative salubrity of these places should, on further careful inquiry, prove well founded, it will become a serious question to determine whether not only humanity but true economy demands that the European force considered indispensable in that part of India be henceforth placed at Lucknow instead of Cawnpore.

Delhi.—As a member of the canal sanitary committee, my attention was particularly directed to the city and cantonment of Delhi, although I had never served at that station. The city itself was in 1847 the finest, most cleanly, and best ordered native town I had ever visited. It is, as is well known, situated close to the left bank of the Jumna, and is surrounded by a well kept wall and ditch. The troops were originally stationed within the city walls, but a good many years ago they were removed to the present position, lying to the north of the city. To remove troops from within the walls of a populous native town, and place them on an open and apparently dry inclined plain, seems, at first sight, a most judicious measure; yet nothing could have proved more mischievous in a sanitary point of view. Looking at the ground then occupied by the native troops, nothing very objectionable met the eye; indeed it was singularly free from shallow pools and open filthy ditches, then too often seen in some other military cantonments. Bad surface drainage and want of local cleanliness therefore were obviously not the causes of the notorious insalubrity of the Delhi cantonment. The ground in front of the Bells of Arms has a gentle slope towards the north nearly a mile in breadth, when it terminates by an abrupt fall of from 10 to 14 feet in the low "Khadir" land of the Jumna. Before selecting the present site, had the authorities thought of the simple and obvious expedient of inquiring into the physical condition of the inhabitants of the neighbouring villages, the nature and probable source of the present mischief would at once have become apparent.

Three villages stand near the edge of the low land, in which the parade ground terminates. The fields cultivated by two of these villages are partially irrigated from the Delhi canal, but the third, situated to the north of the sapper lines, uses no irrigation. These old sapper lines were found so pestilential that the locality was abandoned altogether after a short trial. On examining the inhabitants of these three villages, the result was marvellous even to myself who had just gone over more than a thousand miles of irrigating canals. Will it be believed that from 85 to 90 per cent. of these unfortunate creatures were found afflicted with enlargement of the spleen? My own conviction is, that if subjected to a very minute and careful examination, not an individual would have been found perfectly sound. Within the city walls, and especially in the most dense and crowded quarters, I found comparatively few indications of pure malarious disease. This accords with what has been observed in other countries, viz., that the high walls and narrow crowded smoky streets of large cities often prove a safeguard against marsh miasma, although other causes of human disease may abound in such situations. In the cantonment bazaar, and suburbs outside the walls, a considerable amount of spleen disease was found; but when we proceeded farther from the city, and close to the low "Khadir" land, the *spleen test* indicated the presence of marsh miasma in its *highest intensity*.

Some years afterwards Dr. G. Paton, now postmaster-general of Bengal, and Dr. Balfour, civil surgeon of Delhi, both most reliable authorities, went over the same ground and fully confirmed my examinations. On the authority of the latter medical officer, I state (what I was not at first aware of), that the Delhi parade ground above described is artificial, having been originally a swampy nullah bed, the old outlet, or rather portion of the notorious Nujfghur Jheel, or shallow lake; and that much more of the ground in that direction is flooded in the rainy season than I suspected when I saw it. The whole locality is, in my opinion, altogether beyond remedy, and ought to be abandoned.

No one would think of placing European troops within the walls of a native city, unless under the most pressing emergency; and if it is imperative to retain a European force in the neighbourhood of Delhi, I have reason to believe a comparatively safe position for them may be found some miles to the south of the city.

If the profession in this country should be inclined to suspect some exaggeration on my part in the statements I have put forward regarding the extraordinary amount of spleen disease existing in certain low moist localities in the north-west provinces of Bengal, I would refer them to page 558, number XL., of the British and Foreign Medico-Chirurgical Review, in which they will find my general statements fully corroborated by the result of examinations undertaken eight years after the publication of the Canal Sanitary Report, and carried out, altogether without my knowledge, by a medical officer specially appointed by the Government of Agra to investigate the probable cause or causes of a virulent and fatal fever then raging in the "Zilla" or district of Allyghur.

Dinapore.—I held the office of superintending surgeon of the Dinapore division from September 1854 to March 1856.

The European barracks at Dinapore are peculiar, being neither built of more than one story, as in lower Bengal, nor in detached ground ranges, facing east and west, as in the upper provinces; but are constructed of a single story, and in the form of a large oblong parallelogram, the long side of which runs east and west. I have not at present the means of giving an accurate description of the size and dimensions of these buildings, and therefore I shall only remark in this place, that they have no open outer verandahs,* and no glass doors, but are furnished throughout with venetians or jalousies.

Dinapore, like Cawnpore, stands immediately on a bank of the Ganges overlooking a still wider expanse of low land, which is submerged in the rains, but has the greater part of its surface exposed to the action of the sun and air at all other times. The level ground occupied by the cantonment is of very limited extent, and is hemmed in by low irregular land, subject to inundation on the rivers Ganges and Sone attaining their highest annual rise. The soil generally is a rich fertile mould. A deep nullah or natural watercourse runs immediately in the rear of the barrack square, which acts as a good and efficient drain so long as the Ganges remains at a moderate level; but two or three times during the rainy season the water in the river rises higher than the level of the bed of the nullah, when, not only can no more drainage water run off by this channel, but the nullah itself, and all the deep ditches connected with it, become filled to overflowing. As the river again falls, the nullah is quickly emptied, but many of the ditches remain full of water for months afterwards. The nullah in question enters the Ganges at a point midway between the barrack square and "Sudder bazaar." It was proposed to narrow this mouth and fit it with flood gates to prevent the influx of the river water when at its highest; but there was a worse evil which this would not have remedied. The river Sone enters the Ganges about 12 miles to the west of Dinapore, and is subject to very high and sudden floods. Once almost every rainy season the Sone overflows its banks, and the water finds its way across the country to the low land lying immediately to the south-west of the cantonment, and this back water not only fills the nullah above-mentioned, from an opposite direction, but occasionally floods more than half of the Sepoy parade ground to the west of the barrack square. In fine, I have long come to the conclusion that Dinapore is irremediably vicious as a position for European troops. Fever and dysentery of a severe type are generally prevalent at Dinapore in autumn, and a year seldom passes without an outbreak of cholera.

In order to convey a general idea of the climate of this part of the Bengal Presidency, it will be necessary for me to say a few words regarding that of lower Bengal and of the north-west provinces.

The climate of Bengal proper differs in many important respects from that of the upper provinces, being much less hot in the hot weather, and much less cold in the cold. At the hottest season of the year in the lower provinces the air is comparatively cool and moist, and the face of the country green, and generally characterized by a luxuriant tropical vegetation. Here there are no "hot winds," and "tatties" and "thermantidotes" are consequently all but useless. The periodical rains are far more copious and continued than in the north-west, and the temperature is seldom so low, at any time, as to render a "punkah" disagreeable during the day, or a fire necessary at night. Here too the European can generally manage to sleep at night without being constantly fanned by the punkah. In the latitude of Agra, Delhi, Kurnool, &c., a fierce dry hot wind blows during the day from about the 10th of April until the latter end of June. At some places, as at Cawnpore, the hot wind continues during a great part of the night. The whole face of the country is at this time parched up and devoid of vegetation. To this succeeds a warm moist rainy season when the ground, lately so bare and apparently so sterile, becomes covered with luxuriant green crops within a period so short as to excite the astonishment of the newly arrived European. Although the temperature of the external air is so much greater in the hot winds than in the rains, it is in the latter season that the sensation of heat is most painfully experienced,—still air, loaded with moisture, and at a temperature exceeding 90°, becomes almost intolerable to the European; at such times the only relief is the constant action of the punkah day and night. This rainy season terminates about the end of September, and is followed by October with its cool nights and hot and often oppressive days, the month of the year most fatal to the European constitution. The cold weather often dates from the 1st of November, but after the 15th of that month

* On the south side of the long infantry range a slight temporary verandah had recently been put up to serve as a shade from the midday sun.

it has decidedly set in all over the north-west provinces. From the latter date until the end of February the European officer sits with a fire in his apartment, sleeps at night under blankets, and dons, especially in the early morning, apparel as warm and comfortable as he would wear in England. The heating power of the ray of the unclouded sun, however, is often considerable even in the coldest season, and violent exercise in the open air at mid-day irksome and oppressive.

The inhabitants of Bengal proper are a small, effeminate, and unwarlike race; those of the north-west provinces, on the other hand, are comparatively large and robust in frame, and energetic and courageous in character.

The climate of Dinapore may be described as an unpleasant mean between these two extremes; for, in the warm weather the air is seldom hot and dry enough to render "tatties" useful, or sufficiently cool and moist to admit of open doors. The European barracks have punkahs, but neither "tatties" nor glass doors, although in the houses of the officers both these last are considered necessary to comfort.

Hill Stations and Sanitaria.—I held medical charge of the 61st regiment native infantry, at Almorah, for seven months in 1839.

Almorah is the native capital of the hill district of Kumaon, and is about 40 miles in the interior from the foot of the hills. I have retained no written memoranda regarding this station, and can only now describe it in somewhat vague and general terms. The Sepoy cantonment is, I believe, about 4,500 feet above the level of the sea; is situated on a broad, somewhat bare, and isolated eminence, but is nearly closed in by higher hills, some of which are heavily wooded. The course of the seasons is not very unlike that before so fully described when speaking of Landour; and the climate is generally agreeable to the feelings of the European, except in midsummer, when we experienced some unpleasantly hot weather. Almost every European, on his first arrival at Almorah, suffered from a slight attack of diarrhoea. This was universally ascribed to the quality of the water of the hill streams, and the residents generally took care to boil and filter this water before drinking it. The cantonment was decidedly unhealthy in 1839; and not only the Sepoys, but the European officers and their families, suffered much that year from intermittent fever and diarrhoea. Goitre is endemic in the valleys in the neighbourhood of Almorah; and at Hawulbaugh—an outpost about 800 feet lower than the cantonment—I saw a litter of thorough-bred greyhound pups, every one of which was born with a large goitre!

Simla is about 40 miles in the interior of the hill district. Its elevation is nearly that of Landour, and the climate and course of the seasons closely resemble each other. The rock on which the station stands belongs, I believe, to the same series as at Landour, but is much more friable and disintegrated. The ground generally is covered with a rich black vegetable mould, and is heavily timbered, with a great variety of fine pines, Indian oak, &c. In the rainy season also the surface is covered with a heavy crop of rank grass and underwood. On some occasions a fatal low typhoid fever has appeared at Simla, the young having been its common victims.

Mussourie stands on a range of precipitous hills immediately adjoining Landour, and the account I have given of the one place will apply, in most particulars, to the other.

I have not staid beyond a very short period at Subathoo or Kussowlie, and will not therefore attempt any particular account of either.

Darjeeling is a hill station in the Sikkim territory, to which invalids resort from all the lower and central provinces. Like Simla—but unlike Landour, Mussourie, and Kussowlie—it is situated from 30 to 40 miles in the interior of the hill district.

As superintending surgeon of the Dinapore division, I paid a short visit to Darjeeling, for the purpose of inspecting and reporting on the European sanitary depôt at that place. I have retained no copy of my official report, and will only here state that I was well satisfied with the general arrangements for the invalids, and with their barrack and hospital accommodation, which is here infinitely superior to that of the Landour depôt; but I particularly remarked and reported that both barracks and hospital were destitute of proper wash-houses. I also, on this occasion, recommended that proper arrangements should be made for detaining for some time at the mean elevation of Kursian all the more weakly patients, before taking them up to the depôt. This recommendation, I am informed, has been adopted with considerable benefit.

The climate of Darjeeling is nearly as cool in summer as that of Landour, but the atmosphere is greatly more moist. Rain falls every month of the year, and the periodical rainy season is truly excessive. I visited the depôt in

the dry month of April, and yet, in my journey to and from the station, I literally saw nothing beyond the mountain path on which I was travelling, for everywhere I was enveloped in a dense cloud, which wetted my clothes as if I had been exposed to a slight shower of rain. I was informed by the resident medical officer that croup and such like diseases of the air passages—often so fatal to the young at other hill stations—are very rare at Darjeeling; and that so uniformly moist was the general condition of the air, that one seldom took cold by remaining in wet or damp clothes.

The depôt itself stands on a detached elevation, which is well raised above the general level of the rest of the station. This I suspect to have been an error; for the barracks are generally wrapt in a dense mist, while the houses of the other residents are enjoying a clear air and pleasant sunshine.

My own experience of Darjeeling is too limited to enable me, of my own knowledge, to say anything regarding the effect of its climate on the European constitution.

All the hill stations situated to the west of Hurdwar (the point at which the Ganges flows into the plains) may be reached from below without passing through any dangerous "Terai" jungle; but this, I have reason to believe, is not the case with the lower Himalayan ranges lying between Hurdwar and the Brahmapootra river. A "Terai" jungle of ill repute must be crossed before reaching Darjeeling, but this can always be done with perfect safety, if care is taken to pass through this tract *while the sun is well up, and during the hot and cold seasons of the year.*

I cannot conclude this rapid sketch of the medical topography of some of the old military stations of the north-west and central provinces of Bengal without enumerating what the whole of my experience teaches me should be mainly kept in view in selecting a proper position for European troops in the plains, viz. :—

1st. To choose not only a dry, well-drained site for the cantonment, but to take care that such site itself is situated in a generally well-drained country, free from swamp and shallow pools, and not subject to inundations of any kind at any season of the year.

2nd. To select, if possible, a light permeable soil, with a good natural surface drainage, and by all means to avoid a stiff retentive clay.

3rd. To avoid the banks of large up-country rivers, and the vicinity of the low moist "Khadr" land, once the bed of these rivers.

4th. To fix on no position until satisfactory evidence is obtained that the native inhabitants of the district have a healthy aspect, and are generally free from marks of having habitually suffered from malarious diseases. Wherever this is the case, it will be almost universally found that the drinking water they use is good and wholesome.

There are various other minor points to be attended to which I have fully noticed in the paper presented to the Court of Directors by Sir R. Martin.

Acclimatization.—On this most important subject I desire to speak with due caution and reserve. According to my own experience, troops fresh from Europe are most liable to suffer severely from a certain class of tropical diseases, during the first two years of their residence in India; and this is especially the case if they are landed at an improper season, or sent, for the first year, to a very hot unhealthy locality. The diseases I allude to are acute dysentery, acute hepatitis, severe remittent fever, and sunstroke. But, I believe, much may be done by judicious management to correct or modify this evil. In 1853 I had medical charge of a considerable detachment of European artillery recruits at Meerut. They had been landed in Calcutta in the cold weather, and immediately marched up the country, under the command of an experienced officer; and when they reached the good locality of Meerut, they joined the head quarters of the regiment of artillery, and associated with old and experienced Indian soldiers. This detachment numbered 300 men, and though during the first hot and rainy seasons every one of them suffered a mild attack of fever, none died, with the exception of a single individual who had reached the station hopelessly afflicted with tubercles in the lungs—certainly not a common tropical disease. After a period, varying in duration according to the locality, discipline, and general habits of the newly-arrived men, they become far less obnoxious to the diseases of the country, especially in their more acute and suddenly fatal forms, and far more tolerant of adverse climatic influences.*

This partial acclimatization, I think, takes place most quickly and surely among the recruits of the European local army, where the new arrival comes at once under the command of experienced Indian officers fully alive to the danger of all unnecessary exposure; and where he associate

* Cholera I have always looked upon as an exceptional disease, to which no rule, that I am aware of, can apply.

with a body of old Indian soldiers, among whom certain precautions and habits suited to the country and climate have become, so to speak, traditional and hereditary. I am aware that the old Indian soldier has often been accused of showing an evil example to the men of newly arrived Queen's regiments, — by teaching *bad* local knowledge, and by exhibiting a proof, in his own person, that drunkenness and life in a hot climate are not always incompatible, whatever the doctor may say. To a certain extent this may be admitted to be sometimes true, especially where both officers and men are equally ignorant of the customs and language of the people. Still, I firmly believe, that a knowledge of the country and climate is essential to the preservation of the health of the European in India; that Englishmen of all people are most slow to adopt new habits and modes of life however salutary, and that such necessary accommodation to new and adverse circumstances will take place most surely and quickly among the officers and men of a local army. Of all things it is essential that the medical officer of a newly arrived corps should be a man of thorough local experience.

After a residence in the plains of India of about *ten* years, the European soldier's constitution is liable to become slowly, but permanently, deteriorated, and he is then often found to be afflicted with *chronic* disease of the liver, spleen, or colon. But this period also may be lengthened or shortened, according to the conditions above noticed. It would go far to confirm or correct the opinions I have here ventured to express, if a careful and extensive comparison were made, not only between the mortality, but invaliding, together with the ages and periods of Indian service of invalids of the Queen's and old Company's European troops. The European officer of good constitution and regular habits, after ten years' service, may often be looked upon as at his *best* for efficient duty in India; but I much fear this will rarely be found the case with the European private soldier; and it has often grieved me to see men described in the "invalid rolls," as "old and completely worn out," after from ten to fourteen years' service in the country.

Spirits and Malt Liqueur.—Rum is the spirit supplied by Government to the European troops in the north-west provinces of Bengal. It is made in the country by contractors, proprietors of large sugar-works in those provinces. The spirit is first sent to the commissariat stores at Meerut, where it is kept for a time and tested and examined by a committee of medical officers before it is served out for the use of regiments. During the four years I remained at Meerut, I frequently sat as president or member of these committees on spirits or malt liquor. I have already expressed my opinion as to the sanitary side of the proposal to substitute wholesome malt liquor for the rum now served out to the men, or supplied for the use of their canteens; but I clearly see and fully admit a great practical difficulty in the bulk of the former article, and the inconvenience and expense of carrying a sufficient supply on the march, especially during active service in the field. But if such service is undertaken in the hot season, I am persuaded it would tend greatly to the health of the men to abstain altogether from stimulants in any shape or form, except on special occasions, to be determined by their medical officers. But how British troops would submit to such regimen is another and more uncertain question. Good *tea* and *coffee*, served out early in the morning, and before the commencement of a march, and again during the day and at night, are the substitutes I would propose for stimulant beverages of any kind. I am acquainted with officers, keen sportsmen, who are celebrated for their power of undergoing, with impunity, a great amount of fatigue and exposure to the sun in the hot season, and who never taste spirits or beer while so exposed, but confine their drink entirely to *cold tea*. The sale of bazaar or country spirits is a fertile source of injury to the men and perplexity to their officers; and the clever manner in which both sellers and buyers sometimes contrive to escape detection would be amusing, were it not so mischievous. For instance, when the 1st brigade horse artillery were in camp at Umballa, our men were getting drunk in the most mysterious manner, although every reasonable precaution had been taken to prevent the irregular sale of liquor. Immediately in the rear of our camp was a "tope," or grove of trees, and under this shade was encamped an apparently respectable native traveller, with the female members of his family, in a covered "bylie," or bullock carriage. Around one side of this covered cart was a slight canvas enclosure, the usual arrangement for enabling respectable native women to cook and eat unseen while on a journey. It is rude, and in every way improper, to pry into the interior of such an enclosure or covered vehicle, and, for a long time, the presumed respectable native traveller remained undisturbed. At last a drunken soldier exposed the whole trick. The covered cart, instead of concealing respectable native females, held a

cask of spirits, and the enclosure was the place into which the men crept, one by one, to buy and drink the liquors. Country spirit is sometimes adulterated with *datura*, to add to its intoxicating power, and I have often seen it produce most serious and occasionally fatal effects.

The single objection I see to altogether prohibiting the distillation and sale of country spirits in all cantonments occupied by European troops is the considerable loss the revenue would suffer in that case. But this is a question solely for the consideration of the Governments.

Ale and Porter.—These articles are imported from England and sent up to Meerut *in cask*, where they are kept in store for a time, examined by a mixed committee, and if found good served out to regimental canteens. The ale or beer is, doubtless, generally of excellent quality when first imported; but it is a most delicate article, and if long exposed in cask to the heat of a country boat, it often goes bad before it can reach Meerut. Porter, however, is found to bear such carriage and exposure much better.

The large quantity of pale ale consumed by the upper classes in India is uniformly bottled in Calcutta, and sent into the interior in six or twelve dozen chests. I was president of a special committee assembled at Meerut in 1852, I think, to examine and report on the quality of the *hill beer* brewed by Mr. Mackinnon, the intelligent and enterprising proprietor of the Mussourie brewery. Before the committee met I went myself to Mussourie, was very politely shown over the whole establishment, and then satisfied myself that the malt was made from a sort of barley called "chevalier," grown by Mr. Mackinnon himself in the hills, that the water used was selected with great care and judgment, and that the hops imported from England were of the best quality, as testified both by the specimens exhibited and the nature of the pockets or packages in which they were imported. This hill beer is much liked, brings a good price, and the demand for it is greater than Mr. Mackinnon's present establishment can supply. The local committee examined the beer in question at the beginning of the hot season and pronounced it good and wholesome in every respect; but to test its power of keeping we put aside some bottles in a cool place, retained them there all the hot weather, and again assembled and opened the bottles in the ensuing cold season. The beer was still pronounced to be perfectly good, and although it was not *well up*, it remained clear and transparent after being poured out and allowed to stand in the glass for 12 hours.

T. E. D.

No. 4.

OBSERVATIONS on the ESTABLISHMENT of the SUBORDINATE MEDICAL DEPARTMENT of BENGAL.

Fully to explain the provision made in the Bengal Presidency for medical attendance on the sick of European regiments, it will be necessary to give a brief account of an establishment peculiar, I believe, to British troops serving in the East Indies, and in doing so I shall speak of things as they were when I left Bengal in 1857.

To each European regiment was attached a subordinate medical staff, consisting of one apothecary, one assistant-apothecary, one hospital steward, one assistant-steward, and from two to three hospital apprentices. When properly controlled and well managed, these persons render the most valuable aid to the surgeon, who has often a heavy sick list with numerous acute cases, in which life often depends on the patient being closely watched, and frequently reported on, by qualified attendants. Some of the young men of the department have had the advantage of attending the junior classes of the Calcutta Medical College, but generally speaking, their medical education has heretofore been mainly practical. They are liberally supplied with elementary treatises on medical subjects, and before being pronounced qualified for promotion to the senior grades, they undergo an examination in English, Hindoostanee, arithmetic, elements of anatomy, pharmacy, uses and doses of the principal articles of the *materia medica*, treatment of the most common tropical diseases, minor surgery, preparation of official hospital returns, &c. This examination has not generally been of a very searching character. The regimental surgeon is supposed to superintend and guide the studies of the younger men, but this is a duty he has seldom leisure to perform.

To the apothecary belongs the custody of the medical stores as well as the preparation and dispensing of the surgeon's daily prescriptions. He sees the patients at stated periods, and reports to the medical officers all fresh admissions or other cases requiring immediate attention. One subordinate remains on duty at all times within the wards. Every thing connected with the bedding, clothing, and diet of the sick devolves on the steward and his assistants, but both apothecary's and steward's departments act strictly under the orders and supervision of the regimental surgeon.

The subordinate medical service, considering the class from which it is recruited, is fairly paid, and holds out a respectable and comfortable provision for life to the sons of deserving non-commissioned officers and such like public servants. It is open, however, to qualified Christian youth of all classes, but heretofore it has generally been filled by "Eurasians" or "country born" young men, regarding whom it is proper to say a few words. The "Eurasian" has a thorough knowledge of the language and customs of the people, and therefore can make himself most useful in communicating with and superintending the duties of the native hospital servants; but he is too often deeply tinged with the vices of the country, and wants the moral checks which exercise so wholesome a control over persons holding a relative position in England. I have met with some Eurasian subordinates of most unexceptional character, but I agree with Sir R. O'Shaughnessy in considering them, as a class, to be of a low moral standard.

All "indents" for "Europe and country" medicines, instruments, bedding, hospital clothing, wine, beer, and other requisites for the sick, are prepared by the subordinates, supervised by the regimental surgeon, and checked and sanctioned by the superintending surgeon (now deputy-inspector-general) of the division. It is, however, obvious that the real wants of the sick European soldiers in India can only be properly anticipated and provided for by a medical officer who has a competent knowledge, not only of the climate, but of the resources of the country and customs of the people; and it is well known that the surgeon fresh from Europe is often glad, in all such matters, to place himself for a period in the hands of a smart medical subordinate, who, while he saves his superior from all trouble, rarely fails to take full advantage of the opportunity thus afforded him. The amount of peculation which has been habitually practised in some regiments, would astonish the uninitiated. Valuable drugs, wine, clothing, food, &c., have all been appropriated by fraudulent subordinates, to the serious loss of the Government, and to the injury of the sick soldier.* In point of intelligence and practical knowledge of their duties, a large proportion of these subordinates are sufficiently well qualified to render them most valuable hospital assistants, but what we chiefly farther require are trustworthiness and integrity. In such a climate as India it will be admitted that the purely medical duties of the surgeon must often be greater than he has strength satisfactorily to perform; and it was in consideration of this, and to relieve him from other harassing minor services, that the aid of a subordinate establishment was given. To take inventories of hospital stores, to ascertain the real expenditure of the medicines, and the condition of each particular article of bedding, clothing, &c., however necessary, to be carefully performed, involve an amount of time and personal labour which the surgeon of a European regiment in India can rarely bestow. On the other hand to solely intrust this duty to the present class of subordinates is in every way improper, for then the temptations thrown out by corrupt native commissariat underlings become so strong, and the facilities for peculation so great, that certain irregular gains will soon come to be looked upon as part of their regular and rightful perquisites. This state of things, I have good reason to suspect, is too common in the Bengal medical subordinate department.

The Lawrence Asylum in the hills might be turned to excellent account in supplying recruits for the subordinate medical service, and nominations to that branch might be held out to Christian youth of European parentage, as the reward of good conduct and proficiency. These lads, in addition to good moral training and European blood, will possess the advantage of speaking Hindoostanee fluently, although, happily, they will have been brought up apart from the common herd of native Indians. Such medical education as may be considered necessary to bestow on these young men should be conducted in a regular and systematic manner; and once posted to a regiment, they should be removed from it as seldom as possible.

Native Hospital servants.—In addition to the establishment just noticed, each European regimental hospital is amply furnished with native "ward Coolies," cooks; "dhobies," or washermen; "bheesties," or water-carriers; sweepers, clothiers, and stewards' servants; indeed, nothing can be more liberal than the Indian Government has been in such matters.

Hospital sergeants.—I look upon this appointment as one of the most important in the non-commissioned ranks of a regiment. Some steady, sober, but soft and otherwise useless man, is too often considered by commanding officers as fit to fill this responsible situation—there cannot be a more

grievous mistake. Much of the good order and discipline of every hospital will turn on the character, intelligence, and temper of the hospital sergeant; and when it is considered how much of the time of every British soldier in India is actually spent within the walls of an hospital, all reflecting officers will readily admit how important good order in that quarter must ever be to the discipline of a whole regiment. Every possible care must be taken to guard against the hospital being sought by the lazy and malingering as a place where they may escape disagreeable duties, and procure irregular indulgencies, which they could not obtain in barracks. An intelligent hospital sergeant, who strictly does his duty, will go far to prevent the hospital ever becoming a favourite resort for such characters. In the European local army, the hospital sergeant is never employed to write official returns, or to perform such like duties.

Hospital Orderlies have not hitherto been allowed in the European local army, but when a patient was seriously ill, it was the practice to permit an intimate comrade to attend on him for a time, to perform such personal offices as could not be so agreeably rendered by a native servant. One great objection to this practice is, that these waiting men must necessarily have their food brought from the barracks, and this has often afforded the opportunity of passing in liquor and other improper articles, both to the patients on whom they were waiting, and to others in the same ward. The food of these waiting men should never be allowed to pass beyond the hospital guard room.

Preparation of Official Reports and Indents for Medicine, and other hospital requisites.

I have no means at present of stating the exact number, and nature of the daily, weekly, monthly, half-yearly, and annual reports and returns required in India from the surgeon of an European regiment, but they are in truth, *legion*; and if all were prepared by the medical officer himself, would occupy his whole time and attention. It was long understood that the writing of all these documents was an important part of the duty of the hospital subordinates; but about 15 years ago a dispute arose on the subject and a reference was made to army head-quarters, when it was decided that these persons had far more important duties to perform than to write "Queen's medical returns." From that hour forward, the relative position of the Queen's surgeon and his subordinates became materially changed. It was difficult for him to find other persons qualified by a knowledge of forms and medical terms to prepare such complicated returns with neatness and accuracy; and, in point of fact, these papers continued to be written by the subordinates, as heretofore, but now as a *favour*, or for a pecuniary consideration, and *not as a duty*.

The surgeon was personally responsible for the regular transmission of certain elaborate returns, and it was his duty to see that the sick under his charge were fully supplied with every requisite medicine and comfort; but he had no such personal interest in the *cost* which might be incurred by the Indian Government, to which he owed no direct allegiance, and from which he had nothing to hope.

The "Company" paid for all, and the "Company" had its own officers to look after its own interests. Under such circumstances it is not surprising that some surgeons should content themselves by solely attending to the interests of their own sick, and should hardly consider that they were further called upon minutely to watch their subordinates, and check petty peculations, when the result to themselves might be, that the latter would strike writing in a body, just as the annual returns were urgently wanted. It is not therefore improbable, that a sort of tacit compromise sometimes took place between the parties. The returns were regularly forthcoming when required, and no particular questions asked as to "the quantities expended since the date of last indent;" or, "the quantities required for the ensuing six months." Whenever a suspicion of such a state of things existed, a superintending surgeon, who was held by his own Government strictly responsible for any undue expenditure within his circle, was too apt to consider *his* chief duty to lie in curtailing such indents; and it naturally followed from this that, when a regimental surgeon really wanted *one* pound of any article he asked for *two*, and thus left a margin for the checking officer's pen. All this was wrong. The checking officer should consider it one of his chief duties to know and grant everything necessary to the welfare and comfort of the sick; and the regimental surgeon should be held responsible that he not only asks for all his sick require, but asks for nothing more, and carefully guards against extravagance, culpable waste, or actual fraud. That the subordinates *do* assist the surgeon in making out *all* his returns, I believe to be a fact; and I am of opinion it should once more be declared to be their duty so to do. The vast amount of this writing may. I

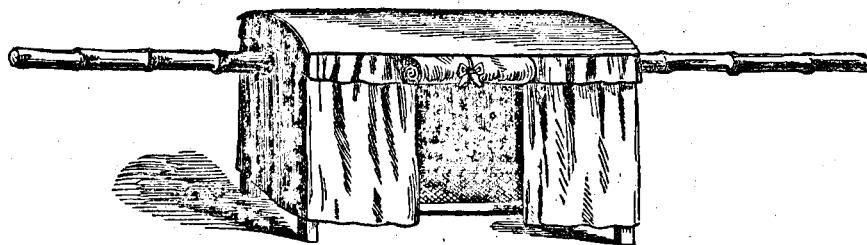
* I have in my possession a curious account of the manner in which some of these frauds are managed, communicated to me privately and confidentially by an hospital subordinate himself.

conceive, be greatly curtailed with benefit to all concerned; the duties of subordinates should be clearly and strictly defined, and these duties and no others demanded of them.*

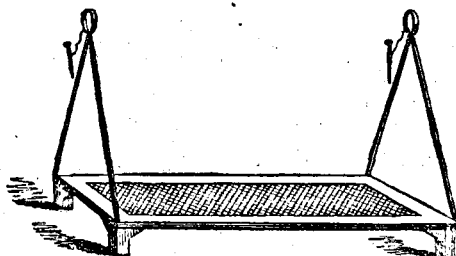
Carriage for the Sick and Wounded.

It is generally known that the sick of European regiments in India are carried on the march in a sort of country litter borne by bearers, called a "Dooly;" but it is not so well known that the army dooly of the several presidencies differs materially from each other, both in construction and in the practical uses to which it can be turned. During the siege of Mooltan and subsequent Sikh campaign, I had an excellent opportunity of comparing the merits of the Bengal and Bombay army dooly as a conveyance for the sick or wounded soldier in the field. At first sight, the Bengal dooly appears a very rude and primitive contrivance, and, in respect to workmanship, a whole century behind the one in use in the Bombay army; but it will be found, on further inquiry, to combine the following useful qualities. It is light, and so slung on its bamboo pole as to be easily carried by the bearers. It can be readily converted into a most convenient and comfortable camp bed. It affords greater facilities for putting in, or taking out, a

very weak or severely wounded man than any contrivance with which I am acquainted. On the march, the very sick or severely wounded soldier, once comfortably placed in the Bengal dooly, need not be removed from it at all until he reaches his final destination. At the end of a day's march the top and cloth cover are quickly taken off, the dooly and its occupant placed in the hospital tent, and the pole withdrawn before the sides of the tent are laced on, leaving the patient undisturbed in a comfortable camp cot. In the morning, as soon as the walls of the tent are taken down, the pole, top, and cloth cover are again quickly replaced, and the dooly removed from under the tent, and ready to proceed in rear of the marching column, without the smallest fatigue or inconvenience to its tenant. A wounded man can be dressed nearly as easily in his dooly as on an ordinary hospital cot, the only drawback being that the patient is placed a little too low for the surgeon; but this can be remedied by putting a few bricks under each of the short legs. Finally, during very hot, very cold, or rainy weather, the dooly tops can be turned into a convenient shelter for the bearers. On active service, and where bearers are not to be replaced if they fall sick, this is no unimportant consideration.



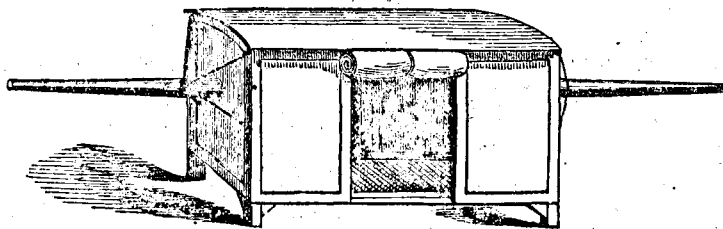
Bengal army dooly with top, bamboo pole, and cloth cover adjusted.



Bengal army dooly, with top, pole, and cover removed, and ready to be used as a camp cot.

The Bombay dooly is a thing of greater pretensions altogether. It has a cane-bottom, immoveable top, and fixed painted canvass sides or panels, and the pole, which is fixed as in an ordinary palanquin, cannot be withdrawn: the frame is light, but substantial. When entire and in good order, this kind of dooly affords an excellent shelter for the sick, or for surgical instruments, medicines and dressings, in very stormy or rainy weather; but here its advantages stop. It is not so easily carried by the bearers as the Bengal dooly, in consequence of the lower point at which the pole is fixed. It cannot be used as a bed for the sick, unless left outside of the hospital tent altogether. A very weak or severely wounded man is placed in it with much difficulty, and being in, cannot be taken out again, without inflicting much suffering and fatigue. Moreover, it is hardly possible for a surgeon to dress a severe wound, or perform any operation on a patient lying in such a conveyance. Lastly, the

stiff-painted canvas panels are readily torn and injured by stumps of trees and such like obstacles, and when so injured, it is for the rest of the march or campaign, a less efficient protection against wind or rain than the Bengal dooly, with its loose, not easily torn, but easily repaired cloth curtains. A few inexpensive alterations and additions would render our Bengal dooly everything that can be desired. An additional good cloth to the curtains, or, better still, a dooly cover, entirely made of *white country blanket*, with a sufficient number of proper buttons to close the sides and fix the ends of the curtains in boisterous weather, would render it a complete protection against wind or rain, and so obviate its single defect. On field service, ten doolies, with six bearers each, are (if I remember right) allowed by the regulations for every hundred European soldiers; but on occasions of ordinary relief, only one half that number.



Bombay army dooly, as it must remain at all times.

* It will be proper here to explain that the "Company's" superintending surgeon had no authority to interfere with the hospital practice of the surgeons of Queen's regiments,—his duties being confined to the regulation of the supply of medicine and hospital requisites of every description, and to matters affecting the general sanitary management of the troops within his "circle" or superintendence.

In addition to the convenient but expensive conveyance above described, other carriage is generally forthcoming as occasion requires, for another class of patients often very numerous in the field, viz., foot-sore men, convalescents, and all the slighter cases of sickness or injury. Elephants with pads, camels with "kujawahs," or basket litters swung on each side, and country carts or "hackeries," spread with straw and fitted with a covering of slender reeds called "sirkee," have all been employed for this purpose. Elephants and camels can keep up with the marching column,—a great advantage,—but the situation of a weak man on the pad of an elephant, or in a camel litter, is anything but agreeable; and except to the robust and healthy, either mode of conveyance becomes, after a short time, fatiguing and irksome in the highest degree. The somewhat complicated litter proposed by Sir J. Logie, if placed on a perfectly steady and well-trained camel, would doubtless carry a sick man with some degree of comfort; but it is hopeless to look for a sufficient number of well-trained animals when required, and a restive camel, of all intractable brutes, is the most unmanageable by the European. In some kinds of country carts a weak man may lie or sit without much inconvenience; but their rate of travelling is so slow, that they are seldom up for hours after the camp is pitched, and all others have had their breakfast. So wearisome is this mode of conveyance to the European, that the men told off for the carts will generally be found to have walked the greater part of the way. It was probably in consequence of the facility of procuring such questionable extra conveyance on sudden emergencies, that the authorities in India never thought of providing any description of ambulance or wheeled carriage for the sick and wounded in the field, similar to those in use in most modern European armies. It is true, that during the rains in India,—a season when an army rarely takes the field,—the condition of the country is ill adapted for wheeled carriages of any sort; but at all other periods of the year there are few countries in which they can be more conveniently employed. At our gun carriage agencies there are not only skilled workmen but abundant *spare* materials for the economical construction of such vehicles; and in every mounted corps there are always to be found horses, not quite up to work with the guns or in the ranks, and yet well suited, for some years to come, to the slow, steady draft of a carriage for the sick. On an emergency, elephants or camels may be used, or, failing these, a sufficient number of draft bullocks can at all times be relied on.

I am the last to desire or advise the supersession of our admirable Bengal dooly, but it is not only a most expensive description of conveyance, but its use is entirely dependant on the presence and fidelity of a sufficient number of dooly bearers. I have known many hundreds of these persons to desert in a body during an important crisis of a campaign. Six hundred dooly bearers, not including "sirdars," are at present required in the field for a European regiment 1,000 strong. This is not only a great expense to the State, but a *great incumbrance* to an army.

A certain proportion of well-designed and carefully constructed carriages for the sick would enable us to dispense with a considerable number of dooly bearers, and would partially provide against the untoward contingency of their deserting in a body just as their services are most urgently required. Of course, I have often thought of a plan for such a carriage, but I have not sufficient confidence in my own mechanical knowledge to venture to submit it to the Commission; I am, however, satisfied that an ambulance for the sick in India should possess the following qualities:—The springs, wheels, &c., should be so strong as not easily to break down on common country roads, while all other parts should be as light as possible. The clumsy wheels of the up-country "Hackary," and the primitive manner in which they are fitted to that conveyance are, I am assured, peculiarly adapted to the narrow unmetalled roads and unbeaten tracts on which they travel; and I know well, that such rude carts often arrive at the end of a march in perfect safety, when trim English built vehicles break down on the road. A carriage for the sick in India should also afford proper shelter from the sun or rain, and, at the same time, be so constructed as to admit of a free circulation of air. The centre of gravity should be low, to prevent its being readily upset, and to enable the patients to get in and out quickly and easily, to lighten the draft, and to assist it over any unexpected obstacle. Such a carriage would, I believe, often prove of much value in India, except, perhaps, during and immediately after the periodical rainy season.—T. E. D.

No. 5.

NOTE ON BREAD.

Of all the articles of food consumed by the European soldier in India, none has given more dissatisfaction to the men themselves, or more trouble to their officers, than the bread formerly supplied by the commissariat. According to the old regulations, if the bread or any other barrack ration was objected to, a regimental committee was immediately assembled to examine and report upon it. If the article was pronounced unwholesome or of inferior quality, the commissariat officer had the power to demand a station committee, at which he personally attended, and this last committee not unfrequently reversed the decision of the former one; but whether reversed or confirmed, the men had generally to wait many hours before they received the disputed ration, or a proper substitute for it. By Lord Dalhousie's new regulation (promulgated, I believe, in 1852-3), the decision of the regimental committee was made final; the standard of quality for the men's bread was declared to be the fine loaf eaten at the mess tables of the officers; and it was intimated that if the soldier should get bread or other articles of food of an inferior quality, the blame would henceforth rest with the officers themselves, to whom absolute power was now given to accept or reject all rations tendered by the commissariat.

The natives of India neither make nor use any kind of fermented bread themselves, but in every European military cantonment two descriptions of "English bread" were formerly known, viz., the fine, white, porous, but rather tasteless loaf used by the upper classes, and the brown and somewhat heavy loaf of the barracks. This last was often agreeable enough to the taste when fresh, but after being kept some hours was apt to become sour and doughy. The native bakers maintain that a good light bread, suited to the European taste, cannot be made with the flour of the common Indian bearded wheat, but that "*soojee*" must invariably be employed. When the complaints and discussions on the subject of bread for the troops were at their height in 1852, a committee to inquire into the matter was assembled at Meerut, of which I was a member, and on that occasion I had the wheat ground, and the materials for the two kinds of bread prepared, in my own house, and under my own eye. The following are the results of the information I then obtained:—

To prepare the "*soojee*" for fine bread.—The whole wheat is placed in small separate heaps on the ground, gently sprinkled with pure water, and allowed to remain in this state from four to twelve hours according to the condition of the atmosphere, until the grain has become somewhat soft and swollen with the moisture. During this preliminary process some chemical change is doubtless effected on the gluten and starch of the wheat. The grain, after having been duly moistened, is ground in the common Indian handmill, and then quickly passed through a *very coarse* sieve, which separates the bran in a large unbroken form. This bran is put aside and only used to feed poultry, cattle, &c. The flour is next put by handfulls into *very fine* sieves suspended from the roof and vigorously shaken. By this process a fine, white, impalpable flour is separated and collected below. This fine flour is also rejected as a bread stuff; it is very white, is rich in gluten, but can only be turned to profitable account by the "*hulwaees*," or native confectioners, to whom it is usually sold. The residue of the flour, after these two siftings, is then subjected to the following curious manipulations, commonly performed by females:—A woman sits on the ground with a heap of the flour on her right; this she takes up by handfulls and places in a sort of broad shallow shovel made of "sirkee" grass, called a "*sooph*," and, by a very dexterous movement of the hands, she causes all the lighter and darker portions of the flour to fall on the ground immediately in front, while all the more round, solid, white particles are collected at the lower edge of the shovel, and are from time to time transferred to the ground on her left side. When the whole has undergone this manipulation, the heap on her left is the *first* "*soojee*" used in making the fine, white, porous loaf; that in front is called *second* "*soojee*," and of this last material the barrack loaf was entirely formed. If a very fine "*soojee*" is required, it is subjected to two or more such siftings. This "*soojee*" is, I believe, identical with the article now sold in England under the name of semola or semolina. "Toddy," or the fermented juice of the date tree, is the yeast commonly used by the Indian baker, but when that cannot be procured, other, but less efficient, ferments are occasionally employed. It was pretty generally supposed that the old barrack loaf was made of whole or unbolted wheaten flour; but, from the account given above, it will clearly appear

what an entirely different thing this second "soojee" is after the abstraction of the bran, fine impalpable flour, and fine "soojee,"—all rich in plastic, nutritious principles. The fine "soojee" is rich in gluten, and makes a light, digestible, and nutritious bread; but it may be doubted whether it is really to be preferred, as a barrack ration, to the well-baked brown loaf, made of whole or unbolted English wheat.

The bearded wheat of India is, I believe, very inferior in quality to the wheat of England, America, or Cape of Good Hope; but I know not if the difficulty experienced in making good bread with Indian wheat flour depends chiefly on the inferior quality of the grain, or is to be ascribed to want of skill on the part of the native baker.

Mr. Astell, formerly judge and magistrate of Bolundshubur (a civil station about twenty miles to the west of Meerut), not only succeeded in growing good English wheat at that place, but baked and used in his own family an excellent household bread, made entirely with whole or unbolted English wheat flour. I have often seen and eaten this bread, and found it unexceptionable in all respects.

A good, wholesome, and nutritious barrack loaf is a matter of prime importance to the British soldier in the East, and if such bread as Mr. Astell succeeded in making could be supplied to the troops in sufficient quantity, it would go far to enable us to reduce, in the hot weather, the present excess of the more concentrated nitrogenous aliments.

Now that India has its railroads, I know not whether it would be more convenient and economical to grow a good description of wheat in the upper provinces, or to import it from England, America, or the Cape; but this I do know, that a good wholesome household bread can be made in India of flour alone. The processes employed by native bakers with success in the plains answer very imperfectly at the hill stations, and this has proved a source of much trouble to the weak and dyspeptic at these places. The yeast used in the hills was probably the main cause of this failure, but if large bodies of European troops are henceforth to be kept in these regions, this subject will become one well worthy of particular attention.

T. E. D.

OBSERVATIONS on the RATES of MORTALITY among the TROOPS in INDIA, by Dr. EATWELL, Principal of the Medical College, Calcutta.

As regards vital statistics, there is great difficulty in forming any approximatively correct idea of the rates of mortality amongst the civil population in this country, owing to the absence of a correct census, and of any comprehensive system of registration of deaths. In this respect, Bengal, though our oldest possession, is behind both the North-Western Provinces and the Punjab, in which censuses of a certain degree of accuracy have been taken. This want, however, results from the prejudices of the people, which can hardly be disregarded. In Calcutta even, there is but an imperfect census of the native population, calculated from the number of houses and allowing 8·7 persons for each house, and 5 persons for each hut. The general mortality tables of Calcutta, more especially of the native portion of the population, are also of necessity very imperfect, the only means of estimating the mortality amongst the general population being from the records kept in connexion with the different places of interment in the case of Europeans and Mussulmans, and at the regulated ghats on the river bank at which Hindoos bury their dead, or consign them to the stream. As regards the prevailing diseases amongst the native civil population tolerably correct information may be derived from the returns of dispensaries and of native hospitals throughout the country. These institutions exist in all the chief towns of this presidency, and all furnish returns of the diseases treated at them. The gaol hospital returns will also furnish information on the same head, but in taking these returns as indices of sickness and mortality, it is requisite to bear in mind that incarceration itself modifies disease, and frequently gives an unusual rate of mortality to certain diseases, as cholera and dysentery. Still, I am of opinion that the returns of sickness and mortality in gaol hospitals are capable of affording much trustworthy and valuable information, at least as regards prevailing sickness in the localities in which they occur. The returns of native regiments, if taken for a long series of years, may give a fair approximative idea of the prevailing diseases of the locality, and of the mortality attending them, although there are some serious sources of error in such cases, which require to be recognized and eliminated from the inquiry. The men of a regiment frequently bring with them to a station constitutions peculiarly predisposed to disease, through influences to which the men have been previously exposed. Thus, we found that the native troops who had been stationed long in the Straits of Malacca became affected in China, through slight causes, with a most destructive form of hospital gangrene. The occurrence of this affection was attributed to an enfeebled condition of system engendered by employment of an insufficient and almost exclusive fish diet. Again, at Barrackpore, near Calcutta, it has been found by experience that sepoy from the upper provinces sicken generally after two or three years, and consequently native troops have not been allowed to remain beyond that period at Barrackpore without relief.

As regards medical topography, there is not, I believe, a station in India of which the topography has not been written by one or more medical officers. The archives of the late Medical Board (now of the Director-General of the

Medical Department) must contain ample information under this head.

As regards climatology, a considerable amount of information must be in existence in the annual reports of military and civil medical officers in the archives of the Director-General. Such observations are probably, in many instances, imperfect and only approximatively correct, from the difficulty of procuring good instruments in this country, and of preserving them in constant efficient condition, and also of obtaining trustworthy assistants for conducting observations.

But the primary object of the Commission will, I presume, be the investigation of the causes of disease amongst European soldiers, and the suggestion of measures for their removal. You will find some exceedingly valuable information on the vital statistics of European troops in India in the last numbers of our "Indian Annals," in papers by Dr. Chevers and Dr. Macpherson; I forward by this mail copies of the journal containing the articles.

The question which, of all others, will demand the most careful investigation is that of the effect of different elevations on the health of troops. There appears to be an opinion in some quarters that elevations of from 5,000 to 6,000 feet are preferable to those of from 7,000 to 8,000. Sir R. Martin, I see, is of opinion that elevations of from 2,000 to 3,000 feet should be tried. It is impossible to overrate the importance of this question. Not only is it one involving the proper outlay of an enormous sum of money, which will be required for the construction of barracks, but it involves the question whether there be in India a climate in which the European can be preserved in health and in vigour, and not be exposed to an excessive risk of succumbing to disease. Not only will the proper locating of our European troops depend upon a correct solution of this question, but the feasibility of colonising our hill districts with Europeans will hang on the same decision. I must say that I should regard with extreme suspicion all elevations below 3,000 feet in India, unless they were table-lands, such as the district of Mysore, or culminating ridges around which existed free circulation of air, and having their bases and the country around cleared and cultivated. According to my experience in the tropics the deadliest fevers occur about the bases of and at low elevations in hills. In India it is usual to attribute such fevers to the dense jungle which usually occurs in such situations. In China, however, the hill sides at Hong Kong and Amoy are bare of trees, yet the malarious fevers which I witnessed at those stations during some three years of residence in them, exceeded in malignity anything I have ever seen in Bengal.

I have learned to regard the hills and the bases of hills within the tropics always as suspicious and dangerous localities. Bengal itself is a vast swamp almost, from its extended rice cultivation, but it is a mistake to suppose that severe fevers prevail generally in the plains of Bengal. Agues and enlarged spleens are met with, but not to a great extent, except in limited localities, whilst severe remittent fevers are not generally common. In China I saw an immense amount of fever, and I was forcibly struck by the

imperceptible manner in which the intermittent fever glided into the remittent fever at the commencement of the hot season, and how the remittent in like manner faded into the intermittent on the setting in of the cold season. The atmospheric conditions which accompanied this change were an elevated temperature, and an atmosphere more or less stagnant for a portion of the day, and laden with moisture. Under such circumstances cuticular evaporation was very slight and the removal of animal heat by insensible perspiration imperfect. In this way animal heat would accumulate, and from the diminished necessity for its generation, and perhaps from actually diminished supply of oxygen in a stagnant moisture-laden atmosphere, hydrocarbons would accumulate in the blood until they became a "materies morbi," capable of setting up an attack of fever, which would consist in their chemical decomposition and elimination. I regarded the severe remittent fever of China as an intermittent produced by some external agency, and acting, according to my idea, on the ganglionic nervous system, and having at the same time a second element of disease, a materies morbi, existing in the blood and developed there by some imperfection in the processes of oxydation which are always going on in the economy. I believe that whenever you have an elevated temperature approaching blood heat, without a condition of atmosphere which shall ensure rapid evaporation from the surface, and consequently adequate cooling of the body, you will get severe fever dependent on blood poison generated in the blood itself. If there be a malarious influence present, the fever will be a remittent, if not, a continued fever. Our worst fevers in India are what are called jungle fevers, from the fact of their being constantly caught when traversing forests, but I am satisfied that such fevers may occur independently of the presence of forests, in low situations surrounded by hills, where stagnation of air and humidity are conjoined to elevated temperature, whilst our deadliest Indian jungles are at the bases and on the sides of hills. Holding these views, I should insist, as conditions for escaping remittent fever, that the mean annual temperature of the locality should not exceed 60°, and that if during the summer months the thermometer ranged high there should be such a condition of atmosphere as regards dryness and prevalence of wind as should allow of the necessary cooling of the body. All stations on the sides of ranges, unless such ranges be swept parallel to their faces by continued winds and have a dry atmosphere, should in my opinion be at an elevation of not less than 7,000 feet. I should certainly be disposed to regard mean annual temperature and the character of the flora of a locality as good guides to its general fitness for the European constitution. There may be local sources of disease, but I find difficulty in escaping from the conviction that a locality having a climate agreeing in mean annual temperature with that of temperate Europe, and having a flora rich in European forms, must (*cæteris paribus*) be more suitable to the European constitution on the whole than a locality having a mean annual temperature approaching a tropical one, and a corresponding partly tropical flora. But, the distrust which has recently arisen with reference to our hill stations in India, has been occasioned by the prevalence of a fatal form of diarrhoea and dysentery at certain of our Himalayan stations (Subathoo and Kusowlie, respectively 4,200 and 6,200 feet above the sea level). The investigation and determination of the real nature and cause of this complaint are of the greatest importance, since if it could be shown that the efficient cause of the disease was consequent on elevation or on physical conditions inseparable from elevation, the doom of our hill stations generally would be sealed. I send you an interesting and careful paper by Dr. Grant on this subject, and also a very able and valuable paper by Dr. Chevers, which will give you very full information on this point; also a second pamphlet by Dr. Grant, on the topography and medical history of Murree, a convalescent depot in the district of Hazara. My own belief is, that the hill diarrhoea of the Himalayan stations depends on local agencies unconnected with elevation, and that it does not differ materially (as pointed out by Dr. Grant) from the disease which decimated Her Majesty's 26th regiment at Chusan during the early occupation of that place. Sufficient elevation of the floors of barracks, choice of material and construction to ensure their dryness, sufficient cubic space in the barrack rooms for the number of inmates, means of renewing vitiated air, efficient drainage round barracks,

removal of all sewage matter to a distance, a proper supply of fresh meat and of fresh vegetables, good pure water, and sufficient clothing; these appear to be the conditions for ensuring health generally; and to the absence of one or more of them, it is probable that the hill diarrhoea owes its origin. It should always be borne in mind that patients who have suffered from malarious fevers are apt to suffer from bowel complaints when exposed to cold, whether this be the result of change of season or locality. I had ample proof of this in China, and have remarked the same in India; the proneness of soldiers to bowel complaint in our Himalayan stations may frequently have depended on this cause, without the intervention of local causes.

The question of the influence of water in producing disease is one of importance, and the present opportunity might with propriety be taken for investigating it completely. The natives generally have an idea that the water of a locality has a great influence on its salubrity. The common expression of a native in speaking of a locality is that "the air and water are good;" which implies salubrity. But this notion of the water being an efficient cause of disease is not confined to the natives. On returning from the Neilgherry Hills in the Madras Presidency a few months ago, I was informed on the spot that the water of a small stream which flows in a valley at the foot of the hills between the main range and a low outer range invariably gave fever to anyone drinking it at a certain season of the year, and that orders had been given by the military authorities prohibiting soldiers on their way to the hills from drinking the water. The water was said only to be deleterious in the dry season when it was low. I had not an opportunity to make particular inquiries on the subject, but have no reason to doubt the general correctness of the information as to orders having been given to prevent soldiers drinking of the stream. I have been informed that a similar opinion prevails at Peshawur, where severe remittent fevers occur at certain seasons of the year. In both localities we have valleys beneath mountain ranges. In Hong Kong, in 1842 or 1843, a medical officer who had been in the West Indies started the idea of the water being the efficient cause of the severe malarious fevers we experienced there, and a committee, composed of the superintending surgeon, the naval deputy inspector of hospitals, and a regimental surgeon, was appointed to investigate the question. I, at the time analyzed roughly, with such means as I could command, the different drinking waters of the place (the memorandum on the subject having, I think, been sent to the Board of Ordnance at home), and I gave evidence on the subject before the committee. I formed a strong opinion against the water having anything to do with the production of the fever, not only from the condition of the water itself, but from the fact that I had observed that persons on board ship at Amoy had enjoyed, at a distance of a few miles from the land, perfect immunity from the fever which struck down the whole garrison on shore, although the water used was the same in both positions; and also, that the same fact was observable at Hong Kong, though in a less marked degree, the ships in the latter place lying close to leeward of the high land, and the crews having greater facilities of going on shore. Whilst doubting the influence of bad water in producing fever, I believe it to be an efficient agent in many instances in causing bowel complaints, and even cholera, in certain atmospheric conditions. I would suggest that a careful chemical examination be made of the water in all those localities in which severe fevers exist, and where the water has been cited, either on medical authority or on strong non-professional authority, as a probable cause of the disease; and, especially, that the water of the hill stations in which diarrhoea has largely prevailed (Kusowlie, Dugshai, Subathoo) be analysed and minutely examined.

The chemical portion of the investigation could not probably be entrusted to better hands than to Dr. R. D. Thomson's, whose experience in this branch of chemical investigation fits him for carrying out the chemical part of the inquiry with efficiency.

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W. M. EATWELL,
Principal of the Calcutta Medical College.

Extract from a letter addressed to Dr. Farr,
September 9, 1859.

REMARKS by Lieut.-Colonel OUCHTERLONY on the Lighting of Barracks in India.

SIR,

11th July 1861.

THE irksomeness of military life in the East is more especially felt by the private soldier during that period of the day which intervenes between the setting of the sun—followed as it is by almost instantaneous darkness—and the time fixed for retiring to rest. Reading, study, or application to the practice of a trade, are the resources offered; but their efficacy is greatly impaired by the insufficiency and inferiority of the artificial light provided by Government for these and other barrack purposes.

The medium through which this is, I believe, almost universally supplied to Indian barrack rooms consists of a lamp formed by a cotton wick kept floating by means of cork buoys upon a surface of crude and often very opaque oil, poured upon water in a glass vessel. Much of the illuminating power of such a lamp is necessarily lost, owing to the unfavourable medium through which the downward rays are transmitted; and not only does waste ensue, but great detriment and injury to the visual organs of the men who essay to read by its light, driving many a well-disposed man from his book or slate to the canteen or to the dram shop.

Instead of this oil I would propose that gas should be the illuminating medium employed; that, in effect, the oil issued to the men in barracks should be burnt in the form of gas instead of being consumed in nourishing the unsteady flame of a rude and imperfect lamp; and I am anxious to show, or to attempt to show that, far from being a source of enhanced cost to the State, it will be found productive of very great economy in a financial point of view, while at the same time the comfort and moral advantage of the soldier are strikingly ministered to.

I will take leave, in the first place, to consider this question as one of economy.

The common lamp oil usually issued for barracks in India costs about 1s. 3d. per gallon, a quantity which would supply about 36 to 40 open wick lamps for three hours. From this same quantity from 100 to 120 cubic feet of the purest olefant gas could be produced, sufficing for the consumption of 18 burners for three hours, at the rate of two cubic feet per hour per burner. Experiments by various eminent chemists have established that the illuminating power of coal gas ignited in an ordinary burner is to that of a common open oil lamp with a single wick as 5 to 1½; and as the intensity of oil gas is nearly double that of coal gas, it is safe to assume the proportion which its lighting power bears to that of an oil lamp at 8 to 1½, or :: 16 : 3. It results from this that eight ordinary fish-tail oil-gas burners would produce as much light as 40 common oil lamps; and as 48 cubic feet of gas would suffice to supply the former for three hours, it is seen that if economy were exclusively studied, the supply of oil for barracks could, if gas were employed, be diminished by one half.

But the economical result goes even further. The retorts manufactured for the conversion of oil gas will produce it from any unctuous or greasy matter introduced into them; and as barrack kitchens in India abound in such refuse, it is easy to perceive how extensive a saving might be effected if all this were collected and employed in the production of gas.

Several valuable products also result from the manufacture, such as "lamp-black," and, in small quantities, tar. The cost of an apparatus constructed on the plan of Major Fitzmaurice, whose experiments I had recently an opportunity of witnessing at Woolwich Dockyard, would be as follows:—

1. For an apparatus to supply 50 burners, 120l.
2. Do. do. 100 do. 230l., and upwards in proportion.

The manipulation of the apparatus is extremely simple, and could be undertaken by any moderately intelligent man possessing some little acquaintance with the mechanic's art, of whom every regiment in India possesses many.

No purification is required, and the gas, after passing through cold water to reduce its high temperature, is fit for use.

For heating the retorts in India, jungle wood would be used, the cost being in almost all parts of the country insignificant.

A great and important benefit may thus be conferred on the troops employed in India without involving the State in any outlay beyond that at present incurred, save and except the cost of the apparatus to be furnished to each up-country barrack,—a cost which might, in fact, be soon covered by a

small temporary diminution of the quantity of oil now issued for the men's use.

I feel sure, from the experiments I have witnessed, that if gas were employed, more than double the illuminating power might be elicited from the regulation allowance of oil; while the light produced would be of the purest, most brilliant, and most healthy character.

(Signed) J. OUCHTERLONY,

Lieut.-Colonel H.M.'s Madras Engineers.

T. Baker, Esq., Secretary to the Royal Commission on the Sanitary State of H.M.'s Indian Army.

REMARKS by Lieut.-Colonel OUCHTERLONY on the Practicability of brewing Malt Liquor in India for the Use of the Troops.

22nd July 1861.

All officers of experience must be sensible of the vast importance of introducing into the canteens of the European regiments serving in India a malt liquor of sufficiently good quality and moderate cost to induce the men to drink it at their meals in preference to the deleterious arrack now so generally consumed.

This desideratum can, I am convinced, be attained by the introduction of ale and porter to be brewed in that country. The quality of samples which have been produced, bearing in mind that the strength or bitterness of it can with perfect ease be increased in the process, exactly according to the fancy of the consumers, has been very favourably reported by several officers and soldiers* by whom malt liquor brewed by myself in the Neilgherry hills was

* The under-mentioned Non-commissioned Officers and Private Soldiers of the 15th Hussars, who drank the Neilgherry Beer, are of opinion as opposite their respective names.

Bangalore, 11th June 1849.

Regimental Serjeant Major Handley	The beer is good but rather sweet, and tastes very new.
Troop Serjeant Major Mann	- Very indifferent.
" " Saunders	- Good.
" " Stanley	- Passable; in my opinion requires to be kept some time.
" " Mitchell	- Good, but too sweet.
Serjeant Major Hearne	- Good.
Trumpet Major Westwood	- Good.
Serjeant Sihon	- Good, but too sweet.
" Somerville	- Good.
" Southerland	- Very good.
" Taylor	- Good.
Corporal G. Mortimer	- Good, but too new.
" Smith	- Good.
" Theakston	- Good.
Privates Sadhiers	- Good.
" Patrick	- Good.
" H. Harris	- Good.
" Martin	- Good.
" Asquith	- Good.
" Foster	- Very good.
" Freak	- Good.
" Weekson	- Good, wants age.
" Dickenson	- Good, but sweet (his x mark.)
" Ivy	- Sweet.
Serjeant Major Holloway	- Good.
Serjeant Ring	- Good.
" Joice	- Good; sweet through its freshness.

Opinions of the men of Her Majesty's 51st Light Infantry, of the quality of the Beer brewed on the Neilgherries, and forwarded to the above Corps as a sample.

Very good.—E. Ashton.
 Very good.—P. Peek (his x mark).
 Very good.—Thomas Hale (his x mark).
 At present very good; I think it will not keep; I lived at an inn five years.—William Warren (his x mark).
 Very good.—John Hill (his x mark).
 Very good.—William Haynes (his x mark).
 Very good; I think it would be better if a little older, say three months; I have been a brewer, and am of opinion it would keep.—William Hinan (his x mark).
 Very good beer; the best I have tasted in India. John West.
 Very good.—William Tomes, (his x mark).
 Very good; I was five years at a public house.—William Kelfe.
 Indifferent; too sweet, not enough of hops; I think it would make a man's head ache should he take a little too much.—W. Luok (his x mark).
 Indifferent; too sweet and too new; might improve by keeping; I was a brewer for eight years; not sufficiently hopped.—James Gregory (his x mark).
 Good.—Henry Binge (his x mark).
 Very good, if it will keep.—William Ellis (his x mark).
 Good, I think it will be better if older.—Corporal W. Vick.
 Very good; I was four years a brewer.—H. Eveshead.
 Very good.—Isaac Whitfield.
 Very good.—James Farren.

E. ST. MAUR, Lieutenant Colonel.

Commanding Her Majesty's 51st Light Infantry.

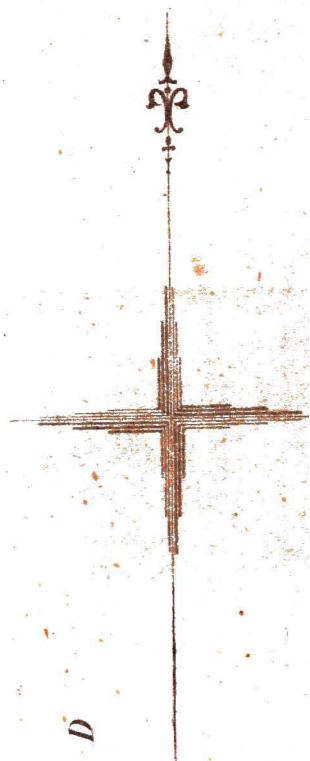
Lieutenant Colonel Milnes, 94th Regiment, reports that "After allowing the beer to remain quiet in the canteen for a week to get settled after the journey, I assembled at the canteen non-commissioned officers and privates from each company (about 20 in number) who were in the habit of drinking beer, among whom this beer was divided at the rate laid down, three annas per bottle, and after drinking it I asked their opinion individually, when all expressed themselves quite satisfied with it, and said if such were supplied at the canteen they would call for it in preference to that which they now drank at four annas per bottle. I would likewise observe that having myself patronized this beverage, since I have been in India, and having drank a tumbler of this beer, I can pronounce it to be very good pleasant beer, and fully equal to the price charged. I observed a degree of

CALLA GOUK OR CURLEW ISLAND

An Island about 30 miles South of
Amherst 5 miles from the mainland
of the Tenasserim coast, open on the
West to the Bay of Bengal

Long: 97° 42'
Lat: 15° 52'

Recommended as a "Marine Sanitarium"
and "Watering Place" for all India by
Dr. D. Macpherson, Inspector General of
Hospitals, Honorary Physician to H.M.



B A Y O F B E N G A L

D U N S O U T H E A S T

Line of Tenasserim Coast



Quarry Bay

Mangrove Bay

Sandy Bay

Rowe's Bay

McPherson's Bay

Retreat Bay

Rocky Bay

Sea Bay

Fish Bay

6 and 7 Fathoms of water at Low water
Spring Tides

This Island has
not been regularly
surveyed

Alex Fraser Cap[™]
Sup^{td} Alg^u Reef L^t House



by order of Government tried, while the cost will be seen from the following statement of expense of brewing at Kotergherry.

10 gallons of table ale, viz. :-	
Barley (for malting), 14 seers	Rs. 0 8 0
Sugar, $\frac{1}{2}$ maund, of 25	2 8 0
Hops, H., fuel, labour, &c.	1 0 0
	Rs. 4 0 0

which is about six annas and five pice per gallon, to which, if we add three annas and seven pice for carriage per cart to Bangalore or Trichinopoly, and to cover incidental expenses, we have 10 annas per gallon for the cost to the men, when issued to them from the cask in canteen.

The importance, in my estimation, of this subject induced me when in India to persevere in experiments, in spite of numerous failures and at considerable expense, and I was most anxious to continue them, if I could only hope that they might eventually bring about the object at which I aimed, and that Government might be induced to look favourably upon them, and give support to the scheme.

In the manufacture of fermented malt liquors there are so many expedients to which resort may be had to communicate to the product the peculiar character or quality which circumstances may render desirable, that I felt confident that having overcome the chief and great difficulty in the process, viz., the production of the vinous fermentation, without undue acceleration in its action, I should have been able, by the adoption of practical suggestions, to make beer brewed in the Neilgherry hills preserve its soundness and wholesome taste for any length of time which it may be desired.

The beer which I manufactured there could not be considered by any means a fair sample of what might be produced on those hills, were the process to be carried on upon a large scale with proper utensils, and I must add, by persons more practically acquainted with its details than I could pretend to be.

"sweetness in it which is probably owing to its being so recently brewed."

Major Hands, commanding 2nd L. I., now 107th Regiment, says, "The men like the beer, and I think that the undertaking will succeed if full encouragement were given to the brewery."

Major General Kennett writes "I have tasted the beer brewed at Kotergherry by Captain Ouchterlony, and pronounce it a sound, well-fermented, and pleasant drink, very similar in taste to the ale sold at public houses in the country in England."

Mr. E. F. Elliot, Superintendent of Police, Madras. "I first tasted Captain Ouchterlony's beer at Kotergherry, in the middle of last year, when I thought it a pleasant drink, but very light; however I must mention that I took several bottles of the same beer to Madras, that it stood the journey well, and that it met the approbation of those who tried it. Last month I had opportunity of judging a recent brew, which has a decided improvement on that of last year, more body with fine flavour, similar, in my opinion, to home-brewed beer in England, only more potent."

Surgeon Taplin. "Having tasted some of Captain Ouchterlony's last brew of beer, I am inclined to pronounce most favourably. It is in my opinion a very palatable but somewhat potent drink, likely to keep well."

The Rev. J. Griffiths, A.M., "I have tasted Captain Ouchterlony's beer on several occasions; the first sample, nearly a year ago, I disliked very much, being too new; the two or three last were such an improvement on the former, that I could barely distinguish it from college ale, and the last sample strongly resembles what is called in London Llangollen ale. I certainly preferred it to Bass's or 'Allsopp's'."

Major General Dyce. "I have tasted some beer sent to me by Captain Ouchterlony, and which I understand has been lately brewed. It appears to me a sound, palatable, good liquor, and resembles, both in smell and taste, the common English ale, but much stronger."

Sir Henry Pottinger, Governor of Madras, observes—"The sample which I have tasted was extremely good." The Madras Council expressed their opinion to the Court of Directors that it was "very desirable the experiment thus commenced should be continued on a larger scale."

The necessary buildings for a Government brewery there would cost a mere trifle; all the operative part of the process would be carried on by cool labour, rendering but a very small fixed establishment necessary; the casks in which the beer and porter would be sent to the plains could be returned filled with sugar, and while every possible expense to Government would be covered by a very small per-centage on the prime cost, a stimulus would be given to the industry of the cultivators of barley and sugar-cane, which by causing an increase to the revenue of those provinces, must render such an establishment a source of absolute though indirect profit to the State.

The first beer I made was brewed solely from hill malt, and the quality was in consequence very poor indeed; but upon observing that it had been hailed as a boon in England by the poorer classes and by the brewers, that the Legislature had accorded permission to the latter to employ raw sugar in their breweries, it occurred to me that if an article which is a staple commodity of India could thus be profitably returned to the East in a form which required only a low temperature, a simple process, and a trifling admixture of hops to produce, we had on the Neilgherries every element save the last, necessary to its exhibition at an infinitely small cost.

Even under the last head the difficulty appeared likely to vanish, since a supply of hop sets then sent out to me from the India House almost all struck, and grew with apparent vigour.

Excellent malting barley was also raised on waste lands on the Neilgherries from seed sent out for the purpose by the Honourable Court of Directors; and a sample of the crop having been sent home for inspection, it was pronounced in Mark Lane to have deteriorated from the original seed in quality only two per cent.

The question of establishing a brewery might, therefore, now be in a state that might induce some capitalist to enter upon the speculation, if aware of the great and increasing demand for this important article of consumption among European troops stationed in the East.

(Signed) J. OUCHTERLONY.

T. Baker, Esq., Secretary to the Royal Commission on the Sanitary State of H.M.'s Indian Army.

RETURN of the Quantity (hogsheads or gallons) of MALT LIQUOR sent to INDIA for the use of EUROPEAN TROOPS, under Contract to Government, during the Years 1856, 1857, 1858, and 1859: and of the Invoice Cost of the same for each Year respectively.

Years.	Porter.		Ale.		Total.	Cost.
	Hogsheads.	Gallons.	Hogsheads.	Gallons.		
1856	20,249		685		20,934	89,214 17 4
1857	36,742		11,180		47,920	202,823 11 2
1858	102,962		48,369		151,331	736,557 18 3
1859	72,572		40,354		112,926	517,815 6 9

The amounts representing the cost of the malt liquor comprise the freight to India, which by the terms of the contract is included in the price charged.

RETURN of PECUNIARY LOSS incurred by Government to admit of the Contract Beer being issued to the Troops at a rate low enough to place it within the means of the private soldiers.

Years.	Bengal Army.	Madras Army.	Bombay Army.
1855-56	£77,212	No returns.	
1856-57	32,459	4,368	No returns received.
1857-58	39,852	4,887	
1858-59	No returns.	6,098	

SKETCH of "CURLEW ISLAND," or CALAGOUK, with a Letter from Captain FRASER, of the Engineers, whose duties in connexion with the erection of the LIGHT HOUSE on the ALGUADA REEF have taken him much to the Island.

Calagouk or Curlew Island in the Bay of Bengal, as a Sea Coast Sanitarium.

In the course of my inspections of the several stations of the army during the past three and half years, I have submitted to Government my views of the beneficial effects to the European constitution, in health and in convalescence, from disease, of a residence on elevated mountain ranges, as a prophylactic remedy under peculiar states of the system. I pointed out during the progress of my tour, how peculiarly favoured the presidency of Madras is, in possessing elevated ranges contiguous to the chief military posts, and I selected certain places on the coast as the most eligible which came under my notice as a place of resort for invalids, whose health would appear to derive benefit by a residence there.

2nd. There are however certain disadvantages in all sea coast localities situated on the main land and possessing no elevation, such as the absence of sea breeze and the deleterious effects of land wind passing over miasmatic or exten-

sive tracts of low arid plains at certain seasons, from which an island of moderate dimensions is comparatively free when placed in the midst of the ocean, possessing bays, sandy beaches and an undulating surface—a good water supply and capabilities for draining.

3rd. The subject of sanitarium for European troops stationed within the tropics has engaged my special attention for many years—but hitherto I have in vain searched for a locality such as I have now adverted to. There is no place answering the description contiguous to the vast line of coast between Bombay and Calcutta, and in the straits of Malacca; although the Island of Penang certainly possesses very many advantages, it has also its disadvantages. It has no protected sandy bays, and the low land is so little above the level of the sea that it is incapable of efficient drainage. Hence "the hill," which is upwards of 2,000 feet high, is the only place of resort for invalids, and it is surrounded by such an extent of forest and low land, that it cannot, strictly speaking, be viewed as a sea coast sanitarium. It

is, moreover, too distant from our possessions in India to make it a place of general usefulness.

4th. During my inspection of the Pegu Province, I learned that European invalids of all classes, when they require a change, are sent to the coast and thence transported to Madras, at a great cost to the State in money and in loss of service, and no place in India can be worse adapted for sick men than the depôt at Poonamallee, where these invalids are sent (*vide* my report on that locality). There are insuperable obstacles to the establishment of mountain sanitarium within, or contiguous to the British possession in Burmah; such desirable localities being situated in inaccessible positions, both as regards difficulty of communication and distance from stations, insalubrity of intervening low country, want of population and supplies, en route. Our existing well tried sanitarium in India, ought, therefore, to be the sole place of resort for European invalids, whose constitutions benefit by a residence on elevated localities, and to this end, as regards the Pegu Province, the object of Government should be to improve the communication from the frontier stations to the sea, and to establish a sea coast sanitarium in a convenient position for such as are likely to benefit by a residence there.

5th. The wonderfully remarkable sanitary condition of all European residents in the interior and on the sea coast of Burmah, the extent of that coast and the group of islands which stud its shores from Amherst to the Mergui Archipelago, naturally drew my inquiries in that direction for an insular or marine station suitable for all India. I was thus brought into communication with Captain A. Fraser, of the Engineers, Superintendent Alguada Reef Lighthouse, now under construction, an officer fully acquainted with the sea board of Burmah. Duty obliging Captain Fraser to proceed in the direction of Mergui, he very obligingly agreed to afford me an opportunity of personally inspecting the line of coast and islands contiguous—and on my solicitation he cheerfully acceded to co-operate with me in the important field of inquiry which engaged me—thus aiding me with much valuable practical experience in his professional capacity, acquired in a career of twenty years in selecting and laying out sites for the cantonment of troops and in the construction of barracks.

6th. *Amherst* was the first place we visited, and, in the absence of an island sanitarium, there is no doubt that it presents the most eligible site on the coast. In form it is a promontory of land washed on one side by the sea, and on the other by the Moulmien river as it disembogues into the sea. It is well elevated, and possesses an open porous sub-soil, beneath a clayey superstratum. But it has the disadvantage of dense jungle and swampy ground to the north east and muddy water on the river and sea sides—yet with judicious clearing and draining, *Amherst* would doubtless, become a very desirable coast locality for invalids.

7th. *Calagouk* or "*Curlew Island*."

The Moscos, contiguous to the mouth of *Tavoy* river, *Tavoy Island*, half way between *Tavoy* and *Mergui*, and *King's Island*, opposite *Mergui*, came respectively under our inquiries.

Of these the first which occupies the subject of this report is that in every respect the most suitable for a sanitarium.

8th. *Curlew Island*, the head quarters of the Alguada Reef Lighthouse establishment, is situated in the gulf of *Martaban*, thirty miles south of *Amherst* point, in latitude $15^{\circ} 52'$, and in longitude $97^{\circ} 42'$. It is eight miles long, exclusive of *Cavendish Island*, which lies at its extreme south end and which is half a mile in length.

The greatest breadth of the island is about one and a quarter miles; and on its highest part, which is about 500 feet above the sea, are the "remarkable trees," a point for navigators in making the coast, laid down in all charts.

9th. The base of the island is primary rock, the superstratum being a rich mixture of open porous soil, composed of sand and vegetable mould. Its formation is very peculiar—the northern and southern portions differing considerably. The northern half, on the western side, is composed of a long granite ridge, with an average perpendicular drop to the sea, varying from 200 to 300 feet. To the least the

ground descends to the sea in gentle, or abrupt slopes. The opposite side of the island is broken into alternate or isolated hills, with level well raised, the intervening spaces forming three bays; the first, *Quarry Bay*, where the stones are now being prepared for *Alguada Lighthouse*, is the deepest. At high water the beach is sandy, but at ebb-tide, an extensive mud flat, covered in places with mangrove, is exposed; the somewhat narrowness of the channel between the island and the main land on this side, tends to the accumulation of mud.

10th. The southern half of the island differs entirely from the northern, inasmuch as both sides are broken into bays. To the west, *Retreat Bay*, *Rocky Bay*, *Sea Bay* and *Fish Bay*, are beautiful, hard, sandy beaches, well protected by high land on each side, and open to the ocean, with a fine rolling surf on the beach, and only divided from one another by projecting rocky points; and from the corresponding bays on the eastern side by well raised necks of land, sloping east and west, free from all swampy ground and ascending north and south to the hills which divide the bays. The eastern bays look over *Bentick Sound* on the distant main land, rising in bold outline on the horizon. These very much resemble the western bays, in fact differ only by the mud uncovering at half tides—the rise and fall at spring-tides being 22 feet. All the bays on the eastern side are perfectly protected from the south-west monsoon, while during the north-east monsoon, the bays on the western side and the deep water close up to the ridge on the north, afford a free, open, and safe place for yachting and boating. The bays on both sides are peculiarly well suited for bathing, the water on the western side especially being always pure and clear.

11th. Ascending from *Retreat Bay*, the ridge referred to in paragraph 9 is reached. This ridge, and, indeed, the entire island, is clothed with fine primeval forest, with trees of immense dimensions and height. Under their overshadowing branches, a well shaded road might with ease be carried along the ridge, having the open ocean on one hand, with a view of the fine contour of the island itself, and the bold coast of the *Tenasserim* provinces in the distance beyond on the other; here and there, this ridge opens out into plateaus, forming beautiful sites for houses; and with the exception of a slight rise about the centre, the road would nearly run on an uniform level for a distance of five miles. The same road might thus be extended to the southward, encircling the bays and crossing the intervening points of land, and also to the northern part of the island, where there is a considerable space of garden and cultivable ground. The free percolation of air by means of these roads, judicious clearing for building sites, and the adoption of measures to facilitate the natural drainage, two or three years prior to the occupation of the island for sanitary purposes, are measures of the highest urgency and importance.

12th. The island has now been occupied by a large party of workmen since April 1860. Usually the pioneers or first settlers in every locality suffer considerably, especially when no prior arrangements have been made to guard against disease. In the present case, a large body of natives of *India*, *Burmah*, and *China*, European officers and subordinates, entered on operations of a harassing nature at the hottest season of the year. *Quarry Bay*, where they settled, is, sanitarily considered, by no means the best locality to settle on, but the presence of good stone, and the facilities for shipping these to the reef, induced the superintendent to fix his head quarters here. I append a Return of the strength of the establishment, the prevailing diseases, and the mortality from the 30th April 1860 to 30th April 1861, from which it will be observed that, everything considered, the sick and death rate have been unusually small. It must be borne in mind that the party for many months had little or no protection by night or by day, and that their huts occupied unwholesome sites in the midst of felled jungle; yet the report presents a gratifying immunity from the graver diseases. The fevers were chiefly of an ephemeral nature, the sick list being kept up by local injuries and their results, diseases not contracted on the island, and cutaneous affections from the want of antiscorbic articles of diet.

DAILY AVERAGE per cent. of prevailing DISEASES from 30th April 1860 to 30th April 1861.

	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March.	April.	Averages.
Strength	212	209	295	367	400	433	495	502	480	480	705	710	440
Dysentery	.09	2.07	—	—	—	—	.10	.36	—	.14	—	—	0.23
Ulcers	.07	5.1	8.1	4.1	5.5	3.8	2.6	3.5	4.1	2.1	2.08	3.64	3.38
Fever	0.8	1.0	0.9	1.10	1.2	3.5	3.4	4.9	4.1	4.1	2.3	1.55	2.17
Other diseases	5.05	8.61	6.13	6.14	7.05	8.01	4.25	8.99	8.30	16.74	11.99	22.22	6.13

There were nine deaths during the year from diseases contracted on the island, viz. :—

Three from dysentery in January,
Three from fever from exposure,—one in July, one
in November, and one in January,
Three from accidents and other diseases.

No deaths occurred amongst the Europeans.

13th. During my residence on the island, in the months of May and June, the climate was exceedingly agreeable. The nights were cool, and no punkahs were necessary during the day; in fact, a refreshing sea-breeze was present at all times in every part of the island visited by me during the day, and a blanket was always grateful at night. The average thermometer at this period during the day was 75°; during the hot weather it is 88°, and Captain Fraser speaks in glowing terms of the climate at all seasons as compared with that in Calcutta. Water of an excellent quality is procurable at a depth of 15 feet, and a perennial spring of sweet water flows through the centre of the island. The rain fall, Captain Fraser thinks, is under that experienced on the main land opposite.

14th. One great advantage of this island is its proximity to Madras and Calcutta and to the principal stations in Burmah. The large town of Yea, and the village of Lemyne, are on the opposite main land, from whence small boats with supplies are constantly arriving, and as it is on the direct line of communication between Calcutta and the ports of Tavoy and Mergui, with properly arranged communications, there need be no difficulty in furnishing it with supplies. China junks bring fruit and other articles to the island, and fish of an excellent quality is procurable at the bays.

15th. Besides affording many beautiful localities for private houses, abundance of space is available for 1,000 men on eligible sites. But the planning and laying out of the island, so as to turn it to the best advantage, must be placed in the hands of a person well acquainted with its capabilities and who has an interest in the work. Captain Fraser's other duties constrain him to reside on the island for many months of the year;—we have gone together all over it, and by his report, which accompanies this, it will be observed how fully he concurs with me in its capabilities, and that with the sanction of Government, he is willing to undertake the superintendence of the preparatory improvements above recommended. No one is better qualified to undertake this important duty than Captain Fraser, for, in addition to his practical knowledge as an engineer, he takes a deep interest in the improvement of the place, with the view to its future occupation as a marine sanitarium. I beg, therefore, to recommend that Government avail themselves of the opportune residence of this able officer on the spot, and place a grant of money at his disposal, with full power to expend it to the best of his judgment. Mr. Cromarty, the surgeon in charge, an able and observant medical man, proffers his assistance in keeping careful meteorological observations, or in any other way that Captain Fraser may employ him.

16th. As I have already observed, no place has come under my observations within these tropics, during a long period of close inquiry, possessing the numerous advantages for a "watering place" or a marine sanitarium which this island presents. The equability of its climate, its protected sandy bays and beaches, and its pure sea-water, with the whole expanse of the gulf in front, make it a peculiarly desirable locality for bathing purposes. The numerous means of recreation that always present themselves on the sea-shore, its excellent water supply, well raised surface, eligible sites for buildings, and the fertility of its soil, its moderate dimensions, whereby the entire island can with ease be kept under satisfactory hygienic control, and the facility of its approach at all seasons, and above all, its already proved excellent qualities as a sanitarium, under many disadvantages, mark it as a most promising locality, especially where structural disease is threatened, and demand that Government take an interest in its development. In conclusion, I may state that no case of sickness or death has occurred amongst a large number of women and children, families of the working residents, since the first occupation of the island.

An eye sketch of the island accompanies this Report.

(Signed) D. MACPHERSON, M.D.,
Inspector-General of Hospitals,
Madras Establishment.

Office of Inspector-General of Hospitals,
Curlew Island, Gulf of Mataban,
24th June 1861.

From Captain A. Fraser, Royal Engineers, Superintendent
Alguada Reef Lighthouse, Curlew Island, (Calagouk,)
4th June 1861, to the Inspector-General of Hospitals,
Madras Army.

I have the honour to acknowledge the receipt of your letter, No. 32, dated 27th May 1861, in which you requested a passage in the steamer *Setang* to Tavoy and Mergui, and desired my co-operation in the prosecution of your inquiries as to a fit position for the establishment on this coast of a sanitarium for the European invalid soldier.

2. My duties calling me to Tavoy enabled me to do as you wished, and it has given me much pleasure to afford you such information as my experience on this coast enabled me to give. I have since read your report, received with your letter, No. 35, of this date, as regards Calagouk, or Curlew Island, and I go with you in every word you have said on its capabilities for the end you have in view, and am of opinion that it is superior in position, in accessibility, in its moderate and therefore controllable size, and in the great variety of hill and dale, sandy beaches and perpendicular cliffs, to any place which I know on this coast for the purpose of forming a delightful and healthy residence for the European.

3. On the 1st September 1860 I had the honour of addressing the Secretary to the Government in the Public Works Department on this very subject, and I submitted to you a copy of the paragraph of my letter which specially referred to it. The Government passed no orders on that part of my letter, probably because it only formed a part of my regular half yearly report, and the matter was not brought specially to notice; and I have not since adverted to it, partly because the sickness of my workpeople, after last rains, was rather more than I had expected, partly because I felt that my remarks on such a subject would carry with them little weight, unsupported by eminent medical authority.

4. When you proposed to accompany me on my trip to Tavoy, I felt that I should have an opportunity of showing you the capabilities of this island, which I knew, from my own practical experience, were very great, and of securing, if I was right in my own judgment, that opinion which was alone necessary to cause the Government to appreciate the value of this island as a sea coast sanitarium. My only doubt was as regards Tavoy island, which I thought might be more suitable. I had never visited it, but had heard good accounts of it, and as one of my lighters had to go to Mergui, I was glad to tow her down, visiting with you that island "en route." I quite agree, however, with you that it is in no way equal to Calagouk for the purpose you have in view.

5. You have explored this island in a more complete way than I myself have ever had time to do before; you have carefully examined into the cases of sickness which have occurred in the hospital, and I am very glad to see that you came to the conclusion that such disease as we have had does not arise from the unhealthiness of the island, but from the nature of the work and the peculiarity of our position. All places are more or less unhealthy in Burmah, according to my experience, on their first clearance, and I have been obliged, to a great extent, to place my people with reference to the work they had to do, rather than to their sanitary condition. Had I had more time I might have placed them better, but the work I have now in hand is so far advanced, that it would be a pity to move, if it can be avoided; and with the advice I have received from you, I have no doubt that next year we shall not suffer so much even from the light diseases which troubled us last season. The state of the hospital at this very time could scarcely be more satisfactory.

6. Those who come here and go no further than the small space upon which my establishment is settled, know nothing of the beauties or capabilities of Calagouk; and those who only look at the number of sick, without going into the causes of disease, or making themselves acquainted with the constant exposure of all hands, both at the reef and at this island, are apt to think the situation unhealthy—but both the fever and the ulcers, the chief diseases from which we have suffered (the ulcers confined, however, only to the natives), may be traced to the nature of the work. Men come down here without any better clothing than they are accustomed to, and the constant cool wind which blows here gives them cold, and slight fever, and ague, while the constant working among sharp stones, causes bruises and abrasions of the skin, which, without a good vegetable diet, are apt to turn to ulcers. You are aware that the difficulties about vegetables can be overcome, for I know of no place which affords such facilities for gardening when the ground has been cleared. There would be no fever either, were sufficient time allowed for the malaria, con-

sequent on the clearance, to pass away before men were located here.

7. If the Government saw fit on your report to adopt this as a sea coast sanitarium, I do not see that much cash expenditure need be gone to. I should be most happy to take general charge of the work, and if I were allowed another assistant, a smart young infantry officer who has passed for the department, I could well work the thing out, according to your views, with 200 convicts (who could be kept separate from my own workpeople, to the south of the island) from Moulmein. These I have no doubt Lieutenant Colonel A. Fytche, the Commissioner of the Tenasserim and Martaban provinces, would willingly consent to give, as it would tend so greatly to the general improvement of the provinces under his control—but in my opinion no large bodies of troops should be located here till the third year after the clearance of the jungle, though it will be doubtless possible to erect private bungalows at a much earlier date.

8. I have already done a little towards opening up the island—the quantity of wood I require for my steamer enables me to do so—I shall be truly happy if the Government allow me to do more, as I shall feel that I shall be doing that which will prove a lasting benefit to the European community and soldiery of India.

9. So accessible is Calagouk that, were it properly laid out, and well known, I feel sure its pure air and sea bathing, combined with the beautiful scenery, would induce all, whether from Calcutta or Madras, or the chief towns and stations of Burmah, to make it their resort for the renovation of health, whether of mind or body.

10. In conclusion, I beg to thank you most sincerely for the trouble you have taken, and the advice you have given, for the improvement of the sanitary condition of our present settlement, and I have no doubt that by carrying out the measures you have suggested, as far as our means will allow, we shall reap the benefit thereof by improved health next year.

REMARKS by Lieut.-Colonel J. E. ROBERTSON, commanding 1st Battalion, 6th Royal Regiment.

SIR,
New Barracks, Gosport,
7th August 1862.
HAVING commanded a wing of my regiment eight months on the Darjeeling hills, I consider that the efficiency of the Army in India would be wonderfully increased if a portion of it could always be stationed on some hill station.

The benefit that was experienced by the wing of my regiment during the year it was stationed at Senechal, on the Darjeeling hills, was incalculable, as the following statement, showing the admissions into hospital of the men of my regiment at Senechal and at Barrackpore in 1861, will prove.

RETURN showing the Sickness of the Wings of the 1st Battalion 6th Royal Regiment quartered at Barrackpore and Darjeeling during the Year 1861.

		Strength.	Fevers.	Dysentery.	Hepatic.	Pulmonic.	Rheumatic.	Diarrhea.	Ophthalmia.	Skin Diseases.	Ulcers.	Gunshot Wounds.	Other Injuries.	Veneral.	Punished.	Other Diseases.	Total.	Average Daily Sick.	Ratio to Strength per Cent.
January	Barrackpore	492	12	11	3	7	4	17	2	-	-	-	-	30	-	30	116	52.9	10.7
	Darjeeling	398	12	3	1	7	3	9	-	-	1	1	-	4	-	3	44	15	3.8
February	Barrackpore	498	11	1	-	2	2	6	-	-	-	-	-	9	-	8	40	45.2	9
	Darjeeling	387	2	-	1	5	2	1	1	-	-	1	-	4	-	-	17	8.5	2.2
March	Barrackpore	479	9	5	4	2	9	22	2	-	-	-	1	6	-	9	69	38.8	5.1
	Darjeeling	386	1	5	1	2	3	1	-	-	-	-	-	2	-	3	18	9.8	2.5
April	Barrackpore	478	26	6	2	1	4	26	-	-	-	-	-	12	-	13	90	51.2	10.7
	Darjeeling	384	7	1	1	3	-	-	-	-	-	-	2	4	-	1	19	8.3	2.2
May	Barrackpore	472	17	6	1	1	-	27	-	-	1	-	-	7	-	18	78	43.4	9.1
	Darjeeling	389	6	-	-	1	2	1	-	-	-	5	4	4	-	5	24	14.7	3.7
June	Barrackpore	470	24	10	-	3	1	26	1	-	-	-	-	1	1	14	81	38.3	8.1
	Darjeeling	388	4	1	-	-	-	2	-	-	2	-	1	14	-	1	24	17.7	4.5
July	Barrackpore	470	27	10	-	5	4	50	1	5	-	-	-	10	-	32	144	61.6	13.1
	Darjeeling	386	5	-	-	4	4	4	-	-	-	-	-	7	-	5	29	27.8	7.2
August	Barrackpore	464	21	16	3	4	6	20	-	2	1	-	-	10	-	17	100	59.1	12.7
	Darjeeling	386	7	-	1	-	3	1	-	-	-	-	-	8	-	2	22	20.1	5.2
September	Barrackpore	457	28	11	2	4	2	15	1	-	-	-	-	3	-	10	76	48.6	10.6
	Darjeeling	387	6	1	1	7	-	3	2	-	-	-	1	5	-	6	32	21.1	5.5
October	Barrackpore	455	16	8	-	3	-	16	-	1	-	-	-	1	-	11	56	37	8.1
	Darjeeling	386	5	1	1	-	1	3	-	1	1	-	2	7	-	9	31	16.5	4.2
November	Barrackpore	448	9	8	1	3	4	11	-	2	-	-	1	2	-	19	60	33	7.8
	Darjeeling	385	1	-	-	3	1	-	-	-	1	-	1	3	-	2	12	13.2	3.4
December	Barrackpore	448	12	4	-	1	-	4	-	-	-	-	-	6	-	10	37	26.5	3.1
	Darjeeling	385	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

No hospital on the march to Barrackpore.

N.B.—In 1860 the average proportion of officers absent from the Regiment on sick certificate was 9.77 per cent., the proportion of men 3.33 per cent.

A. PEILE CAHILL, Surgeon,
1st Batt., 6th Royal Regiment.

A regiment should be located on the hills during the hot weather and rains (or say, for one year, so that the men should enjoy the frost and snow,) once in every four years. If a regiment, or even a wing of a regiment, was quartered on the hills, I consider that the convalescent establishments might be abolished, and that the invalids who are sent up periodically to the hills for change of air might be attached to the troops stationed there. This would be a great saving to Government, and the invalids would be equally well cared for. The climate of the Darjeeling hills is superior to that of England. The men are as robust as they are at home, and they should be required to perform the same offices for themselves as they would be in England or in the colonies. The native establishment allowed by Government is not necessary on the hills, and if dispensed with would also be a great saving to the State. The soldiers should be obliged to cook, and their wives to wash for the men as they do at home. The expense of feeding the troops in the

hills was very great in 1861; this was owing to the commissariat not being prepared for so large a number of men being stationed there, and also from the food being carried up on coolies' backs. Roads are, however, now being cut through the hills, and the expense on that head will soon diminish. Soldiers suffer much from ennui on the hills (especially during the rains, when they cannot move out of their rooms) and as exercise is indispensable to their health, workshops should be encouraged as much as possible. The men could repair barrack furniture, barracks, and drains, which latter are constantly getting out of repair from the heavy rains which wash away portions of the road. Reading rooms, gymnastics, coffee rooms, &c., are indispensable at all hill stations.

(Signed) J. E. ROBERTSON, Lt.-Col.
To Sir R. Martin, C.B., F.R.S.,
&c. &c.

Dr. A. Campbell, late Civil Superintending Surgeon at Darjeeling, has informed me that during the Sikkin campaign in 1861, the 1st battalion of the 6th served under Lt.-Col. Gawler through February and March without attendants of any kind, and even without tents. The

regiment returned to Darjeeling in perfect health, and so remained until Dr. Campbell's departure six months subsequently.

J.R.M.

EXTRACT from REPORT of the PRINCIPAL INSPECTOR-GENERAL MEDICAL DEPARTMENT, FORT SAINT GEORGE, 3rd February 1862, No. 18, to the ADJUTANT GENERAL of the ARMY, FORT St. GEORGE.

THE large military station of Secunderabad was some years since notorious for the prevalence of syphilitic diseases, but for some years past, a system has been in force, of sending diseased females to the Civil Dispensary for treatment, and the result was on the whole so satisfactory, as to lead Government to establish similar regulations for other military cantonments. During the year under review, venereal disease at this large station was no doubt kept down by the existence of the Lock hospital. From the medical officer's report, the form of disease at this station is stated to be chiefly of a mild nature, and this has, no doubt, resulted from the care with which the diseased women have been treated, for some years past.

At Bangalore, a large number of women have been treated. The building is too small for the purpose of a hospital, and was over-crowded. An epidemic of cholera broke out amongst the inmates (the disease being prevalent at the time in the station) several of whom died. At this station there has been a lengthy correspondence in reference to the proper duties of the police, and of the officer in charge of the Lock hospital, which it is unnecessary now to refer to, as under the new regulations, approved of by the military authorities and the acting Commissioner of Mysore, the institution is working well, and venereal disease diminishing amongst the European soldiery. The "voluntary system" has had a fair trial at Bangalore, and has utterly failed to check the ravages of syphilitic diseases. The large expenditure at Bangalore and Cannanore for perishable articles and diets in comparison with similar institutions elsewhere, will doubtless attract notice. The attention of the medical officer has been called thereto, and explanation requested.

The Lock hospital at Cannanore during the short time it has been in existence, has worked well, and a decrease in the number of venereal admissions amongst the European soldiers has been the result. The cost of dieting, however, has been high.

The hospitals at Trichinopoly, Wellington, Bellary, and Vizagapatam, it will be apparent from the observations of the various medical officers, have in the short space of their existence effected much good, and I have no hesitation in recommending the introduction of similar establishments wherever European troops are located, and especially in the several stations of Burmah, where from the recent importation of numerous prostitutes from the Coromandel coast, venereal diseases are on the increase.

The good to be effected by Lock hospitals must, in a great measure, depend upon the cordial co-operation of all officers of Government concerned in promoting the welfare of European troops. The necessity for some well defined regulations touching the conditions on which prostitutes are permitted to reside within range of European troops, is apparent. The regulations now in force at Bangalore appear to have been judiciously framed, and if acted up to, will leave little or nothing to be desired. Copy of these is appended. The rules appear to be well adapted for all stations where military and civil come into contact.

Extracts from Reports of Medical Officers in charge of Lock Hospitals.

Bangalore.—Stringent measures are quite as necessary here, as elsewhere, and unless some principle be adopted for the registration, examination, and treatment of the prostitutes who overrun this cantonment and garrison, it is quite impossible to preserve the troops from the maladies, which destroy the vigour and undermine the health of the soldiers at this station; whereas it is shown that the troops quartered at Brussels, where such stringent regulations exist, are preserved almost wholly free from the maladies which constitute one-third or more of the total sickness of the

English army. It therefore rests with the authorities to initiate some such principle of action *without delay*, under the control of the officer commanding the division, and under properly defined police regulations, which do not at present exist.

Trichinopoly.—That the Institution has been attended with a fair portion of success, and has lessened the prevalence of venereal disease amongst European soldiers, is satisfactorily shown by comparing the admissions under that head, in the 2nd European light infantry, for the years 1859 and 1860, viz., 207 admissions in 1859, and 129 in 1860; showing in the past year a decrease of nearly one-half. It is to be regretted that a similar comparative return of the European battery of artillery stationed here, cannot be obtained, owing to its more recent arrival.

Wellington.—The Lock hospital at Wellington was opened for the admission of patients June 7th, 1860. From this period to December 31st, 157 cases have been treated, making a daily average of 11½; of these 69 cases of primary syphilis have occurred, four of which were accompanied with bubo; the remainder, 88, were cases of ordinary gonorrhœa. It is gratifying to be able to state that, since this Hospital has been established, venereal disease in every form has been very rare at this station. During the seven months of the year 1860, only 19 cases of venereal were admitted into the hospital 3rd battalion, 60th rifles; 13 cases of syphilis primitiva, and six of gonorrhœa.

Rules for the Police and Lock Hospitals.

1. A Register of all prostitutes who cohabit with European soldiers, and who reside within the limits of the Cantonment, to be kept in the Police Office. This Register to show the name, age, caste, and place of residence of each woman.

2. A copy of the Register to be furnished to the officer in charge of the Lock hospital.

3. Whenever the officer in charge of the Lock hospital, or other medical officer, or an Officer commanding a regiment or company, has reason to believe that any woman, whose name is not in the Register, ought on account of her known habits, to have her name entered therein, he should send a Memorandum showing name, age, caste, and place of residence of such woman to the Superintendent of Police, who will be responsible that thorough inquiry is made into the case, and that her name is entered in the Register if she is found to be a prostitute who cohabits with European soldiers.

4. Neither the police nor the subordinates of the Lock hospital shall be permitted to call upon any woman to allow herself to be examined except at the Lock hospital, and no woman whose name is not in the Register, shall be taken to the Choultry or Lock hospital, except by the order of the Superintendent of Police.

5. There are at present about 108 women whose names are registered. One day in every week may be set apart, upon which one-fourth of the women shall be compelled to attend at the hospital to be examined.

The Lock hospital peons, who should be furnished with a list of names, aided by the police at the various Tannahs, should be employed in personally warning each woman to attend on the day fixed at a certain hour, 7 A.M.

Any woman who neglects to obey this summons, shall be at once apprehended by the police, and taken to the Lock hospital. If she is infected, she will of course be detained, but if not, she will be sent to the Choultry to be fined eight annas.

Should any woman systematically neglect to attend when summoned, she will, after due warning, be expelled from the place.

EFFECTS of the CLIMATE of the DARJEELING HILLS on the CONSTITUTION of EUROPEANS.

By J. C. COLLINS, Esq., Civil Assistant-Surgeon.

In considering this subject, so important in its bearing on the question of the colonization of these Hills, I shall divide my remarks into three heads:—

1st.—The character of the climate.

2nd.—The influence of the climate on the European constitution in its normal or healthy state.

3rd.—The influence of the climate on the European constitution in its abnormal or unhealthy state—especially in

reference to the diseases to which Europeans are liable from a long residence in the plains of India.

1.—*The Character of the Climate.*

The climate of the station of Darjeeling, about 7,000 feet above the level of the sea, the mean average temperature of which is about 54° Fahr., and the average annual fall of rain 124 inches, may be taken as a type of the climate of the whole district above 4,000 feet, allowing for the difference of temperature and moisture of the atmosphere at various elevations. The climate is essentially a temperate one—remarkable for its humidity, equability, and immunity from violent atmospheric phenomena and strong winds; there is, at all times of the year, more or less cloud and fog, and in the rains the atmosphere constantly attains the point of saturation. The amount of mist and cloud has, however, very much diminished of late years, in consequence of the extensive clearing of forest which has taken place on all sides for the purposes of cultivation.

The year may be conveniently divided into three seasons—the Spring, the Rainy Season, and the Winter.

The Spring commences in March and terminates about the end of May, the average temperature being about 55°, and the greatest variation in any 24 hours 12°. This season is marked by the usual characteristics of spring in Europe; the mornings are cold and bright, the days warm and balmy, the birds fill the forests with their cheerful notes, and all nature is ready to burst into life. Storms of rain and hail are of frequent occurrence, accompanied by a considerable development of electricity. These showers of rain, always of a higher temperature than the surrounding atmosphere, are most grateful and necessary after the long drought of the cold season—the country which had become brown and parched is soon covered with the richest verdure. The atmosphere at this time is not generally clear, but filled during the day with a kind of dry mist, which circumscribes the view and diminishes the brilliancy of the sun, indeed, often obscures it. The density of this mist is much increased by being mixed with a quantity of smoke which comes up from the side of every mountain and valley where the jungle is being cleared by burning.

The Rainy Season commences at any time from the 1st to the 15th of June and lasts until the end of September, during which period the average fall of rain is over 100 inches. The rains generally set in with lightning and thunder, but the atmosphere soon becomes calm, and the rain falls steadily for hours, and often for days together, not heavily, but quietly and continuously. There is generally an interval more or less clear morning and evening, and two or three breaks of fine weather occur in the season when the sun shines out so hot and bright as to remind one of its power in the plains below.

There is always at this season, of course, a large amount of cloud, and the atmosphere is often saturated, the prevailing winds being south-east and east. The average temperature during these months is 60°, and the greatest variation in any 24 hours 9°. The climate, from its excessive moisture, is somewhat relaxing, but not unhealthy, especially as long as the sky is covered with clouds and fog, which ensure uniformity of temperature; but if there is an interval of bright clear weather, coughs, colds, and sore-throats are prevalent.

The Winter may be said to extend from the 1st of October to the end of February, when the temperature ranges between the freezing point and 55°—the average of the five months being 46°, and the greatest variation in any 24 hours 12°. This is a truly delightful and enjoyable season. The days are bright, the nights cold, frosty, and brilliantly clear; the air is crisp, bracing, and most pleasant to the feelings. In January and February, however, and sometimes in the latter end of December, the weather becomes thick and cloudy for a few days, and there is, generally, a slight fall of rain or snow; the latter remains only a few hours on the ground, being speedily dissipated by the brilliant sunshine, which is certain to succeed the fall.

It is not to be supposed, however, that because the nights are frosty and snow does fall once or twice in the year, that the winter is a severe one; on the contrary, compared with the European winter, it is very mild—to prove which, I need only mention that, at 7,000 feet, many English vegetables are in perfection. Peas and cauliflowers blossom beautifully, and I have plucked from my own garden in December or January, every year, one or two large well-ripened strawberries. I have appended to this paper an abstract of the Meteorological observations taken four times a day at the Observatory for each month in the year 1857, which gives a very fair idea of the climate.

2.—*The effects of the Climate on the European constitution in its natural or healthy state.*

It would be difficult to imagine a climate more likely, on the whole, to be suitable to the maintenance of good health

in the European than that of Darjeeling. It is temperate, not subject to any great extremes of heat or cold, is out of the influence of malaria, and is not productive of any peculiar class of disease liable to weaken the frame or destroy life. The water is excellent in quality, the mountain air purity itself, and such in reality it is found to be. European adults, both male and female, thrive admirably. The possibility of being in the open air at all times without inconvenience from the effects of the sun, induces habits of active exercise, which render the body muscular and vigorous; the skin is clear, the complexion ruddy, and corpulency is almost unknown either amongst the European or native community.

But it is for children more especially that the climate is peculiarly well adapted. They enjoy the most robust health—their rosy faces, exuberant spirits, and activity of mind and body, show that they cannot be in better physical condition.

Dr. Hooker writes thus:—"I believe that children's faces afford as good an index as any to the healthfulness of a climate, and in no part of the world is there a more active, rosy, and bright young community, than at Darjeeling. It is incredible what a few weeks of that mountain air does for the India-born children of European parents; they are taken there sickly, pallid or yellow, soft and flabby, to become transformed into models of rude health and activity."

I cannot illustrate this part of my subject better than by mentioning an extraordinary fact respecting the health of the children at the Convent, which has come to my knowledge as medical attendant of that establishment. The institution was established 13 years ago, and has had a yearly average of 28 children and 11 adults resident within its walls; yet, during this period, not one death has occurred, nor has it been necessary to send away either child or nun for change of air on account of sickness.

To estimate this fact at its true value, it must be remembered, that very many of the children have arrived from the plains in a most delicate state of health from fever, spleen, dysentery, and diarrhoea, and that most of the nuns have been transferred from the Calcutta Convent as invalids, in some cases suffering from most serious disease. This very satisfactory sanatory condition of the establishment may perhaps, in some measure, be due to the excellent system of management adopted by the ladies at its head, but could not be obtained, under the most judicious and careful treatment, in any but a most healthful climate.

The following table, kindly furnished me by the Lady Superioress, exhibits the number of adults and children resident in the Convent for each year since its establishment:—

CONVENT DARJEELING, Established 1846.

—	Children.	Adults.
1846	6	6
1847	17	5
1848	24	10
1849	28	9
1850	18	9
1851	19	8
1852	26	8
1853	20	7
1854	31	17
1855	36	17
1856	42	17
1857	54	17
1858	48	17
Average	28·30	11·30

3.—*The effects of the Climate on the European constitution in its abnormal or diseased condition.*

The indigenous diseases of Darjeeling are few, and generally mild in character, being chiefly those which affect the air-passages, as is the case in all damp climates. The diseases, however, which are most constantly met with, are those contracted in the plains, such as fever, dysentery, and diarrhoea. I shall proceed to notice these under their respective classes, in reference to the influence of the climate in effecting their cure.

Fevers.—Fevers of all kinds come under treatment, but those of the intermittent type are the most common. They yield rapidly to careful treatment, and the effects of the climate, in restoring the patient to health, are most marked where no organic disease exists.

Eruptive Fevers.—Scarlet fever and measles I have not seen here, though I believe cases of both diseases have occurred in a mild form.

Small-pox is the scourge of the native population of these hills; it makes its appearance, more or less, almost every year about the middle of the winter, being introduced by inoculators from Nipal, who perambulate the whole district, spreading the loathsome disease wherever they go. Europeans do not often get it, as they are protected by vaccination, and are careful to avoid the infection.

Diseases of the Lungs.—Coughs and colds are prevalent at the changes of the seasons, but severe diseases of the lungs are seldom met with. I have not met with a serious case of pneumonia, or bronchitis, or pleurisy in the European, and but few cases amongst the natives, neither have I seen a bad case of croup or sore-throat.

One case only of asthma has come under my observation; it commenced in the plains, and was not at all benefited by a residence of many months in Darjeeling and its neighbourhood; the climate probably, from the rarity of its atmosphere and humidity, is not adapted for persons subject to this obstinate disease.

I have seen two fatal cases of phthisis pulmonalis, one in a half-caste, and the other in a young Lepcha woman, who had led a most dissipated life. The subject of the former case was educated in England, where tubercles became developed, and he was sent to this country for change.

I have treated many suspicious cases, and am of opinion that the climate, from its uniformity of temperature, is decidedly a good one for persons who have, what are called, delicate lungs.

Diseases of the Liver.—Where the disease is only functional, a residence of a few months in this climate is most beneficial, but where there is any considerable organic lesion, little improvement can be expected.

Diseases of the Stomach and Bowels.—Cases of dyspepsia rapidly recover with a sufficiency of exercise in the open air and careful diet. Numbers of the visitors of Darjeeling arrive suffering from dysentery and diarrhoea, and in the majority of cases derive immediate relief; children especially get rid of these diseases in a remarkable manner, and seldom suffer a relapse. Two cases of dysentery have only proved very obstinate—these have existed on and off for three years, but such is the extraordinary effect of the climate on the general health, that the patients have, during this period, attended to their respective occupations almost without interruption, and the disease in both cases seems nearly to have worn itself out.

Diarrhoea, in a mild form, occurs at the beginning of the rainy season, and is to be attributed to the use of impure water for drinking purposes; many of the springs dry up in the winter, and are only called into activity again when the rains commence, by the surface water, which percolates through all the decayed vegetable matter of the forests, and is consequently unwholesome.

This cause of sickness is easily avoided by using water from the permanent springs, which is of the very purest description. Diarrhoea, in a severe form, is not a frequent disease here, and Darjeeling, in this respect, enjoys a very great and peculiar advantage over all the other Himalayan Sanatoria, where it prevails to such an extent as to do away with much of the advantage to be otherwise derived from a residence at those stations. I have not met with a case in any way resembling the disease described, as it occurs at Simla and its neighbourhood, by Dr. A. Grant, in the 1st Vol. of the *Indian Annals of Medical Science*.

Diseases of the Brain.—Persons afflicted with such complaints should not come to Darjeeling for relief, or they will certainly be disappointed; the elevation is too great, and the air too rare. In these cases, headache, a sense of fullness, and vertigo, are always complained of.

Rheumatic Affections.—It would be supposed that the climate of Darjeeling, from its dampness, would be abundantly productive of rheumatic affections, but my experience proves the contrary to be the case. In the dry seasons, there is no reason why they should prevail, whilst in the rains, the evaporation is so slight, that a complete wetting is scarcely ever followed by an attack of rheumatism.

I have seen many cases completely recover, and in one case of severe acute rheumatism, the cure was remarkably rapid and permanent.

Spleen.—Cases of spleen usually do well here, provided the disease has not become hopeless. The accompanying fever soon disappears, the general health improves, and, as a natural consequence, the diseased organ resumes its normal state.

For the last three years the average mortality amongst the European community has been something over one per cent. per annum, that is, out of an average number of about 200 persons residing in the station, there have been seven deaths. This mortality, under any circumstances, small, becomes extraordinarily so when it is considered that the place may be justly compared to a large hospital; the visitors generally arrive either suffering from actual disease or very much debilitated from a long residence in the plains of Bengal; the majority also of the residents are invalid or retired officers who, though they enjoy good health here, have found it impossible to live in the plains.

If we, moreover, analyse this mortality, we shall find that neither of the deaths can be fairly attributed to the climate. They were as follows:—

No.	Disease.	Remarks.
1.	Phthisis pulmonalis -	Arrived in articulo mortis, and died in three days.
2.	Remittent fever, with bronchial complication.	Fever contracted in the plains. The disease of the lungs was of long standing.
3.	Serous apoplexy - -	The third attack seven days after child-birth.
4.	Intermittent fever; the spleen and liver enormously enlarged.	Died about six months after arrival.
5.	Small-pox - - -	Three young children of the same family; they were unprotected; the other members of the family having been vaccinated, recovered.
6.	Small-pox - - -	
7.	Small-pox - - -	

In conclusion, I have endeavoured to give a fair and unprejudiced account of the climate of Darjeeling, and its adaptability to the European constitution, founded on an experience of three years' uninterrupted residence as Civil Assistant-Surgeon, and I can conscientiously say, that although brighter and perhaps more pleasant climates may be found, yet, in point of salubrity, I believe it to be unsurpassed, and I feel sure that the only thing required to make it a favourite place of resort for the European community of Calcutta, and Bengal generally, is a good road to the foot of the hills, with easy and rapid communication.

For statistics of health and mortality amongst the European soldiers at the Jellapahar Depôt, I must refer to the Reports of Drs. Withecombe and Domenichetti, published in No. VII. of the *Indian Annals of Medical Science*.

Darjeeling, February 1st, 1859.

OBSERVATIONS ON VENEREAL DISEASES, with Suggestions for the Amelioration of this Army Pestilence, by WILLIAM ACTON, Esq.

For many years past I have attempted to call the attention of the public to the condition of our soldiers, who suffer so severely and frequently from venereal affections.

I append the following tables taken from my work on "Prostitution, &c." (pp. 38 et seq.):—

"MILITARY HOSPITAL EXPERIENCE.

"ADMISSIONS into Hospital for Venereal Affections among the "Dragon Guards and Dragoons serving in the United Kingdom during Seven Years and a Quarter previous to 1837.

"From the 'Statistical Reports on the Sickness, Mortality, and Invaliding among the Troops in the United Kingdom, the Mediterranean, and British America,' presented to Parliament in 1839, I extract the following table:—

" Syphilis primitiva - - - - -	1,415
" Syphilis consecutiva - - - - -	835
" Ulcus penis non syphiliticum - - - - -	2,144

" Bubo simplex - - - - -	884
" Cachexia syphiloidea - - - - -	4
" Gonorrhœa - - - - -	2,449
" Hernia humoralis - - - - -	714
" Stricture urethræ - - - - -	100
" Phymosis et paraphymosis - - - - -	27

" Total cases during seven and a quarter years -	8,072
" Total aggregate strength for ditto - - - - -	44,611
" Annual mean strength for ditto - - - - -	6,153

" Thus 181 per 1,000, or about one man in five, appear to have been attacked. Primary ulcers on the penis were more numerous than discharges from the urethra, the numbers being 3,559 primary ulcers, 2,449 cases of gonorrhœa; say about one soldier in 12 suffered from the former, one in 18 from the latter, "once during the period."

The above table was printed in the last edition of my work "On the Diseases of the Generative Organs." I

extract the following table from a subsequent report on army diseases from 1837 to 1847 :—

"ADMISSIONS into Hospital from Venereal Disease and Deaths among the Dragoon Guards and Dragoons, the Foot Guards and Infantry of the Line, serving in the United Kingdom from 1st April 1837 to 31st March 1847.

	Cavalry.	Foot Guards.	Infantry.	Total.	Deaths.	Artillery.
Aggregate strength	54,374	40,120	160,103	254,597	—	—
Syphilis primitiva	1,308	4,769	6,157	12,322	1	—
Syphilis consecutiva	463	536	2,085	3,083	8	—
Ulcus penis non syphiliticum.	2,920	883	13,380	17,183	1	—
Bubo simplex	1,495	989	6,635	9,119	1	—
Gonorrhœa	3,725	2,198	12,988	18,911	—	—
Hernia humoralis	1,019	558	2,768	4,345	—	—
Stricture urethræ	131	92	198	421	—	—
Cachexia syphilitica	5	—	7	12	—	—
Phymosis et paraphymosis.	53	18	217	287	—	—
Total	11,205	10,043	44,435	65,683	17	—
Number of men per 1,000 of strength admitted during 10 years.	206	250	277	257	—	463*

That I might judge for myself, of the condition of venereal among the troops in London, during the last twelve-month, Mr. Bostock, surgeon-major to the Scots Fusilier Guards, kindly took me over his hospital, of the arrangements of which I cannot too highly speak. I found, as I expected, that syphilis has been for many years, and continues to be, a very plague in the regiment. During the first few years after enlisting, many a promising young soldier is laid up in hospital with some of these affections. In spite of all the measures hitherto taken to induce men to apply early, large numbers are constantly being sent into hospital and found to be suffering from the severest forms of disease, inducing a long course of mercury, which depresses the vital powers and disposes to other complaints. After a long convalescence, and in spite of all the precautions that can be taken by the medical officers, such men become invalided, and no statistical tables can give any accurate idea of the number of good soldiers thus lost to the service.

The following figures will give some notion of the form of disease existing when I visited Mr. Bostock's wards :—

November 1859.	Remained from last Month.	Admitted during the Month.	Total Treated.	Discharged.	Died.	Total Discharged and Died.	Remained under Treatment.	
Syphilis primitiva.	14	0	20	4	—	4	16	Strength of the regiment of Fusilier Guards in London during the month of November 1859.
Syphilis consecutiva	11	3	14	8	—	8	6	
Ulcus penis non syphiliticum.	70	11	21	10	—	10	11	
Gonorrhœa	9	6	15	9	—	9	6	
Hernia humoralis.	—	4	4	3	—	3	1	
Bubo	18	4	16	7	—	7	9	
Phymosis	—	2	2	1	—	1	1	
Total	58	36	92	43	—	42	50	
							1,500.	

To enable the Commission, however, to compare the diseases as they affect our household troops in London, I append the following table which Mr. Bostock has obligingly obtained for me :—

VENEREAL AFFECTIONS in the three Regiments of Foot Guards during twelve Months, from April 1, 1858, to March 31, 1859.

Strength.	Scot Fusiliers, 1,600.	Cold-stream, 1,600.	Grenadiers, 2,400.	Total, 5,600.	Total in Groups.	Average.
<i>Non Specific.</i>						
Gonorrhœa	118	178	100	403	519	1 in 10
Hernia humoralis.	26	17	52	95		
Bubo	64	59	77	200		
Phymosis et paraphymosis.	1	—	—	1		

* See "Edinburgh Review," July 1858.

Strength.	Scot Fusiliers, 1,600.	Cold-stream, 1,600.	Grenadiers, 2,400.	Total, 5,600.	Total in Groups.	Average.
<i>Primary Symptoms.</i>						
Syphilis primitiva	104	540	556	1,200	1,367	1 in 4
Ulcus penis non syphiliticum.*	116	19	33	167		
<i>Secondary Symptoms.</i>						
Syphilis consecutiva.	36	64	68	168	168	1 in 8
Total venereal treated	465	875	954	2,294	—	—
Total sick treated	1,224	1,762	2,272	5,258	—	—

It appears from the above table that almost every man comes into hospital once a year, or, what amounts to the same thing, the same men enter several times; for we find 5,258 as the total sick treated out of a strength of 5,600 men. The remarkable fact appears that 2,294 of the 5,258 were afflicted with venereal disease. In other words, nearly half the cases admitted during 1859 depended upon some of its varieties; and the no less remarkable deduction from these statistics is, that, could we eradicate it we should at once remove half the complaints for which our London troops come into hospital. If we divide our tables into *non-specific* and *specific affections*, we shall find that the non-specific amount to 519, thus showing that one in 10 men suffers from gonorrhœa and its consequences. The same arrangement proves that every fourth man becomes affected with one of the forms of chancre. If we carry our investigation further, we learn that in the English army secondary symptoms are very common, as out of 1,367 cases of primary syphilis, as many as 168 men subsequently suffered from constitutional syphilis, making it evident that one in eight cases of chancre is followed by secondary symptoms.

The frequency of this form of complaint is no less marked than its severity. Mr. Bostock pointed out to me a soldier in the hospital at Vauxhall, whose body was covered with sores (tertiary ones), following the worst form of sloughing chancre. A case more severe than this could not have existed in the epidemic of the 14th century. It had the character of those sores which occurred in our army during the last Peninsular war and were called by our troops the "Black Lion of Portugal." The frequent occurrence of swelled testicle among our foot guards is another notable fact. If in private practice we were to find that one out of three or even four cases of gonorrhœa was followed by this painful affection, a London surgeon's reputation would be lost; but the fact is, that the soldiers conceal their venereal complaints as much as possible, and it becomes difficult for the surgeon to detect gonorrhœa, which is checked, or attempted to be checked, at its onset by injections. The too common result is, that a man enters hospital with swelled testicle.

THE REMEDIES.

The question will be doubtless put to me by you, as it has been by others, "Do you propose to introduce the foreign system of examining public women into London?" I disclaim at once any such intention. Whatever may be my private opinion of its advantages under despotic governments, I am fully convinced that, however unobjectionable or even positively desirable they might privately think it, such a system would, from the great majority of influential men in and out of Parliament in the present day, meet with public opposition. Nevertheless, it is possible that the present agitation of the matter may, in the course of years, cause some modification of the foreign system to be introduced into this metropolis.

It is idle to deny that one of the greatest difficulties of attempting any remedy consists in the fear of injuring the very morality which a remedy proposes to protect. This fear is felt, and loudly proclaimed by a large number of well-meaning men, who, ill-informed on the causes and consequences of vice, and having their own feelings under control, think that the mass of mankind can, and therefore ought to, and therefore will, exert self-restraint. The result is a kind of apathy that leads even the best men to shrink from action, or even discussion of what they admit is the monster social evil of the day, from a vague dread of some unforeseen moral result. I assume that you do not sympa-

* I am glad to find that this supposed distinction between syphilis primitiva and ulcus penis non syphiliticum is no longer expected from the army medical officers. In a recent minute the late Mr. Alexander, the Director-General, called upon his staff to register all venereal affections under one of the following heads:—Primary syphilis, secondary do., inflammation of the iris, gonorrhœa, bubo, swelled testicle, stricture.

thize with this timidity. We may, therefore, dare here to ask, and endeavour to discover, if there be any remedies within our reach, other than the continental system of regular licensing and periodical inspection.

We must remember the class of men for whom we have to legislate. In reply to my inquiry, Dr. Robinson, battalion surgeon to the Scots Fusilier Guards, says:—"I am now in a position to afford answers to the queries. The serjeant-major quite concurs in the view I expressed to you, viz., that young soldiers, whether good or bad, addicted to drink, or otherwise well-conducted, are all, with few exceptions, equally subject to syphilis in the early years of their service, and accordingly find their way into hospital." He (the serjeant-major) also agrees with me, that "habitual drunkards, and therefore the *mauvais sujets* of the regiment, are more obnoxious to the disease, by falling into the hands of prostitutes more readily. This occurs, perhaps, at a later period, when men have sown, or ought to have sown their wild oats, and settled, as the better set do, into steady soldiers."

The Commission will remark that this picture is drawn by a friendly hand, and is supported by the preceding tables. Continental statistics prove that, as to the young soldier,—French or Austrian, Protestant or Catholic,—his leisure will in all countries be spent in riotous living. This observation is not confined, of course, to soldiers alone. The indulgence of the sexual passion is not confined to any class or condition of life. In spite of education and religious culture, incontinence is a very widely spread evil.

But it is our present business to consider, if (as I maintain) we are unable to do so completely, yet how we may, to some extent, guard the young soldier against the consequences of his evil passions, which, as shown in the above statistics, no fear of consequent disease or of permanent ill-health will induce him to restrain. In answer to the moral objections, I would submit that incontinence and resulting disease are such widely spread and destructive evils that no greater can arise from the introduction of any reasonable preventive measures. All must admit that our efforts have hitherto completely failed. As neglect will not succeed, we are justified in hoping that a scientific investigation will in this, as in other sanitary matters, assist us in devising plans for ameliorating an evil of great importance both in a social and a military point of view.

I stated above that I am in no way disposed to recommend the abrupt adoption of anything like the foreign system, of abating the evil. Nor are we reduced to this alternative. There are several measures which have only been partially tried, and which, were they thoroughly and effectually carried out, would tend towards that end. In the first place, I would offer facilities for local ablation in the different barracks in London. Within the last year I have visited one of the largest of them, and the want of proper accommodation in this respect is very great.

In an extensive underground, dark room, on a raised platform, were arranged large iron basins, in which soldiers might wash their faces by means of cold water drawn from a tap. The only other means of local ablation I could hear of in this, one of the latest erected barracks in London, consisted of five baths, supplied from the waste water of the steam engine. Now I should suggest that in each barrack, but in some secluded part, say near the urinals, a few partitions similar to those at a railway station, should be set aside, where a soldier might retire daily, and, finding the water laid on, make use of a small zinc basin, and employ local ablation, if so disposed, in as much privacy as can exist in barrack life. I shall not stop here to discuss the difficulties attending the introduction of this system; suffice it to say, the plan has been tried and found successful, for it was not long since in operation at the then East India recruiting dépôt at Warley.

My friend Dr. Stewart, surgeon-major at that dépôt, was kind enough to show me the arrangements there, and I would recommend those desirous of seeing a model establishment to visit it.

In a recent communication that officer wrote to me:—"Since the completion of these lavatory arrangements in proximity to the barracks, and the enforcement of their daily use by all the men, as a matter of primary discipline, the fresh cases of venereal disease which come into hospital are all of the most trifling description, chiefly excoriations, mild gonorrhœas or balanitis, which are quickly cured, as well as punished, by six days' hospital diet and stoppages, confinement to a straw bed, and dry lint dressings. The only severe cases admitted have been among

"men bringing the disease with them from the district where they enlisted."

The arrangements, then, that have been found to answer so well at Warley, might, I fancy, be introduced into other barracks with equal advantage and facility.

In all garrison towns of a moderate population I would suggest that the civil and military authorities should come to some understanding about rendering assistance to prostitutes who are publicly known to be diseased.* When soldiers accuse particular girls, or the medical officer finds a sudden outbreak of syphilis traceable to a particular house or woman, on information being given to the civil authorities, they should by their agents offer an asylum to the infected.† Such assistance would, I presume, be thankfully accepted, as prostitutes have no special interest in maintaining their own diseased condition.

If some such understanding as this existed, we should not again witness such disastrous outbreaks of syphilis as are continually happening wherever a body of troops is centred. Here again I can cite a precedent for my recommendation. Sir John Liddell, the Director-General of the Naval Medical Department, in a communication with which he has favoured me, says:—"The lock wards at Portsmouth, which consist of 30 beds, are always kept full by the women that present themselves at the hospital for admission, who require no other recommendation than being syphilitic. The Admiralty have erected the wards at an expense of 1,800*l.*, and pay 500*l.* a year for the maintenance of 20 beds, which our medical officers at Haslar visit regularly. The army authorities pay for the remaining 10 beds under the same conditions as our own, and I am in hopes that we shall establish similar wards in connexion with the Civil Hospital at Chatham which is being erected.

I am of opinion that were such facts, figures, and opinions as I have given above—and they are but a portion of what are ready for collection—thoroughly ventilated, a degree of pressure would follow by professional as well as amateur army reformers, economists, and, in fact, all desirous of an efficient army, to warrant the outlay of public money in two shapes, upon the arrest of this pestilence. In the first place, I would begin by treating the women, who, it seems, are no less potent agents of destruction than shot and steel. I would next advocate, with Dr. Stewart, a regular organized system of ablation (compulsory rather than none, of unmarried soldiers, with very few exceptions.

I have no hesitation in stating, that if these suggestions could be carried out, we should no longer find one in every four men suffering from the primary symptoms of syphilis, ‡ complaint so miserably detrimental to the efficiency of the service.

I indulged a hope some time ago, that the agitation in which I took an active part towards regulating prostitution would have been attended with good results, and thus have somewhat diminished the evils we have to complain of. Now, however, that the agitation has died away, I regret to find that we are again lapsing into our old apathetic system of looking with almost indifference on this national disgrace, and I fear we must wait years yet before we can hope for any general amendment in that direction. But your Commission, regarding the army and its title to preservation from a professional point of view, may possibly arrange special provisions in its behalf, which will no doubt attract the attention and may perhaps prepare the way for farther progress in the same direction.

(Signed) WILLIAM ACTON,
17, Queen Ann Street.

To the Secretary of the
Royal Commission on the
Sanitary State of the Army in India.

* I would wish to remark that this portion of my suggestions is no original, inasmuch as Dr. Robinson proposed to a general officer, two years ago, that somewhat similar precautions should be taken with reference to syphilis at Windsor. His letter will be found in the "Medical Times" for March 12, 1859; and as far back as 1853 the late Dr. Rose published some letters in the "Lancet," advocating the establishment of lock hospitals for the benefit of the service.

† A surgeon to one of our penitentiaries lately told me, that out of 60 women he examined for admission into his asylum (not a hospital) 50 were so seriously diseased, that he could not give his sanction to their being taken into the institution until they had been cured. Every one who has been present at the examination of the applicants to our lock wards at hospitals need not be reminded of the self-evident fact, that the way in which these women neglect themselves or are neglected is deplorable. The most striking instance within my own knowledge is the one which occurred at Windsor, where during the summer before last the 1st battalion of Fusilier Guards was quartered. Out of 600 men, 64 were laid up in hospital with venereal affections. This state of things arose from the infected condition of the women of that town, as was well known to the men, officers, and police authorities, yet, as far as I can learn, no steps were taken by the latter to cure them or diminish the evil.

MEMORANDUM.

During a long period of service in India with Her Majesty's 38th, 16th, 44th, 62d, and 21st Fusiliers, extending from 1822 to 1847, I had ample opportunities of witnessing the effect of venereal diseases in both European and Native troops, being frequently in charge of lock hospitals. I have invariably noticed that just in proportion to the efficiency of these hospitals and their concomitants, the weekly inspection of the bazaar women, was the prevalence or diminution of venereal diseases.

On the abolition of lock hospitals venereal diseases, which were, if not entirely suppressed, reduced to a minimum, rapidly spread broadcast over the country, filling our hospitals with venereal cases, and seriously affecting the healths and efficiency of the troops; indeed the soldiers were so well aware of the advantage of the lock hospitals, that in one regiment (the 38th) the unmarried soldiers offered to contribute one rupee each monthly towards their re-establishment.

On an occasion of visiting my hospital (62nd regiment) at Moulmein, the late Bishop Wilson expressed himself shocked at the preventive measures used, thinking they gave an indirect encouragement to prostitution, but on

seeing my returns, and the good effect resulting from inspection of the bazaar women, and other preventive measures, he gave them his most unqualified approval.

On joining the 21st Fusiliers at Dinapore, in 1842, although lock hospitals and the inspection of bazaar women had long been abolished; the commanding officer approved of my having the native women belonging to the regimental bazaar brought weekly to the hospital for inspection and treatment. The same system was pursued at Kamptee in 1843, 1844, and 1845, at Agra and Cawnpore in 1846, and at Calcutta prior to the embarkation of the regiment for England in December 1847.

I have, therefore, no hesitation in stating that by the means of weekly inspections and treatment of the native women, I was enabled to greatly lessen or keep under the venereal diseases, as can be clearly proved by reference to the statistical returns of the corps.

(Signed) JOHN DEMPSTER,
Inspector-General Hospitals.

To Sir Ranald Martin, C.B., F.R.S.
London, 3rd March 1862.

EXTRACT BENGAL MILITARY CONSULTATIONS,
June 8, 1835, Nos. 15, 16, 17.

MINUTE by the GOVERNOR GENERAL.

Military Department, May 9, 1835.

I BEG leave to lay before the Council the accompanying paper, presented to me by Mr. J. R. Martin, one of the presidency surgeons, the contents of which appear to me to merit attention, and such further proceedings as the Council may be disposed to authorize.

(Signed) C. T. METCALFE.

(Enclosure No. 16.)

1. It is proposed that the medical boards at each presidency be directed to require from all medical officers, civil and military, serving under their orders, a report on the medical topography of the province, district, city, or cantonment, with the localities of which they may happen in course of service to be best acquainted, in which they may be serving at the time.

2. The reports, when furnished from the various provinces, districts, and cities to be collected by a committee of surgeons at each of the presidencies chosen by the medical board, and formed into a memorial, to be printed, and a copy furnished to all staff surgeons and officers of the Quartermaster-General's Department; new additions of the same to be made periodically as the knowledge of the medical topography of the country advances.

3. The following notices are chiefly from the work on military surgery, and that on medical topography, by the late Doctor Hennen, Inspector-General of the Medical Department of the Army in the Mediterranean, who justly considered that to the military surgeon especially, the subject is only second in importance to the right treatment of disease itself; and it were well for our armies if officers, both military and medical, had been duly impressed with this fact, a knowledge of which would have prevented the sacrifice of many lives during almost every campaign that has been undertaken in India, a sacrifice much greater than that produced by the casualties of actual war; as familiar instances of which one need only adduce Arracan, during the late war with the Burmese, and that of the fatal island of Edam off Batavia, from which, as related by Johnson, the officer in command was warned by "an eminent surgeon on the spot, but (without the shadow of reason, military or political) his suggestions were disregarded or over-ruled." The consequence was that (exclusive of seamen) from a wing of His Majesty's 12th regiment "only sixty-two returned out of the whole detachment, the rest having fallen ingloriously without drawing a sword."

4. To these I could add many facts that fell under my personal observation on actual service in this country and in Asia (and one such mistake was committed by one of the most intelligent officers, in other respects, I ever knew); but I need not multiply instances to show how necessary such information is to the safety of troops, and how often our officers are wanting in it; neither need I repeat well-known facts to show how often this ignorance has caused enormous expense in money to Government, though

the abandonment of stations, after the horrible expense in lives had in the first instance been but too well proved.

5. But it is not in war alone that the neglect or ignorance of such subjects is pernicious. The choice of camps and cantonments, if ill-directed, leads to the most fatal consequences; and out of instances beyond number, I shall only mention Berhampore, where, because quarters were once fixed by some person very ill qualified for the duty, men have ever since been crowded, and more Europeans have already been lost there than would be sufficient to reconquer India.

6. Finally, the advantages to all classes of the community of having a record that points out the localities which to choose and avoid throughout the several provinces of India, would be of such obvious public benefit that I need no longer dwell on it; and whilst surveys of all kinds are carried on in every part of the country, something of the kind proposed might easily be executed; and as I feel confident it would be second to no survey in point of utility especially to troops, so it would surpass all of them in this respect, viz., that of being attended with little or no cost.

7. Among the objects of inquiry on which the reports should be particular in the details, I shall select from the works above mentioned a few of the most important; many more may be added according to the talent for observation, or opportunities of the individual reporters; and, by following the arrangement about to be pointed out, a collection of the most useful information may be made in a very short time.

TOPOGRAPHICAL DETAILS.

1st. Situation, boundary, elevation, and mode of communication with the place described; general direction of the prevailing winds, &c.; mountains.

2nd. Seas, rivers, lakes, wells, morasses, drainage, state of canals, &c.; these are all matters of great importance, and comprehend a variety of details.

3rd. The climate, its physical character and medical effects, &c., with the highest, lowest, and medium states of the thermometer, barometer, and hygrometer, &c.

4th. The soil, its general nature, its elevation above the adjacent seas and other waters; nature of the waters; the periods of the year when noxious exhalations arise from the soil in greatest abundance, and the extent to which evaporation has proceeded when these exhalations become most deleterious, &c.

5th. Vegetable, animal, and mineral products.

6th. The state of agriculture.

7th. Roads and communications.

8th. The population, with description of the dwellings in common use; the clothing, bedding, and furniture, fuel, diet, &c.; the employments, customs, amusements, &c.; the morals, education, and cleanliness, &c.; the peculiar modes of cure adopted by the inhabitants, &c.; the police; the state of the poor; mode of rearing children.

9th. The diseases, endemic and epidemic, and those that may be hereditary; the diseases of particular classes of manufacturers, of prisons and poorhouses, Tables of marriages, births, diseases, and deaths.

10th. The diseases of cattle and others of the lower orders of animals.

11th. The diseases of plants and other articles used as the food of the people, and those of plants used by cattle.

12th. Longevity, with a general view of mortality among all ages and sexes.

13th. Military surgeons should report, in addition to the above:—

1st. On the state of the barracks, their situation, the date of their erection, their form, whether built in square or parallel lines, or in detached houses, and whether of wood, brick, or stone; quality of supply of water, whether from springs, wells, or rivers.

2nd. Nature of the soil on which they are built, and of that immediately around; their state in regard to damp, cold, or exposure to particular winds, and their general aspect; drainage of the grounds of the barracks.

3rd. Size of the rooms in feet, as to height, length, and breadth; number of windows and doors.

4th. State of the bedsteads; how many the barracks will accommodate on the war, and on the peace establishment.

5th. State of the kitchens, waste-houses, &c.

6th. State of the places of confinement, as to situation, dryness, &c., and whether any particular disease has ever been traced to them.

14th. The hospital, the same questions as relating to the barracks.

1st. Distance of the hospital from the barracks, and whether there be a separate airing ground for the convalescents.

2nd. State of the store-rooms, the surgery, the wash-house, dead-house, &c.

3rd. Whether any patients have ever laboured under any diseases that could fairly be attributed to the locality of the hospital.

P.S.—In the above I have only proposed the heads of the most important points for description, many more will suggest themselves to the intelligent observer of nature, who must, however, always recollect, that it is on its mere innate features of the country itself, and not on its mere geographical position, that its climate and salubrity depend; and that a fair estimate of the influence of *detached spots* upon the health of the troops or other inhabitants is what is most wanted for a topographical memoir.

(Signed) J. R. MARTIN,
Presidency Surgeon.

Calcutta, March 26, 1835.

Ordered, that the following letter be written to the Medical Board.

No. 113.

(No. 17 to the Medical Board, June 8.)

From Colonel W. CASEMENT, C.B., Secretary to the Government of India in the Military Department, to the MEDICAL BOARD, dated June 8, 1835.

(Military Department.)

GENTLEMEN,

I AM directed by Government to transmit the accompanying paper by Surgeon J. R. Martin, proposing that the medical officers at each presidency be required to furnish a report on the medical topography of the province, district, or city, with the localities of which they may be best acquainted, to be afterwards collated by a committee of surgeons, and formed into a topographical memoir; and to request that your Board will favour Government with your sentiments on Mr. Martin's proposition, stating whether information on all the points enumerated in his paper should be required in the reports from medical officers, and offering at the same time such suggestions as in your opinion may tend to improve and more completely effect the object in view.

2. Be pleased to return the enclosure with your reply.

I have, &c.

(Signed) W. CASEMENT, Col.,
Secretary to the Government of India,
Military Department.

Council Chamber, June 8, 1835.

EXTRACT BENGAL MILITARY CONSULTATION.—

November 23, 1835.

No. 211.

From the Members of the MEDICAL BOARD to his Excellency the Honourable Sir C. J. METCALFE, Bart., Governor General of India in Council, dated June 18, 1835.

HONOURABLE SIR,

We have duly had the honour of receiving a despatch, No. 113, dated the 8th instant, from Colonel Casement, C.B.,

Replying to a letter from Colonel Casement, Secretary to the Government of India, Military Department, dated 8th instant, forwarding a proposition from Mr. Surgeon Martin, relative to a topographical description of the whole of India, and reports for the information of Government on the proposition.

make known to us in furtherance of its views.

3. The importance of medical topography, as mainly contributing to the general healthiness and consequent efficiency of its troops, is now admitted by the concurrent testimony of every European government, nor has the subject been wholly overlooked in this country; many facts of great local interest are to be found recorded in the writings of Hamilton, Breton, Wade, and others, and we have no doubt but that to these, the labours now contemplated are destined to add much very valuable information.

4. Mr. Martin's plan would, however, seem to embrace a far wider range of investigation, and we are compelled to confess ourselves less sanguine in anticipating a favourable result from the zeal and industry of our medical brethren, should their labours not be confined to an investigation purely of a topographical nature.

5. Your Excellency need not be told, that to the task of forming a general idea of the statistics of India, a rare combination of talent is requisite, add to which, besides other advantages, the gifted individual must possess a degree of leisure which may enable him to give his individual attention to each subject under review, together with a facility of locomotion, which it is needless to say, is altogether incompatible with the duties of medical men in this country.

6. The opportunity enjoyed by medical men attached to corps, will of necessity be almost confined to the immediate neighbourhood of cantonments, or at most limited to the line of route between one station and another.

7. To the civil surgeon, however, this objection does not apply with equal force, and it is from him, in concert with the well-directed inquiries of the local authorities, that we should be disposed to look for a mass of material from which the statistics of each particular locality might be gleaned.

8. In conclusion, the Board have nothing better to propose than the formation of a Presidency Committee, together with subordinate local committees at all the principal stations, whose duty it should be to receive all communications, as well as to collect whatever has already been written upon each particular locality.

9. It may almost be unnecessary for us to say, that we shall be found ever ready to offer the best means in our power towards the successful termination of the labours of the committee; and further to add, that the records of our office will be found to contain scattered notices on the prevalence of disease, as connected with locality, which notices will not be held without their value, when it is considered that they are the result of experience on the spot, and in a manner corroborated by the fact of the superintending surgeon deeming them of sufficient importance to include them in his annual report.

We have, &c.

(Signed) J. LONGSTAFF,
First Member, Medical Board.

(Signed) — SWINEY,
Second Member, Medical Board

Fort William, June 18, 1835.

P.S.—The enclosure received with Colonel Casement's letter under reply is herewith returned.

Ordered, that the following reply be given to the Medical Board.

No. 364.

From Colonel W. CASEMENT, C.B., Secretary to Government of India, Military Department, to the MEDICAL BOARD, dated November 23, 1835.

GENTLEMEN,

WITH reference to your letter, No. 211, of the 18th June last, reporting on Mr. Martin's paper relative to topographical memoir of India, I am directed to forward a memorandum, copies of which your Board will be pleased to circulate to officers on the medical establishment of this Presidency.

2. In calling the attention of the service to the importance of this object, your Board should make no distinction whatever between those in the civil and military branches,

for it ought to be recollected, that it is chiefly for the care of its armies that surgeons are sent to India by the Home Government.

3. The subject of the present memorandum should be generally known to all medical officers, and in no countries are opportunities for observation more extended and various than in India.

4. Although but incidental to the main objects, the following subjects will prove highly important, and may be noticed with advantage by officers whose previous habits or opportunities for observation may have qualified them for the task.

1st. The population within the range of inquiry, with description of the dwellings in common use, the clothing, bedding, and furniture, fuel, diet, &c.; their employments, customs, amusements, &c.; the peculiar modes of cure adopted by the inhabitants; the state of the poor, and mode of rearing children.

2nd. Tables of marriages, births, diseases, and deaths, when procurable without difficulty; due discretion being used in making such inquiries as may be necessary for the purpose amongst the natives.

3rd. The diseases of cattle and others of the lower order of animals.

4th. The diseases of the plants and other articles used in the food of the people, and those of plants used by cattle.

5th. Longevity, with a general view of mortality among all ages and sexes.

6th. States of thermometer, barometer, and hygrometer, &c.

7th. These and other questions affecting the subject will suggest themselves to your Board; and in calling on those under your orders for topographical memoirs, it should be impressed on their minds, that it is not on mere geographical position that climate and its salubrity depend, and that a fair estimate of the influence of detached spots on the health of the troops or other inhabitants is what is most wanted.

I am, &c.

(Signed) W. CASEMENT, Col.,
Secretary to Government of India,
Military Department.

Council Chamber,
November 23, 1835.

SUPPLEMENTARY OBSERVATIONS, by JULIUS JEFFREYS, Esq., F.R.S.

It having been notified to me that remarks supplementary to my evidence before H.M. Sanitary Commissioners on the Army in India would be acceptable, I beg to tender the following upon points of importance:—

ON THE SIMPLEST MEANS FOR PURIFYING WATER.

The first observation I have to offer relates to means for rendering water a more wholesome and grateful beverage than it usually is to European soldiers in a tropical climate.

In the first place, wherever the quality of the water is doubtful, or hard from the presence of bi-carbonate of lime, or whenever an epidemic, especially cholera or dysentery, prevails, water ought to be boiled (if not distilled) and be filtered before use.

The chemist is aware that the soluble bi-carbonate of lime may be at once reduced to an insoluble carbonate by mixing a solution of quick-lime (lime water) with water holding the bi-carbonate in solution, which may thus be separated from it by filtration or gradual deposition. This is Dr. Clark's process, by which the water of the Kent waterworks is purified. But it is not so well applicable in common use, where water from different sources varies so much in the quantity of earthy matter present, and where, on this account, and from carelessness, an excess of lime water (more injurious than the bi-carbonate) would often be used. Moreover, it is only by boiling that organized beings, animalculæ, the larvæ of insects, and cells, vegetable and animal, can have their dangerous vitality destroyed, and be reduced to common organic proximate principles.

The filter.—Native red earthen spheroidal jars (*j'halas*) of from thirty to forty gallons capacity are procurable almost everywhere in India, and used to cost from eight annas to one rupee each. For a small advance on the usual price the potters would supply them *thus modified*—each filter would consist of two *j'halas*, one placed over the mouth of the other, but supported by a wooden stand consisting of three or four diverging legs enclosing the lower jar, and having a boarded top with a circular hole in which the upper jar would rest, the lower jar being propped up on bricks, with its mouth close against the conical bottom of the upper jar, so as to be closed by it, and keep mosquitoes and other insects from entering and breeding, and by decaying in the water, rendering it fetid. The lower jar has a hole near the bottom, passing through a boss of baked clay for receiving a wooden tap or a cork. The upper jar has an inch hole in the centre of its bottom, about six inches above which there rests a circular moveable false bottom of baked clay perforated by small holes like a colander, and having flanged edges for strength. This bottom is divided into two halves, small enough to pass through the mouth of the jar, and then be fitted in their place. On the colander bottom is to be laid half an inch of coarse well-washed pebbles, the size of a pea; on that again a similar layer of smaller pebbles, and then a third layer sieved the size of wheat. Crushed *vitrified* brick will yield these several pebbles. On this upper layer must be placed one or two inches of river sand, previously heated red hot and well washed; on this sand must be spread two or three inches of coarsely ground charcoal, the size of wheat. Above the charcoal should lie another layer of sand, followed by pebbles, and these may be kept down by another earthen colander. The whole layers may occupy eight inches besides the colanders: the uppermost colander being about 15 inches above the bottom hole. In a large *j'halas* there will remain above the filter a depth of three

feet or more for water, and the depth may be increased by mounting on the jar an earthen cylinder, in size like a large chimney pot.

The mouth of the jar should be made with a massive edge, having round it a groove three-quarters of an inch deep to receive the lower edge of the cylinder; a circular disk of cotton cloth of several layers being previously placed upon the jar's edge, and then wedged into the groove by the cylinder. When the jar is filled with water up to the top of the cylinder a head of water is obtained, which presses with such force on the filter, that this may be of considerable thickness and closely packed,—points of much importance; most filters being defective in not having over them a sufficient head of water. Some oozing of water through the cloth joint at the bottom of the cylinder will take place, and forms part of the design. This water trickling down the outer surfaces of both jars aids the porosity of the jars by encircling them with an evaporating surface of moisture, which, if the jars stand in a thatched shed, well sheltered from the sun, but open to all currents of air, will bring the filtered water, in the course of a day, nearly down to the dew point. The top of the cylinder or jar should be always well closed with a lid.

Such filters are very easy of construction; they cost but a trifle; and the jars, with care, will last a long time. The filtering mass is easily accessible for periodical renewal of the charcoal and sand, and for well washing and sieving again of the gravel. Care must be taken that the circular holes in the wooden stand carrying the upper *j'halas* must be of such size, that when a cushion of cloth or straw is placed around it, it shall press against the jar at the level of or just below the false bottom or lower colander within, so as to guard against the jar's being burst or crushed by the load within, which bears against that part of the vessel pressed by the colander.

METHOD AND APPARATUS FOR ECONOMICALLY CONVERTING VAPID WATER INTO A GRATEFUL AND REFRESHING BEVERAGE.

Thus may be obtained water as good as can be commanded, without distillation, and also cool; but having been boiled, it will be as vapid as distilled water. It needs to be impregnated again with atmospheric air, or, still better, with carbonic acid to the small extent which forms the lately fashionable beverage, "Carrara water."

This may be easily and cheaply effected in India thus:—Fruits yielding vegetable acids abound there, and at a low price. Their juice may be expressed rapidly and thoroughly by any press made on a right principle. I filled with lemon juice, in a short time, with the labour of a few coolies, twenty-five or thirty wine pipes of the largest size. The press was inexpensive, but space for the shortest description cannot be here afforded.

Three casks and a few yards of small india-rubber tubing form nearly all the apparatus which would be needed. First, an acid barrel of, say, nine gallons (the hoops previously varnished to prevent their rusting) is set on end upon a stand five feet high. Near it, and suspended a foot lower than its bottom, a barrel of from 18 to 24 gallons is hung by cords reaching from each end of it to a horizontal bar (supported by walls or posts), three or four feet above it. This barrel is easily agitated longitudinally, each end striking against spring posts set in the ground. From the top of this cask, near the bung-hole, proceed two india-rubber half-inch tubes to the first (the acid barrel), one tube entering the top of this barrel, the other its bottom.

These tubes hang loosely enough to follow the movement of the larger, the gas-generating barrel, when it is agitated. The tube proceeding from the bottom of the acid barrel to the top of this barrel is compressible partially or completely by means of a fork astride of it, made of two slips of wood hinged together at one end like a lemon squeezer, and brought together at the other end by a cord or screw.

A third cask (a hogshead or butt) is to be suspended a few feet from the generating cask, at about the same level, and slung to a beam in the same manner, by ropes at each end of it, four or five feet long, but *diverging* to hooks in the beam, twice as far apart as the points of attachment to the cask. This divergence of the ropes will cause each end of the cask, as it is oscillated, to plunge alternately downward, which, with the blow against a padded spring post at each end, will cause a violent agitation of the liquid in the cask.

From the top of this cask a rubber tube proceeds to the top of the generating barrel, near to where the other tubes enter it from the acid barrel.

This is all the apparatus, I think, necessary for making Carrara water in quantity.

It is to be put in action thus:—The acid barrel is to be filled with any vegetable acid, as lime juice, or a strong decoction of any of the many acid or unripe fruits abounding in India; the lower tube from the barrel being previously closely compressed.

Into the generating barrel should be poured, through the bung-hole, about twenty pounds weight of ground "*kunkur*," the common stalagmitic limestone of India; or, better still, with ground chalk, of which vast quantities are brought out to India as ballast. The bung-hole is then well closed.

The large impregnating cask is to be filled to about two-thirds with the coolest water from the filters. A gallon or two of acid is allowed to run from the acid barrel into the generating cask, which is then well oscillated to favour its action on the limestone powder or chalk. Gas will immediately begin passing over into the impregnating cask, which is to be rapidly oscillated, that the gas may be absorbed as fast as it flows in. As the water takes it in the flow of gas is to be increased by agitating the generating cask from time to time, and by allowing acid to flow into this cask more or less quickly through the tube from the acid barrel, partially compressed by the forked sticks.

There ought to be a pressure gauge screwed into one end of the impregnating cask to denote the tension, and a vent peg or flute-key valve to be opened when it should exceed the working pressure of the cask, which ought to be gas-tight and strong enough to bear one and a half or two atmospheres.

A cask would answer made twice the substance of a wine cask, and with twice as many hoops, or a well hooped wine cask, if protected by a safety valve, and having each end supported by a stout plank, backed by a bar of wood, the two bars being drawn towards each other by means of two iron rods running lengthways outside the cask. The cask ought to be well charred on the inside before it is hooped together, otherwise the wood will for some time give an unpleasant flavour to the liquor.

Thus may be formed a grateful beverage, which, with the addition of syrup of ginger, orange, or lemon (all of them to be made in India for a trifle), might equal capillaire in attractiveness. It will be observed that only one strong cask and two barrels, with a few yards of rubber tubing and of rope, constitute all the apparatus necessary for making sixty or eighty gallons at a time. There is no forcing gas pump, no brass joints, no agitating apparatus with stuffing boxes, all of them liable to leak and get out of order; and no cocks, saving one tap to the impregnating cask for drawing off the liquid. If lime or lemon juice be employed for generating the gas, and the limestone be fully saturated with the acid, the refuse *citrate of lime* would be worth perhaps one shilling a pound, which ought to pay the cost of the prepared beverage, and of the syrups, if this indulgence is added. As malic acid is said to be acquiring in England much value in dyeing, and must abound in the sweet fruits of India in their unripe state, a malate of lime might prove an interesting product of the process, which, as well as the citrate of lime made at other times, if neglected by the commissariat as beneath its notice, might be allowed to form an encouraging perquisite to the soldiers who undertook to prepare the beverage for their comrades and themselves.

I have not at any time made so simple an apparatus as the above for impregnating water with gas; but an acquaintance with such chemical processes enables me to recommend it without any doubt of its answering well, if ordinary attention be paid to the directions for the construction and use of it.

I have in my evidence mentioned the low cost at which I succeeded in producing sulphuric acid in India by placing

the acid chambers under ground, and by other provisions. If this acid should be employed, the acid barrel may still be made of wood, if it be well coated within with shell lac, which will for a long time bear the action of sulphuric acid of the degree of dilution best suited for generating carbonic acid from chalk or ground limestone; but a small leaden tube might have to be substituted for the vulcanized india-rubber one.

I do not think there will be found any simpler or cheaper means for quickly and surely impregnating a large quantity of water with carbonic acid than the above. Neither the old apparatus of Dr. Wolf or of Dr. Noothe, or the latter in its modern form of the "*Gasogene*," would on a large scale be at all comparable with it in cheapness or effectiveness; for brisk agitation of the fluids is essential for making the liquid take into its pores the gaseous one with adequate rapidity, especially where the water is not very cold; for it has to be borne in mind that at a temperature of 90° water is indisposed to take up any carbonic acid spontaneously.

There is one other process by which I have no doubt carbonic acid might be obtained in an available form from materials costing scarcely anything, viz., by burning together in a stove, or chafing dish of suitable form, good charcoal and limestone, in the proportion, say, of one of the former to eight or ten of the latter, and drawing up the products into a large gasometer. These would consist of atmospheric air deprived of about half its oxygen and largely charged with carbonic acid, both that expelled from the limestone and that yielded by the combustion of the charcoal.

There would also be present a little carbonic oxide, resulting from the necessity of limiting the air feeding the combustion to not more than the double of the theoretical quantity necessary. When the mixed gases in the gasometer had cooled down they would have to be driven into the impregnating cask by a forcing pump, the incondensable nitrogen and oxygen being allowed to escape through the safety valve with such carbonic acid as was not taken up.

A gasometer for the purpose may be made of the thinnest sheet iron, with the lines of junction perfectly air-tight, without either lap-soldering or riveting, by employing a joint, I have found very effective for all such purposes, and to require little labour or skill, while it gives to the whole the stiffness of a framing. But though the materials yielding the gas would cost less by this process than by using either vegetable or mineral acid to discharge it (unless, indeed, the vegetable salt of lime resulting were sold), the apparatus would be so much more cumbersome and costly that I refer to this plan rather as a last resort, should acids at any place not be procurable, than as comparable with acid as a means of expelling the gas from a carbonate of lime.

ON THE MAKING OF ICE AND COOLING OF BUILDINGS BY THE EVAPORATION OF ETHER.—MR. HARRISON'S PROCESS.

The next subject upon which I venture some remarks is Mr. Harrison's freezing process, by the evaporation of ether,—an invention admirable in its design, and in the manner in which it is being given effect by the intelligent engineer who is making the machines, which promise to confer no small boon upon residents in the tropics.

Having, at Sir Proby Cautley's suggestion, examined the machine with some attention, both as an instrument for freezing water, and, suitably modified, for cooling buildings as has been proposed, I am led to think the following observations, prompted by Indian experience, may place these questions in a light suggestive of considerations of some practical importance. For this view we need not here occupy ourselves with the capacity for latent heat of the ether employed, nor the capacity for heat of temperature of the brine; we need not look to these, the intermediate agents in the series, but may direct attention only to the *condensing water* at the commencement of the series as the agent upon which falls the burden of absorbing all the heat given out, either by the water to be frozen at the end of the series, where ice is to be the product, or by the air to be tempered, where the object is the cooling of buildings. In addition to this duty the condensing water must take up the large quantity of heat which the surrounding air will be constantly imparting at all points to a bulky and cold apparatus working in a hot climate.

Water taken at a temperature of, say, 80° or 85° must lose about 200° of heat (latent and thermometric) before it is firmly frozen; all of which heat must be taken up by the water condensing the ether. Again, as the ether is, I am informed, condensed in the machine at a pressure of about 26 inches of mercury, its condensing temperature will not exceed 90°. Now in the hot months water is not to be had below 80°, excepting from wells 30 or 40 feet deep. From these it may be obtained at, say, 70° or 75°. Since

the condensing current cannot, without a loss of time and effect, be detained against the ether tubes long enough for the condensing ether to warm it up to its own condensing temperature of 90°, it will not in practice have more than 10, or possibly 15, degrees of cooling action available. Therefore, to freeze a given quantity of water at the other end of the series, twenty times that weight of water must be employed at the commencement to condense the ether; and in practice much more, in order to absorb also the heat leaking into all parts of the apparatus from the air descending constantly over the apparatus as it is cooled by it. A supply of condensing water ought to be provided of at least 25 times the ice to be produced.

A large machine, making, as is stated, 1,000 pounds of ice an hour, would require 25,000 pounds of condensing water, and working eight hours 200,000 lbs. To supply this large volume of water in the dry months, it might take from 10 to 15 common wells, a yard in diameter, and nearly one horse power of the steam engine, for eight hours acting on forcing pumps, to raise it 40 or 50 feet, or eight pair of country bullocks attended by 16 men.* It would, therefore, be an act of provident economy to employ the condensing water afterwards for garden irrigation, the only cultivation taking place in the hot season. Of shallow surface waters, as of "jheels" and tanks with a temperature approaching nearly that of boiling ether, a vast quantity would have to be carried through the condenser in order to absorb the heat.

For various reasons I think that small machines, on a scale adapted to water power where it is available, or to that of cattle, would be preferable for the interior of India. The dispensing with a steam engine so troublesome to keep in order at a distance from engine factories, the more ready supply of condensing water for small machines, there being many instead of a single one to rely on, which if out of order might suddenly deprive a large station of the supply of ice, would, I think, taken together, more than counterbalance the greater proportional absorption of atmospheric heat into small machines,† and the greater friction in working the pumps as well as greater cost of cattle labour. Cattle tread-mills as employed in America would work the pumps in machines of an intermediate size with probably much advantage.

An apparatus devised many years ago, for both condensing and evaporating purposes, would, from its quick sensibility, prove, I believe, especially adapted for the ice machines of all sizes, more particularly for the smaller machines. Although this apparatus has not as yet been constructed, or, indeed, described, I cannot doubt that it would prove very far cheaper in its construction and more effective in action than the forms of apparatus usually employed for surface condensation.‡

With respect to the proposal to cool dwellings in India by these ether engines, suitably modified for the purpose, it has to be borne in mind that at the season and in the provinces in which the hot winds blow, *water evaporating upon tatties* (the whole cooling power of which is available in lowering the temperature of the ventilating current) would have to be rivalled by the *water condensing the ether* in the machine.

That this condensing water would bear no comparison with the former in cooling power will at once be manifest. We have seen above, that in the hot months, water, in quantity,§ is not to be had more than from 10 to 15 degrees below the temperature at which the ether is condensed;

and that practically not more than ten degrees of cooling action are available. Whereas when water evaporates from tatties into a hot wind entering the tatties at the temperature from 100° to 115° (that common in the hot winds), such water, *evaporating at those temperatures*, renders latent about 1,200° of heat, all of which absorption of heat is effectual, and will cool a brisk wind in the moment of its permeating a tatty by 30°. Water at 75° or 80° evaporating on tatties is therefore at least a hundred times as effectual in cooling a ventilating current as it would prove when acting by condensing ether, or, in other words, to produce an equally cooling effect on a building with an *equally large amount of ventilation*, a hundred times as much water would have to be provided in the one case as in the other.

It will not be argued that the evaporating action of water might also be employed to condense the ether, for that would call for an impracticable multiplication of the metallic surfaces, and as the same current of wind would be needed to give effect to the evaporation in either case, to interpose an ether machine would be merely a circuitous and expensive way of cooling by "tatty" action. The machine-cooling, if employed at all, must be effected, as in the freezing process, by condensing the ether by water acting in its liquid state as a current of convection conducting off and absorbing heat from the metallic surfaces transferring it from the condensing ether.

The waste of water running down from fairly managed tatties forms an inappreciable small proportion of that effectively evaporated, as I have repeatedly proved by experiment; yet to cool the ventilating current of a large barrack, so prodigious is the quantity of water required, that the bullocks, well-men, and "bheesties," (water bearers), necessary for drawing the water from wells and conveying it to the tubs (where it is chucked on the tatties by boys with leathern mugs), constitute the chief expense, while the demand on the wells at hand oftentimes exceeds their power of supply. The hundredfold greater quantity which the ether process would require could scarcely be obtained at hand excepting on the banks of rivers, and at a cost for draught (unless by steam power where fuel was cheap and machinery easily repaired), for which no advantages could compensate so long as tatties can act. But at those seasons and in those regions of India, where often only a moderate elevation of temperature exists, but is rendered very oppressive from the stagnation and peculiar *temperament** of the atmosphere, great relief would be felt if the air of a barrack could be reduced only 10° or 15°, as from 85° or 95° to 75° or 80°. By no other means perhaps could this be effected so well as by the ether process. Where a reduction of only 10° or 15° in the temperature would materially mitigate the oppression of a stagnant and somewhat humid atmosphere, such as often prevails in Bengal, and where tatties are therefore unavailing, it may be well worth while to put in action the ether process, even though it should bring the atmosphere below its dew-point.

The interest and importance which attaches to the question having led me to consider how to apply the process in the most economical and effective manner for producing as well as cooling a current† of ventilation, adequate for a wholesome supply to a large number of persons, I should feel tempted to intrude a description of the apparatus and arrangement which the conditions have suggested, did space permit it, and had not members of the commission, or others under their guidance, probably directed abler attention already to the question.

A FLOATING RIVER-POWER WATER MILL, AND A HYDRAULIC MACHINE FOR WORKING THE ETHER PROCESS.

I cannot, however, refrain from remarking that there are already several stations on the banks of rivers where a brisk stream is passing below a lofty bank, and where it seems to me the following instrument might be rendered

* A term I ventured to introduce in earlier writings to denote its state with respect to warmth, moisture, and electricity combined.

† I may briefly remark that the apparatus for producing ventilation by means of a cooling current would be placed above the ceiling, and act on the principle I have elsewhere advocated of a *downward* ventilation of cold heavy air. By employing the sensitive apparatus referred to in the preceding column the air might be cooled *directly* by the evaporating ether, without the intervention of a liquid medium such as the *brine current* in the ice-making apparatus; but without such an especial and very sensitive apparatus a large volume of so poor a heat-conducting medium as air could not be cooled directly by the ether, even though the latter would in evaporating fall much below the freezing point, indeed below zero. As to the condensation of the ether afterwards by the outflowing current of air, when at a temperature of at least 80° (i.e., as it was being discharged from the building), it is an action which could not be secured without a condensing surface of metal of great extent, bearing some such proportion to the surface needed for condensing by water, as do, inversely, the small capacity for heat and small heat-conducting power of air bear to the vastly greater capacity for heat and conducting power of water, especially when the capacities of air and water are estimated by volume, and certainly mechanical means for urging the air current would be useful.

* Incredible as it may appear, I found, upon repeated trials, that a pair of ordinary "zumcandaree" bullocks, with the two attendant men, raising water by the bar and rope (in universal use in India where the depth to the water exceeds 20 feet), did not equal in effect more than about one-eighth of the estimated single horse power, and that the cost of irrigating land throughout Western India ranged, for the three waterings usual in the season, from one to three, and sometimes four rupees a bigha, more than double the Government rent on the land!

† If all parts of the machine were well jacketed with charcoal or blankets, it would no doubt materially reduce the entrance of heat.

‡ Vide note † in next column.

§ Cool water of deep wells cannot be obtained in any very great quantity within a distance at which it would retain its coolness in travelling. It has been suggested that the condensing apparatus itself might be sunk into one of the wells, and these all connected with each other by subaqueous tunnels. I have in earlier writings proposed connecting wells for irrigation in this manner to a central well containing a hydraulic machine; but each such tunnel would cost more than several native wells. In the present case the main objection would be rapid heating of the water by the ether undergoing condensation. As water is drawn off from a well it is rapidly replaced by water flowing in from the surrounding sandy stratum. All the water in eight wells, each one yard in diameter, and having ten feet deep of water (an unusual quantity in the hot season), would not exceed 35,000 pounds, so that if the water of all the wells could be thoroughly mixed it would be heated up in less than an hour and a half, and would not cool again perhaps in a week. As to any plunging process for enforcing a circulation of the water through the earth around, it would be found, to be at all effectual, quite as laborious as, and more expensive from the provisions necessary, than raising the water at once, and it would soon exhaust the cooling power of any such area of soil as it would be possible to force the water through. Moreover, it would endanger a rapid destruction of the wells. In the plan for cooling air in wells described in a former part of this evidence, 120 wells are provided for one barrack, and the effect is aided by a certain amount of evaporation.

very effectual for the object in view. It was contrived many years ago (while I was conducting experiments on irrigation) for supplying the wide and elevated plains of rich but thirsty land through which the Ganges, Jumna, Gogra, Soane, Chumbul, and many another river cut their way, throughout western and central India.

It was my purpose at one time to have constructed this moveable engine of irrigation, and put it in action at different places, to demonstrate to the natives what a spontaneous source, in many a place, of power and of water they were neglecting. The instrument is briefly this:—The large massive boats built at PHILIBERT, near BAREILLY, are, or were, to be bought second-hand at five pounds each and even less. A pair of these placed parallel, fifteen or twenty feet apart, are to be strongly bridged to each other by cross and diagonal spars or the stoutest bamboos. This twin boat is to be anchored near the shore at a spot where the stream is stiffest. The rush of water between these boats may, if desired, be increased by a spreading hoarding of planks or bamboo matting, well supported by bamboos, so tethered in front of them as to collect and direct into the channel between them a current of double width. The whole width of the channel between the boats is to be occupied by an undershot waterwheel having deep boards. From a large drum or band wheel on the same axis with it proceeds a broad leather band obliquely upwards and backwards to a much smaller drum wheel, mounted on an axis at the top of a gallows or lofty frame. This frame is formed by two masts on each boat, converging towards each other, as they rise up to a yard or more above the level of the river bank, whatever its height may be.

This water-mill has not been constructed, but the hydraulic apparatus to be driven by it has, and with complete success. It is a modification of the Persian, or rather, Egyptian wheel and endless chain of buckets.

In the Persian wheel and buckets (generally earthen pots from ancient times employed in that country and throughout the rest of Asia, especially in Western India), the water is poured centripetally into a trough below the axis of the wheel. Much of it is consequently spilt, and nearly all would be carried down again into the well, were not a very slow motion maintained; but so slow a motion necessitates the keeping in motion of a great load of water for a comparatively small delivery. This centripetal delivery is a defect also pervading, I believe, all the improved modifications of the machine employed to raise water in Europe.

Observing that the natives of India confine their employment of the Egyptian wheel and pots to raising water only at depths within about 20 feet, owing to the great weight of the pots and the water suspended, and that slow as the motion is a serious proportion of the water is spilt into the well again, I made an effort to improve this ancient machine, not only by adopting a centrifugal instead of a centripetal delivery of the water, but more especially by making the buckets of the shape B, B, &c., seen edgewise in Fig. 1 and broadways in Fig. 2, and with their mouths C, C, &c., at the outer side; and then attaching the buckets by cross rails r r, &c., to the two endless ropes R, R, &c., in such manner that the buckets shall hang entirely on the inner side of the ropes. The effect of these provisions will immediately appear. The ropes travel round two equal sized grooved wheels A, A, Figs. 1 and 2, fixed on the same axis (at the top of the masts) which carries the band wheel already named. These grooved wheels are fixed on the axis about an inch further apart than the breadth of the buckets, so that the buckets in ascending can pass between them, and lie entirely within the line of their circumference. Now, if the ropes are travelling at, say, six miles an hour, the water in each bucket will have, of course, a momentum due to that velocity; but as each bucket comes into the position of the uppermost one, B, X, its back or central side e, which extends half-way towards the centre of the wheel (the radius of which does not exceed twice the width of the bucket), has its velocity retarded by one half, and moves only at the rate of three miles an hour. The water, however, which it contains being, as a liquid, free to move, obeys its own momentum of six miles an hour, and leaping out into the trough, T, is all secured before the bucket has even descended to a level with the axis of the wheel.

If, on the other hand, the machinery should be moving very slowly, the whole water simply pours itself out into the trough before the bucket arrives at the position B 1; and at any intermediate velocities between that at which it will clear itself while the bucket is in the horizontal position B, X, and one so slow that it simply gravitates out of the bucket as the latter tilts towards a vertical position, the clearance is equally complete, and is due in part to momentum and in part to gravitation.

This hydraulic apparatus was tried on a full scale, and made as shown in the drawing. The principle of combining a sudden retardation of the containing bucket with the centrifugal momentum of the water is incomparably more effective

than any form of a centripetal delivery of the fluid (having elicited even from the apathetic Hindoos expressions of surprise on seeing the water leap out of its bed at the right moment). The trough stands quite clear of the apparatus, the buckets never touching it; and the water has to be raised only a few inches above the point of delivery. This, with an absence of the friction and a freedom from the wear of pumps, especially by water turbid with silt or sand, and an independence of all frame-work, confers on this apparatus great advantages, even where the height is within that of sucking pumps, and still greater where lifting or forcing pumps would be required. It is also far cheaper than pumps, especially in India; and, I venture to think, so peculiarly adapted for irrigation, the purpose for which it was contrived, that at a time when a cotton famine in England is spoken of as threatening to follow upon the heels of a famine of corn in India, in both of which cultivations defective means of irrigation play a serious part, a description of this hydraulic apparatus may not be without interest, even should it not be made serviceable, as I should hope, for rendering the ether process of Mr. Harrison economically available for the cooling of buildings.

Besides this apparatus tried on the full scale, a model was made, in which, in lieu of two ropes travelling in grooved wheels, two endless leather bands were carried by band wheels, having as usual a slightly convex edge. I think bands are preferable to ropes in grooves, which to avoid slipping must wedge themselves in a V-groove sufficiently to create a little resistance in its leaving the groove on the descending side of the wheel, causing some little wear and friction; whereas broad leathern bands (wetted as they would always be in passing through the water below) adhere to the surface of a wheel with ample force, and yet leave it with no resistance when detached by the peeling-off action of a band leaving the clearing side of a wheel.

Whether double ropes or bands are employed, it is very necessary that there should be one or more of what may be termed "compensating breaks" in the endless circuit, as seen at E, Fig. 2, where a stout bar F, F, crosses from one rope to the other, and at the middle of it a leathern strap E, loops up to it the front bar of the next bucket below it sufficiently for the strap to receive all the weight, and to cause a looseness in the ropes on each side of about an inch. However nearly the carrying wheels may correspond in their size, and the two ropes in their length, at least one such break in the circuits would be needed, otherwise there would be sure to result a slight inequality in the two circuits, which, being constantly increased by repetition at every revolution of the ropes, would cause an entire derangement of the system; whereas any inequality is always corrected at the next break by its compensating or splinter bar action instantly equalizing afresh the lengths of the two circuits, and keeping all the cross bars horizontal. The ropes require only to be slackened a little in the looping up by the break-strap. They should not be severed, since they are wanted to check any tendency in the system of buckets below the break to twist sideways. The buckets are suspended to their cross bars by central pins P, P, P, &c., which admit of such play that if any bars should, from any irregularity in the ropes, be slightly out of the horizontal, the buckets may hang true. This last provision, though not necessary, may as well be made.*

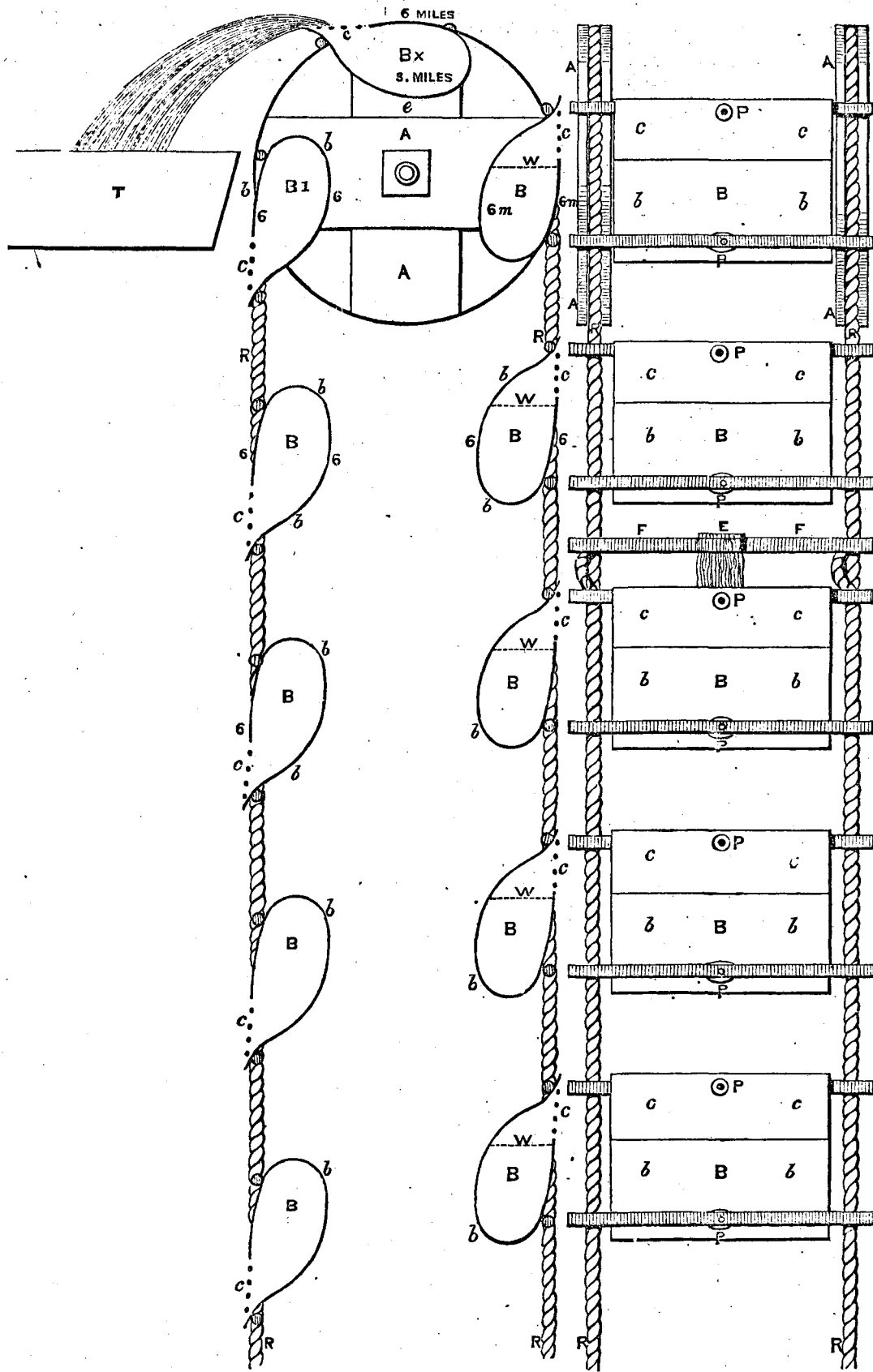
With the exception of a brief verbal reference to this hydraulic principle many years ago before the British Association for the Promotion of Science, and in addresses upon the resources of India before the Liverpool and Manchester Indian Associations, no other opportunity has been taken to call attention to this apparatus in England.

Returning to the employment of this hydraulic machine to give effect to the ether process, it is plain that the driving band proceeding from the large drum wheel on the axis of the great water wheel up to a smaller drum wheel on the axis of the hydraulic machine, would bring the whole power of the water wheel to bear upon raising water to the top of the mast-frame of the boats. The trough T, there receiving

* It may be well to explain that the construction of the buckets is very simple and easy. The two ends of each bucket are formed by flat pieces of board half an inch to one inch thick, about 15 inches long, and six or seven wide; and shaped as the ends B, B, &c. of the buckets in Fig. 1. Pieces of very thin sheet iron sufficiently long, and about 18 or 20 inches wide, the distance of the end-boards apart, including their thickness, are lapped round the edges of the boards and nailed down to them, so that the iron forms the front, back, and curved top and bottom of the bucket, shutting it in all round, excepting at the mouth C. Strips of felt or paper tarred, or cemented with white lead, are placed between the wood and iron during the nailing on, to make the work watertight. Such buckets are therefore cheap enough and very durable.

The dimensions named are about the sizes of the buckets which were tried. A few much larger were made, but not tried, as no water mill to work them was constructed. Such long buckets, or even larger ones, to carry a hundredweight of water each, might suit mills as powerful as many of the river rapids of India could set in motion.

Another model was constructed with buckets or pouches made of leather, as more portable and somewhat cheaper to make in India than those of wood and iron, though they would be much more costly in England. The pouches acted upon a somewhat different principle.



the water, would be continued on a bamboo scaffolding to the top of the bank, and from thence the water might flow in a pipe so well encircled with charcoal, and then covered in by earth, that it would reach the ether machine in a barrack at hand but slightly raised in temperature. Having flowed in copious volume through the condensing passages of the ether machine and fulfilled the duty of absorbing all that heat which, instead of oppressing the inmates of the barrack had been drawn out of their ventilating current by means of suitable apparatus adapted to Mr. Harrison's

ether process, the stream might then travel back towards the river, and pouring itself in its way over the bank into the cylinder of a turbine, or Barker's mill, might keep it in motion; and this mill might work the evaporating pump of the ether machine. At all large stations where a river flows under a high bank there are rapids offering to a capacious undershot water wheel abundant motive power, and of uninterrupted action which might therefore be employed during the day and till midnight in cooling the building, and from that time for eight or nine hours in making ice.

The power, moreover, would take effect twice over; first, in raising a superabundant supply of condensing water, and then by the descent of this water again, in aiding to work the evaporating pump through the medium of the turbine. In the rainy season when the rise of the river up the bank might render it necessary to remove the turbine, the undershot wheel might be well able to perform the double office of raising the condensing water necessary and working the evaporating pump. For the power of the wheel would in some places be increased by the greater force of the current, and the duty of raising the water at the same time much lessened by the higher level of the boat's floatation, bringing them nearer to that of the bank, and permitting the frame carrying the bucket-wheel axis to be shifted lower down the masts; the length of the band and number of the buckets being reduced in proportion. There are multitudes of spots on the numerous rivers of India where, under a bank healthily and securely elevated high above the level of the water, the current runs perpetually with a force which requires the united force of the crews of two or three boats to tow the boats, one at a time, past the rapid—a rapid of ample width and depth to drive a five or six horse wheel, night and day, gratuitously. The floating mill would not cost one-fifth, perhaps not a tenth part as much as a steam engine of equal power, with all its fixtures and engine house, and in the repairs afterwards, even supposing it possible to have a steam engine always repaired on the spot. Supposing that river power for a single mill, of not more than three or four horse power, could only be found in one spot in the locality, these floating mills might be indefinitely multiplied at one or two hundred yards apart.

Since the river might thus afford an unlimited supply both of water 10° or 15° below that of the condensing ether, and of power to condense the ether (if need be, under a pressure equal to 35 inches of mercury, i.e., at a temperature above 100°, should the river water rise to nearer 90°), and since all this supply of power and of water would cost nothing; or, in other words, since all the elements of an unlimited cooling of barracks (each perhaps of the reduced size recommended by Sir John Lawrence), and of officers' dwellings, and also of an unlimited supply of ice, are offered by nature spontaneously, and require only the medium of Mr. Harrison's ingenious plan, and the simple but powerful floating mills to give them effect, I cannot but think the question may be found to merit the attention of the Indian authorities. From the time this water mill was first contrived (nearly 30 years ago), and the hydraulic principle had been successfully tried a year or two earlier, it has been impossible not to lament, especially during periods of famine, that the thousand river rapids of India should run unheeded and waste their power under a desert bank. But how much additional cause will there be for regret if an oppressive atmosphere which they might be made to mitigate shall continue to act as an auxiliary to the pestilence which succeeds famine, and often prevails without it.

It will, I hope, be understood that this plan is not proposed to compete with the cooling power of *tatties* when a dry hot wind is blowing at 110° or 115°, which must be cooled 30° or 35° before it can be admitted into a house, but that it is proposed to take effect during the much longer portion of the year when the temperature is below 100°, and there is neither wind nor dryness enough in the atmosphere to give effect to *tatties*. Also it is not supposed that the water which would condense a given quantity of ether from a state of vapour, would, in falling 30 feet, enable a Barker's mill to enforce the evaporation of a like quantity of ether. It is only proposed that the condensing water should, as far as it will go, perform the double office. To work the evaporating pump a large amount of power must be transferred from the water mills directly to the pumps, without the intervention of the hydraulic bucket apparatus. It may be worth while to remark that the ether condensing apparatus might itself be sunk in the river. The stream flowing through the apparatus would at once do the work of condensation effectually. But the safety of the apparatus would be endangered. It would with difficulty be protected against drifting trees and wrecks, especially in the rainy season, when the river rose perhaps 20 feet, though, if fixed between the twin boats behind the water wheel which supplied power for driving the ether pumps, it might rise with the boats as the river rose. The pipe connecting it with the ether pumps on shore, as well as the return pipe for the condensed ether, would require to have each at least two universal joints, which must be narrowly watched lest they should leak ether vapour largely.

ON CHARCOAL INSTRUMENTS PLACED BEFORE THE BREATH-PASSAGES AS PROTECTORS FROM INFECTION.

The next point upon which I think it becomes me to remark, is the proposal to employ in the form of a respirator, the resolving, and, therefore, probably disinfecting

power of charcoal, as a preservative against the effects of malarious or otherwise impure atmospheres.

Having myself witnessed the fatality of the "owl" of the *terai* jungles below the Himalayas, no one would rejoice more in the establishment, by adequate trial, of protective virtue in an intercepting medium of charcoal acting before the mouth and nostrils; and I much regret that an instrumental form should have been adopted which must render the charcoal worthless as a disinfectant, that it should have been made *subjectively* a respirator—an article respired through.

It appeared to me, therefore, a duty, on the first appearance of this instrument, to invite the attention of the leading members of the profession to its construction as destructive of any specific virtue in charcoal, and to urge the necessity, before any reliance on a charcoal instrument as a protector from infection could be entertained, that it should not be given the form of a respirator, but of an instrument to be inspired through only; that for this purpose it should be so provided with valves as to transmit through the charcoal the entering breath only, the outgoing breath being discharged through another channel.

Some months afterwards Dr. Forbes Watson described, in the Journal of the Society of Arts, an instrument answering these requirements as well, I think, as the case admits of, though I have not seen one. He informs me that its efficiency has not yet been tried. It is to be hoped that this, which may be named the charcoal *inhaler* or *inspirator*, will alone be trusted with a trial, and not the charcoal *respirator*.

For it is very needful upon a sanitary question so closely connected with India as protection from malaria, that a warning should be pronounced against the placing of any reliance upon charcoal *when respired through*, as possessing any but a momentary disinfecting power.

ON THE IMPORTANCE OF INSTRUMENTS FOR THE RELIEF OF IRRITABLE BREATH-PASSAGES ON MILITARY DUTY.

This pulmonary question is not without an important sanitary application to Europeans in India, soldiers as well as others.

Persons with breathing organs unduly susceptible, on suddenly changing the relaxing climate of the plains for the keen though bracing air of the hills, are too likely, from the want of temporary protection of these organs until their systems are invigorated, to suffer attacks in them which, under such circumstances, are liable to run a rapid and fatal course. Such instances have occurred. And, on the other hand, I have received from India itself accounts of benefits from the action of the respirator of a like character to those which sufferers in Europe are prompted by their feelings to send me.

It is well known that when pulmonary disease originates in India in the persons of Europeans, it is generally induced by previous disease in the liver. While the latter affection urges them to seek a temperate climate, the extreme susceptibility of the breath-passages when the hepatic irritation is extended to them (which suffer even in the cold weather of the plains), renders them quite unfit to cope with any but the summer air of stations on the hills. An officer of distinguished gallantry, and once of a fine constitution, on suffering from chronic liver disease induced by relapses of fever, proceeded to the hills, for a change of climate, in the month of March, but found a cough, which had commenced in the plains during sharp weather in January, rapidly aggravated, and he died in four months (in July 1828) of abscess in the lungs.

There can be little doubt such cases will frequently occur now that the British force in India is greatly increased, and a recourse to the climate of the hills will be more generally substituted for that detention in the plains and repeated admission into hospital which necessarily terminates in an early destruction of many a constitution, which by better measures might be long sustained, and in no small proportion of cases thoroughly restored.

The change, of a transfer of irritation from the liver to the lungs on leaving the plains for the hills,—of destruction upon Scylla on escaping from Charybdis,—would greatly decrease if the principles upon which the *real* respirator is based were in all such cases given effect, not merely without doors, as they are, in ignorance of their virtues, for the most part only employed, but within doors also whenever irritation manifested by cough shall indicate it.

It is not an opinion only with which the Commission is being here troubled, but the statement of an incontrovertible fact, that not in India only, but still more in other parts of the world, more particularly in the case of troops suddenly exposed to a Canadian winter, or, as in the Crimea, in winter trenches, not to include *real* respirators in military stores for men with irritable breath-passages, is simply to consign to death annually many a score of soldiers, and to

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cause a loss of many a thousand pounds to the nation. Many men, not a few of them possessing great muscular power, and quite equal to military duty, suffer from a temporary or chronic delicacy of the chest, whose breath-passages cannot endure exposure to the conjoint *chilling* and *drying* action of air inhaled at all at a low temperature. It induces asthmatic or bronchitic symptoms, and an instinctively restrained admission of breath by contracting the nostrils and closing the teeth, whereas in marching or walking any distance the exercise demands an increased respiration. This diminution of the healthy volume of the breath lessens the irritating effect of keen air in proportion as the entrance of such air is restrained; but any such partial advantage is purchased at the price of a partial suffocation, the whole blood suffers damage, and its effete matters cannot be evolved from it and thrown out by the lungs. The "supplementary" portion of the "resident"* air of the chest gradually decreases, the lungs become condensed in a portion of their texture, or, from a plugging of certain tubes, *emphysematous* (broken-winded), and, where there is any tendency to tuberculous disease, consumptive. To keep sending men so circumstanced into hospital, to have their lungs repeatedly patched up by drugs, however skillfully administered, and again exposed to their atmospheric enemy, is a system, religiously continued down from the earliest days of drug-treatment, which, most assuredly, cannot face the light of a sound pathology.

When the whole body is immersed in any climate warm and soft with moisture, the lungs of such men are for the most part at ease, unless through their health suffering materially from the relaxing effects of the climate upon their bodies. Does it not stand to reason, when they are in a cold climate, that if you can supply such a soft atmosphere as the former to the lungs only, and wrap up the body warmly, they may best escape the injurious effects upon their susceptible breath-passages of this otherwise bracing climate?

In a normal state of health various natural agents exercise a beneficial stimulus on the system, any habitual avoidance of which may induce delicacy, *i.e.*, too great sensibility towards it; but in an abnormal state, when any one of these agents, instead of healthily stimulating, causes the smallest distress in an organ, let it be the eye, ear, chest, or any other part, the more early, thoroughly, and uninterruptedly the suffering organ is protected against the irritant, the sooner is nature enabled to restore it to its normal state, fitted to thrive under what again becomes to it a healthy influence.

It has been objected that although since the expelled breath occupies a volume of 20 or 30 ounces, no appreciable quantity of its *gases* can be detained in an instrument in which there is not an inch of unoccupied space, the impurities in the moisture of the breath, which is freely condensed in the instrument, may, on returning with the entering current, prove injurious. The apparent plausibility of this objection will vanish on reflecting that any embarrassment of the respiration tends to accumulate effete matters in the system to a far greater extent than can any trifling return of them in respiring through a proper respirator; one of the most marked effects of which, when employed of the right temper, is to set the respiration free, inviting, through the softness given to it, full indraughts of air, the first mouthful of which would otherwise excite cough, and often a suffocative asthmatic spasm in the breath-passages.

The condensation of distilled moisture from the breath is as essential a principle of the respirator as is its absorption of caloric. In an enfeebled and irritable state of the air passages, the *natural* evolution of moisture from them diminishes, and does not keep pace with that absolute demand of moisture, in obedience to physical law, which each entering breath makes directly upon the delicate membrane lining them, and, secondarily, upon the portion of it extended over the air cells,—a membrane requiring to possess such delicate texture that through its pores, the air and the blood in the vessels on either side of it shall sustain the animal life by a barter of their elements,—a membrane of such delicate texture that a state allied to semi-liquidity is a necessary condition of its existence. To preserve this condition it has to lubricate itself perpetually with a thin fluid, which owes its unctuousity to mucus largely diluted; but which, when dried into obstructive phlegm, and still worse when into a solid state, becomes itself an irritant vieing with the air in exciting cough. It is the inexorable demand of the entering breath to be sup-

plied with moisture due to its rise in temperature, which alone causes this drying of the lubricant; a demand large in proportion as the air enters cold, and greater, therefore, even in the foggiest winter weather than in the driest summer. It is true that a cold fog is more distressing to many persons than a keen dry air; but such distress is caused by its sudden evaporation in the breath-passages robbing them of heat rendered thus latent and lost to temperature. But however foggy air may enter the lungs at a temperature of 30° or 40°, it will become dry by the moment it rises to 40° or 50°; and in rising up to near 100° will absorb 50 more degrees of moisture; whereas summer air dry at 75° will not, in rising to near 100, demand more than 30 to 35 degrees of moisture.

In *acute* bronchitis or pneumonitis the supply of moisture falls so far short of the demand that it would much more often prove fatal did not nature take on providentially a *specific* action, causing the membrane to throw forth quantities of soft phlegm in the one disease, and to plaster itself with a glutinous matter in the other (which it has constantly to discharge, indeed to maintain life through its pores). In such *acute* states a respirator is of little use, *if*, as is often the case, it cannot condense any moisture. Indeed, if the air of the room is by other means fully warmed, it may, while *condensing no moisture*, prove oppressive.

This specific action, often repeated in renewed attacks, is liable in some cases to be resolved into a chronic weeping, from the air-ward membrane, loading the passages with a watery fluid, as in watery cough, an abnormal substitute for the healthy evolution of moisture. In such cases the warmth but not the moisture of the respirator is needed. But these cases are the exception.

CLIMATE-CHAMBERS FOR THE LUNGS ALONE, FOR HOSPITAL USE.

To meet the urgent need of an uninterrupted fomenting action which this breath membrane lies under, in common with every other air-ward surface, as that of the skin or eye, when inflamed, and in affording which it was plain from the first that the respirator (lacking moisture in such acute cases) must fall short, I was led to propose, 20 years ago, a construction which I think it right again to refer to briefly; for if such an apparatus were made portable and introduced into military hospitals (as indeed into others and into private practice), acute attacks in the chest would far less often terminate either fatally or in chronic disease. The proposal was, an apparatus which should perform the work of respirators, in that it would afford to the lungs artificial climates suited to them, without involving the whole body in atmospheres relaxing and oppressive to it; just as would be continuous immersion to the neck in a tepid or hot bath, where only a local fomentation or poultice was required. It is this *immersion* in the soothing element which is the great drawback to the soft insular climates in tropical and semi-tropical oceans, in which softness irritable breath passages would otherwise delight. For this end it was proposed the head alone should lie in a chamber of several cubic feet contents, formed of air-proof curtains, enclosing the neck. Through this chamber would flow gently an atmosphere compounded (in proportions to suit the particular case) of hot and cold air and vapour of water (impregnated or not with medicaments as was thought desirable), such atmosphere being mixed previously in the feed pipe of the chamber by a conflux of these three constituents severally admitted from separate sources in the proportions determined. The proportions of vapour and of hot and cold air would be variable in any degree, either by an attendant or by the patient himself, by merely tightening or easing certain endless cords, acting like that of a roller blind, but commanding valves instead.

The value of such an apparatus, especially in the acute stage of disease, could scarcely be exaggerated. It has, indeed, of late years become a not uncommon practice to keep, on the fire of a patient's chamber, a kettle with a long spout discharging steam into it, and with a beneficial effect, so great, considering the rude uncertainty of the operation and its affecting the whole room, as to be an earnest, though an imperfect one, of what might be the curative power of the complete apparatus.

Until such an apparatus shall be constructed it is much to be desired that the military hospitals of hill stations in India, as well as in other cold climates, should be supplied with kettles spouted from the top, the spout, which need not be long, terminating in a long flexible tube, which should be conveyed near to the face, but with its mouth so directed as not to endanger any gush of steam being blown against and scalding the face.

The more perfect apparatus, chambering a distinct climate for the lungs when in bed, might also be employed in cases of *chronic delicacy*, in lieu of sleeping with respirators, when the luxury of such a chamber could be com-

* Terms here employed as having been accepted by subsequent authors, they having been first introduced in "The Statics of the Chest," as appearing to me suitable for denoting certain volumes of pulmonary air not then defined by name though previously also noticed by Dr. Calvert Holland and others. The *resident* air includes the supplementary and the *residual*, which last cannot be expelled; the term "residual" having been long introduced by physiological writers to denote the air remaining in the lungs after death.

manded at all times, but, in the absence of it, no cougher at night ought to neglect to wear a respirator. It has been worn with great relief by some who in the day time have actually not required the respirator out of doors, though this of course is not usually the case. Some judgment is required in selecting between the nasal, oral, and orinatal instruments, according as the nose, mouth, or both passages are breathed through in sleep. For night use the nasal is, with myself, the favourite instrument.

To this in-door employment of respirators no small number of persons within my own field of observation owe an exemption from attacks which would long since have proved fatal.

CHOLERA.—SUGGESTIONS, CURATIVE AND PREVENTIVE.

The last subject upon which I desire to offer practical suggestions, based upon what appears to me may be believed with respect to the mysterious character of the disease, is CHOLERA. I would that the matter under this head partook of the pathological and practical certainty attaching to the preceding head, but *here* all that can be offered is but conjectural and suggestive.

The deplorable severity with which the recent epidemic has fallen upon the British troops in India, in some localities carrying off in a few days from a tenth to a fifth of the number present, and prompting the appointment of a fresh commission of inquiry into the nature of the disease, would leave without excuse any one who should at the present moment neglect to impart information having any promise of value, as being the result of considerable early experience in this disease, and subsequent reflection upon it.

In venturing the following remarks, I desire to be mindful that it is sanitary and not medical evidence which is sought by the Commission, that its objects are the prevention rather than the cure of disease. At the same time it will not, I hope, be considered out of place if theory shall be introduced, so far only as is necessary for giving weight to the suggestions which form the substance of these observations.

Having from an early period entertained the conviction that* the capillary vessels are not mere passive channels to the circulating fluids, but are scarcely less active and important in maintaining the circulation at the extremity of the vascular system than the heart is at its base, an opinion, I believe, now generally received, it has long appeared to me that there may be founded upon this doctrine a satisfactory explanation of the phenomena, if not also of the nature of Asiatic cholera, and that such an explanation may offer some clue towards the prevention and the treatment of the disease.

To be very brief, attention is invited to the great mucous surfaces of the body, which may be termed the air-ward and the food-ward; the former being opposed to and having commerce with the air, namely the skin of the body's surface and the skin of the lungs' air passages; and the latter being opposed to and dealing with the ingesta, the food, namely the skin of the whole alimentary canal, from the upper orifice of the stomach to the lower one of the bowels. We find this large expanse of membrane, the air-ward and food-ward skins, to consist of a great development of the capillary system, namely, of multitudes of the extreme vessels filled with blood, (red or colourless, according to their size and duty), and also of innumerable extreme nerves charged with nervous influence, *i.e.*, vital electricity, and therewith giving impulsion to the capillaries.

The flow of this vital electricity is, in their normal state, so admirably adjusted between the air-ward and food-ward membranes, that their respective circulations are duly balanced, and their respective functions rightly performed. A mutual nervous sympathy tends to preserve this balance, and a reciprocity of action to provide against any temporary disturbance of it. With these truths, couched in other terms, the physiologist is familiar. They are clothed in the present, as conducive to the explanation in hand.

While, then, such is the natural state, it will be readily conceived that through some morbid agency the healthy distribution of the vital electricity over these two great capillary surfaces might be utterly deranged, that the current of nervous influence might desert the air-ward and become accumulated upon the food-ward surfaces; their nervous tissue, by a morbid vital induction, becoming surcharged with the influence withdrawn from the nervous tissue of the air-ward surfaces, becoming as in a state of positive vital electricity to the latter as in a negative state. All this is so reasonable, that but for the custodial arrangements

of Providence, a more frequent occurrence of it might be expected.

When it did occur, what but the following would be the phenomena to be expected? A death-like state of the air-ward surfaces, their capillaries being empty and paralysed, and the circulation in them suspended; a cold and cadaverous skin, a ghastly countenance, a cold breath. On the other hand, intense congestion and irritability in the food-ward surfaces, the blood from without being driven in upon them by the inward impulse of the nervous action: in other words, the inward tension of the vital electricity. To relieve this congestion, and as a consequence of the irritability (*i.e.*, in obedience to the accumulated nervous influence), either a great secretion of watery fluid (which might be expected to have a specific character), or in the absence of such secretion an increase of the inward tension and distress. To remove this fluid, and from their own irritability, much action of the stomach upwards and of the bowels downwards. The glandular viscera, the liver and kidneys especially, would in severe cases be also surcharged with blood, (a state to be found, I believe, after death in such cases, when the blood has not lost much bulk by a draining away of its watery portion,) and as a consequence of such congestion, the secretion of bile and urine would be suppressed; though bile previously existing in the bile vessels of the liver might (as would seem, take place in other affections also) be forced out of them into the gall bladder by the mere pressure against them of the turgid vessels forming the mass of the congested organ.

When a stoppage of the heart (death) puts an end to the circulation, and with it to the morbid *nervo-electric tension inwards*, the nervous influence,—the vital electricity,—might be expected, in diffusing itself outwards, to act again on the air-ward capillaries for a time, stimulating them to a false effort towards restored action. The corpse would then look less cadaverous than had the living man, the countenance would be less ghastly and the skin less sodden. Such a change I have myself noticed. Even heat might be developed at the surface as the consequence of this attempted restoration of action in the air-ward capillary system. The occurrence of this startling phenomenon has been well established.* It challenges both physiology and pathology for an explanation. What other can they offer than this?

Such a view derives much support from the fact that a disturbed state of what may be termed the *inorganic* electricity exterior to the human body, especially of the atmosphere around, is the most persistent of meteoric phenomena during a prevalence of epidemic cholera, and that it has led others to infer that electricity is in some way concerned as an agent in this disease.

A deficiency or disturbance of atmospheric electricity may sufficiently account for that rapid decomposition of organic matters and evolution of foetid gases which may be observed in such seasons. This electric state may determine the generation of a poison which, acting upon the air-ward surfaces, is the specific cause of their corpse-like state of suspended circulation, and it may prove a direct auxiliary to it by favouring an inward tension of the vital electricity.

Whatever view may be taken of the *causes*, the fact that in a confirmed attack of cholera the blood deserts the air-ward surface and becomes accumulated in the food-ward, can scarcely be doubted by any one who has studied the disease by the bed side, more especially in cases of rapid collapse in full blooded persons, from whose circulation but little had been detracted by discharges from the stomach or bowels.

The occasional extraordinary effect of copious blood letting, in removing the disease by relieving this inward congestion in cases in which to outward appearance the loss of an ounce of blood would appear hazardous, places this fact beyond a question. Almost the only case not fatal out of a large number which occurred in the worst week of a very fatal epidemic affecting H.M.'s 44th regiment, fresh from England in 1823, was that of a man of very large size and full blooded, who, within four hours of the attack, looked as if he had been drained of blood, although little fluid had passed from him in excess of what he had swallowed. No less than 50 ounces of blood were with difficulty obtained from him by two successive bleedings, each from both arms. Though on each occasion he appeared to have been killed by it, the lost pulse was gradually restored at the wrist, and his recovery was complete. Such critical treatment was only justified by the utter hopelessness of any other at that period. Though never able to perceive in choleraic collapse affecting Europeans much value in any other treatment, except indeed counter irritation, I have no doubt a fatal issue has not unfrequently been

* It is true that a contrary doctrine has been extensively accepted through the influence of able German physiologists, more especially of Müller. In papers in "The London Medical Gazette" in 1842, and in a work already referred to, on "The Statics of the Chest and Animal Heat," are contained the reasons for which it appeared to me the doctrine that the capillaries are passive vessels is quite untenable.

* Vid. Sir J. R. Martin, C.B., on Cholera, in his important work on the Diseases of Europeans in Tropical Climates.

precipitated by blood letting when it failed to restore the balance of the circulation.

Having too often witnessed and experienced the failure of blood-letting, and of outward as well as inward stimulants, on reflecting upon the subject, about 20 years ago, the possibility occurred to me of relieving the inward pressure and promoting an outward flow of the circulation, and with it an immediate relaxation of the nervo-electric tension, by reducing the atmospheric pressure over a *large portion* of the body.* This impression having gained strength, I had a pair of loose jack-boots made of strong sheet tin, each in two lengths meeting at the knee, and long enough to include the whole thighs, as well as the legs. Spare metal rings of different sizes were provided to fit round the thigh and round the mouth of each boot; and to close the junctions here and at the division of the boots at the knee, and make them air-tight, circular bands of *ordinary india-rubber* were made; vulcanized rubber, a better article for the purpose, not having been at that time introduced. The spaces inside the boots were made to communicate with each other and with an air-pump by means of tubes, governed by stop-cocks. I tried this apparatus on myself, and found that a few strokes of the pump produced as much effect as I could bear without endangering syncope. This apparatus was laid aside for an opportunity of proposing a trial of it in cholera. On describing the plan, some time afterwards, to the late Dr. Baron of Cheltenham, he informed me that a French physician had recently proposed an apparatus for the leg on the same principle, though not for use in cholera; and Dr. Hensley, of Bath, subsequently showed me one of these he had brought from Paris. Finding the principle was before the medical world, though the apparatus was very limited in its extent of action compared with that I had for some time possessed, I have hoped that a proper trial of it in cholera would suggest itself to some medical body possessing the authority and opportunity for giving it effect.

Impressed with the conviction that the effects upon the collapse in cholera ought to be ascertained of an agent so powerful, and at the same time so entirely under control that its action could be revoked in an instant, by restoring the atmospheric pressure; and not being aware that any trial has been afforded it in cholera, I venture to think it cannot be out of place, even before a Commission whose field is amongst *prophylactics* rather than *therapeutics*, to tender this long-constructed apparatus for experiment in India, where this dire epidemic has been recently emptying military hospitals, and lending its powerful aid towards breaking down the spirits of a soldiery at no time very buoyant, unless when their senses are becoming lost in drink. The apparatus, though so long made, requires but little to put it in order. To ensure a due trial of it, I shall be happy to present it complete to the Royal Commissioners, the Council of India, or any medical authorities who, entertaining a like opinion with myself as to the expediency of a well-directed tentative effort, shall be prepared to direct the application of it in a sufficient number of cases, to decide the question of its utility as a remedial agent.

The following suggestion, having a *preventive* object only, may be viewed as falling more directly within the range of sanitary inquiry.

Amongst the, doubtless many, causes co-operating to produce the disease, it is manifest that such as have the *atmosphere* for their channel can only find access to the animal system by way of its *air-ward* tissues; and experience has shown that comparatively slight differences as to exposure and other circumstances do oftentimes determine the accession of an attack, or an escape from it.

Twelve years ago, in a case of pulmonary disease, and more recently in one of tropical dysentery, and in another of serious renal derangement, the whole skin from head to foot, after a daily scouring, was so well plied with the limpid oil of almonds, in one of the cases rendered moderately stimulating by about a twelfth part of the essential oil of lemons, as to effect a considerable absorption of the oil, and at the same time to interpose, between the too sensitive skin and our raw atmosphere in winter, a film of oil to serve like a second scarf-skin. The result, sufficiently encouraging in the dysenteric case, was in both the others so remarkable that, had the opportunity been offered of establishing the effect of such universal and persevering inunction, in a sufficient number of instances to justify an absolute conclusion as to its certain value, the publication of these cases would not have been neglected. Mention is only made of them now to raise the following suggestion above the position of an altogether untried idea.

* The diminution of the pressure over the whole surface, as by ascending mountains, could it be effected, would, of course, be altogether different in its effect. The pressure upon the body, and by way of the lungs, is necessary to drive blood into the thighs and legs, which, as in dry cupping, would become a temporary receptacle for the fluid, to the relief, it may be hoped, of the vitals oppressed by it.

I venture, then, to suggest that, whenever cholera, and perhaps also when dysentery are epidemic, it might be well to require all the men of a garrison, immediately after an early scouring of the skin every morning, to rub themselves over from head to foot with a sweet limpid oil, such as oil of poppy seed, or almond, or even olive, well charged with oil of lemon or of limes. This process need not amount to much inunction of the oil (as was required in the cases instanced above), but should be sufficient for a protective coating with it.

There can be little doubt that, if a body of men could be deprived of their scarf-skin, their susceptibility to the influence of atmospheric poisons would be seriously aggravated; even the natural action of the atmosphere would be unendurable. So, on the other hand, the interposition between the atmosphere and the too-open pores of the skin in a tropical climate of the additional protection of a film of oil can hardly fail to retard the entry of atmospheric poisons, and especially their action upon the sensitive nervous tissue. Moreover we are not without examples in the matter. Every Hindoo who can afford it oils his skin after his daily ablutions. It would be a point worthy of inquiry whether the greater susceptibility to cholera of the poorest classes in India may not be traced, in some degree, to their omitting to oil themselves regularly, as well as to their inferior diet and other causes.

To rouse the nervous tissue to resist depressing influences by gently stimulating it by aromatic oil added in small proportion to the bland oil, is a measure which may be left to commend itself to the judgment, especially as the trial cannot prove injurious in any case. Furthermore, the volatility and antiseptic properties of these essential oils is such that each person so treated would impregnate the atmosphere around him with an odorous vapour which might in some degree, prove protective to the lungs, and perhaps as stimulating to them as might be desirable without appending before the mouth or nostrils an instrument impregnated with antiseptics, which few would consent to wear without a manifest necessity.

The oil of limes recommends itself, not only as an article easily and abundantly producible in India at, practically, a nominal cost, but especially as an aromatic, perhaps the most generally grateful of any. While an offensive odour, which may not in itself be poisonous, will often lend effect to an inodorous poison; so doubtless, on the other hand, grateful aromatic odours are not only antiseptic, but tend also to fortify the nervous tissue, more or less, against a poisonous influence, a fact noticed from the earliest times, though, doubtless, formerly the subject of an over-strained reliance.

An apprehension that oiling the skin must tend to check the due action of its exhalent vessels would be ill-founded, especially in a tropical climate where they are liable to suffer exhaustion and relaxation on the one hand, or on the other to have their orifices and the scarf-skin over them obstructed by absolute exsiccation, producing more or less of the mummy-like skin of the "old Indian." If agglutination be guarded against by scouring off every morning the excretions and dried oil of the previous day before renewing the application (and the operations might be repeated at night), its tendency will be to keep the skin in a state of healthy freedom and moderate action, while a film of oil left on the surface cannot but aid the epidermis in checking the impression of depressive morbid influences on the nervous tissue, especially if that oily film be rendered antiseptic, slightly stimulating, and grateful through the presence of an aromatic.

CONCLUSION.

In concluding evidence so discursive in the range of its subjects, and in the exposition of them, I desire to explain that a large portion of it has been offered consequent upon my being favoured with a recent invitation to add any evidence I believed to be conducive towards the objects of the Commission; and that my endeavour has been to restrict my remarks to such as served to elucidate or strengthen the evidence. The fact that much of this matter is now published for the first time, will not, it is hoped, appear to result from any doubt as to the reasonableness of the views and plans proposed, but, as is the truth, from an indisposition to occupy public attention in fields from some of which I have, long since, professionally withdrawn, and with others of which (as mechanics and hydraulics) though very inviting to me, I have not been professionally connected. Relying upon the hope that amongst the many persons ably officiating at the various shrines of science concerned, and more constantly consulting her oracles, each useful truth would become elicited and be more influentially enforced than by myself, I have hesitated to intrude upon the public all that has been presented to my own observation as appearing to be such.

REMARKS AND COLLECTED FACTS ON THE CLIMATE OF INDIA; ON THE GEOLOGICAL FEATURES OF THE COUNTRY; AND SOME TABULATED VIEWS OF THE POPULATION: TO SHOW THE COMPARATIVE DENSITY OF INHABITANTS IN PROPORTION TO AREA.—By R. M. MARTIN, Esq.

CLIMATE.

A country extending through 26° of latitude, and with elevations from the coast-level to the height of three or four miles above the sea, must necessarily possess great variety of temperature. About one-half of India is inter-tropical, comprising within its limits the three principal stations of Calcutta, Madras, and Bombay; in fact, all the country south of a line drawn from Burdwan on the east, through Bhopal, to the gulf of Cutch on the west, a distance from Cape Comorin of about 1,000 miles. All the region north of this line, and extending 800 miles from Cutch to Peshawur, is outside the tropic of Cancer; the area of the inter and extra-tropical territory is nearly alike. Mere distance from the equator will not convey an adequate idea of the climate of any district: other circumstances must be taken into account, such as elevation above the sea, aspect in reference to the sun and the prevailing winds, more or less vegetation, radiation of terrestrial heat, quantity of rain falling,* or siccidity of atmosphere, proximity to snow-covered mountains or great lakes, drainage, ventilation, &c.; † all these, varying in collateral existence or in degree of operation, cause a variety of climate and thermometrical range, which latitude will not indicate. Regions contiguous to the equator, at or near the sea-level, possess a high but equable temperature. The mercury, on Fahrenheit's scale, exhibits in the shade at Singapore, a flat island in 1° 17' N., a heat of 73° to 87° throughout the year. As we recede from the equator north or south, a wider caloric range is experienced, not only throughout the year, but within the limits of a single day. In the N.W. provinces

of India, and the S.E. settlements of Australia, the mercury not unfrequently rises in the summer season to 90°, and even 100° Fahr., and shows a fluctuation, in twenty-four hours, of 24°; but this extreme torridity, when the circumambient fluid seems to be aeriform fire—is but of brief duration. Animal and vegetable life are re-invigorated, for a large part of the year, by a considerably cooler atmosphere. Indeed, at New York and Montreal, I found the heat of June and July more intolerable than that of Jamaica or Ceylon; but then snow lies on the ground, at the former places, for several weeks in winter. Again, moisture with heat has a powerful and injurious effect on the human frame, though favourable to vegetation and to many species of animal life. Speaking from my own sensations, I have lain exhausted on a couch with the mercury at 80° Fahr. during the rainy season in Calcutta, Bombay, and Hong Kong, and ridden through the burning forests of Australia, on the sandy Arabian plains, and over the sugar-cane plantations of Cuba, with the mercury at 100° Fahr. So, also, with reference to elevation: in the East and West Indies, at a height of several thousand feet above the sea, I have enjoyed a fire at night in June; and yet, in April and September, been scorched at mid-day in Egypt, Northern China, and Eastern Europe. These observations are made with a view of answering the oft-recurring inane question, without referring to any locality, "What sort of a climate has India?" In order, however, to convey some idea of the thermometrical range, and the quantity of rain falling at different stations, the following table has been collated from different sources:—

METEOROLOGICAL MONTHLY OBSERVATIONS for different Parts of India; showing the Latitude, Number of Feet above the Level of the Sea, average Thermometer, and Rain in Inches.

Places, Latitude, and Elevation above Sea.	THERMOMETER.												Mean of Year.
	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.	
Calcutta, 22° 34', 18 ft.	69	73	78	87	88	83	82	82	82	82	71	68	79½
Madras, 13° 5', sea-level	78	78	82	88	92	87	88	86	86	84	82	78	83
Bombay, 18° 57', sea-level	77	77	80	82	85	85	81	84	79	84	84	80	84
Tirhoot, 25° 26', 26° 42', little elevated	60	66	76	85	89	86	84	85	81	73	—	61	78
Goorgaon, 28° 28', 817 ft.	70	72	80	—	104	98	85	84	89	87	75	66	—
Delhi, 28° 41', 800 ft.	53	62	70	79	82	82	82	80	80	73	62	56	72
Rajpootana, || about 500 ft.	70	73	82	82	74	90	85	—	—	—	90	66	—
Nagpore, 21° 10', 930 ft.	68	75	83	89	90	84	79	79	79	79	73	72	79
Hyderabad, 17° 22', 1,800 ft.	74½	76½	84	91½	93	88	81	80½	79	80	76½	74½	81½
Bangalore, 12° 58', 3,000 ft.	71	73	79	78	79	75	74	74	74	71	71	70	74
Hawilbagh, 29° 38', 3,887 ft.	47	55	61	60	73	76	78	79	75	69	60	52	—
Kotagherry, 11° 27', 8,600 ft.	59	60	61	62	62	64	64	65	64	62	60	59	61
Ootacamund, 11° 24', 7,300 ft.	54	56	60	64	64	59	56	56	56	56	55	53	57
Mussoorie, 30° 27', 6,282 ft.	—	—	—	—	77	70	68	68	67	61	56	—	—
Landour, 30° 27', 7,579 ft.	41	46	55	65	68	66	68	66	64	57	46	47	—
Darjeeling, 27° 2', 8,000 ft.	40	42	50	55	57	61	61	61	59	58	50	43	53

RAIN IN INCHES.

Total.

Places	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.	Total.
Calcutta	0.05	0.48	1.77	3.52	12.86	3.04	12.44	8.15	8.19	3.68	0.06	2.57	56.61
Nagpore	0.40	0.50	3.84	1.01	0.21	6.25	14.93	7.51	16.32	—	2.89	0.13	53.99
Bangalore	—	—	35	4.16	5.89	3.24	5.88	4.13	13.97	5.10	1.30	—	—
Kotagherry	2	3	6	10	2	2	4	2	2	10	2	5	50
Ootacamund	1	1	2	5	6	8	7	6	7	9	5	3	60
Darjeeling	1	—	1	2	9	26	25	29	15	8	—	—	122

* The quantity of rain in the tropical or temperate zones varies with the elevation of the land above the sea. In India the maximum fall on the Western Coast is about 4,500 feet altitude; beyond this height it diminishes. This is shown by Colonel Sykes, in his *Meteorological Observations*: thus, on the western coast of India the fall is at sea-level (mean of seven levels)—inches, 81; at 150 ft. altitude (Rutnagherry in the Concan), 114; at 800 ft., Dapoolce (S. Concan), 134; at 1,700 ft. (Kundala Pass, from Bombay to Poona), 141; at 4,500 ft. (Mahabelshwur—mean of 15 years), 254; at 8,300 ft. (Augusta Peak, Uttrey Mullay range), 194; at 6,100 ft. (Kotagherry, in the Neighberries, one year), 81; at 8,640 ft. (Dodabetta, highest point of Western India, one year), 101 inches. The same principle is observable in the arid lofty table-land of Thibet, and in the continuous elevated regions where rain seldom falls. So also in Chili and other parts of the Andes. Dr. John Fletcher Miller, of Whitehaven, adduces evidence, in his interesting account of the Cumberland Lake District, to demonstrate the existence of a similar law in England, where he considers the maximum fall of rain to be at the height of 2,000 feet.

† In 1829, I wrote and published in Calcutta a small brochure, entitled *The Effects of Climate, Food, and Drink on Man*. The essay was prepared in the hope of inducing the Government to adopt sanitary measures for the drainage and ventilation of Calcutta, where cholera had become permanently located. I predicted that unless the miasms of this fearful malady were destroyed in the Indian cities by the purification of their respective atmospheres, the disease would be extensively generated and waited with the periodical winds from Asia to Europe. The prognostication was ridiculed: no experience may now perhaps induce corporations and citizens of large towns to adopt timely-effective sanitary measures. By so doing a healthy climate may everywhere be obtained, but no altitude or position will avail for the prevention of endemic diseases, or for lengthening the duration of life, wherever large masses of human beings are congregated, unless complete drainage, free circulation of air, and the removal of all putrescent animal and vegetable matter be made an urgent and daily duty.

† Abstract of the mean annual summaries of a meteorological register kept at Calcutta for ten years:—

Years.	Sunrise.	2-40 P.M.	Sunset.
1841	72.7	88.0	88.4
1842	73.3	88.0	82.1
1843	73.3	87.6	82.5
1844	72.7	87.6	82.3
1845	73.7	86.9	82.3
1846	74.3	86.3	81.9
1847	73.2	86.1	81.1
1848	74.1	87.4	82.5
1849	73.6	86.7	81.8
1850	73.1	86.1	81.4
Mean	73.4	87.2	82.0

The annual fall of rain at Calcutta during six years, commencing with 1830, averaged 64 inches. In the wet season evaporation is very slight.

‡ Amount of rain at Bombay for six years:—

Years.	Inches.	Inches.
1845	54.73	1848
1846	87.48	1849
1847	67.31	1850

Average annual fall during thirty years, 76.04 inches. At Madras, average for eight years, 66.9 inches.

§ Between lat. 26° 54', and lat. 29° 23'.—(Boileau's *Tour in Rajwara*, pp. 304-317.)

¶ Situation, about 350 miles from nearest part of Bay of Bengal, and 420 miles from Indian Ocean. In 1826, and in 1831, the fall of rain slightly

The monsoons or prevailing winds within the tropics, as on the Coromandel and Malabar coasts, are denominated the South-west and the North-east; but, owing to modifying circumstances, the direction is in several places changed; at Arracan, the S.W. blows more frequently from the S., and the N.E. more to the W. of N. Lower Bengal, including the country around Calcutta, has a climate more trying than that of any other part of India. November, December, and January are tolerably cool, and Europeans may walk out during the day. In February, March, April, and May, the heat daily increases, until, during the last month especially, it becomes almost intolerable; not a cloud appears in the heavens to mitigate the burning rays of the sun, which seem to penetrate into the very marrow of an European. I have known men and beasts to drop dead in the streets of Calcutta. When the monsoon is on the eve of changing, before the *chota bursaut* (little rain) set in, the nights as well as the days are oppressive; respiration becomes laborious, and all animated nature languishes: the horizon assumes a lurid glare, deepening to a fiery red; the death-like stillness of the air is occasionally broken by a low murmuring, which is responded to by the moaning of cattle; dense, dark masses of clouds roll along the Bay of Bengal, accompanied with occasional gusts of wind; streaks of lightning, after sunset, glimmer through the magazines where the electric fluid is engendered and pent up; the sky becomes obscured with mist, and lowering; next, broad sheets of lambent flame illumine each pitchy mass, until the entire heavens seem to be in a blaze, while peal after peal of thunder reverberates from cloud to cloud, like discharges of heavy artillery booming through cavernous hills, or along an amphitheatre of mountains; thin spray is scattered over the coast by the violence of the increasing gale,—the rain commences in large drops, augments to sheeted masses, and sweeps like a torrent from the sky; the surf roars along the beach,—the wind howls furiously, screaming or groaning piteously, and every element seems convulsed with the furious conflict: at length the S.W. monsoon gains the victory, and the atmosphere becomes purified and tranquil. The monsoon is felt with varying degrees of intensity at different parts of the coast; but at Madras and at Bombay the scene is one of awful grandeur. During the rains the air is saturated with moisture, and the pressure on each square inch of the human frame causes extreme lassitude and mental depression; along the sea-shore the pernicious effects are mitigated by a sea-breeze, called the "Doctor," which sets in about 10 a.m. and lasts until sunset. As the country is ascended above the ocean-level, varieties of climate are experienced; but on the plains of the Ganges and of the Indus, and in some parts of Central India, hot winds blow nearly equal in intensity to those which are felt in Australia. In few words, some idea may be conveyed of the climate of several districts:—

Bengal Proper,—hot, moist, or muggy for eight months—April to November; remainder cool, clear, and bracing.

Behar,—cool in winter months; hot in summer; rain variable.

Oude,—fluctuating temperature and moisture; therm. range 28 to 112°; rain, 30 to 80 inches.

Benares,—mean temperature, 77°; winter cool and frosty sometimes; therm. at night, 45°, but in the day, 100°; rain variable—30 to 80 inches.

Agra,—has a wide range of temperature; in mid-winter night-frosts and hail-storms sometimes cut off the cotton crop and cover the tanks with ice; yet at noon in April, therm. reaches the height of 106° in the shade.

Ghazepore,—range in coldest months, 58 to 71°—April, 86 to 96°; May, 86 to 95°; June, 85 to 98°; July, 86 to 96°. In the *Dehra Doon*—range 37 to 101°. In the year 1841, December mean heat, 60°; June, 88°; whole year 74°. In 1839, total fall of rain, 67 inches; of which in July, 15; August, 26.

Cuttack and opposite coast of Bay of Bengal,—refreshed by a sea-breeze blowing continuously from March to July.

Benar,—moderate climate according to elevation.

Madras,—cold season of short duration in the Carnatic. Mercury in therm. higher than in Bengal, sometimes 100° Fahr. Heat tempered by sea breezes.

Arcot,—high temperature, 116° in the shade, sometimes 130° Fahr. Few sudden vicissitudes; storms infrequent.

Salem, fluctuating climate—in January 58 to 82°; March 66 to 95°; May, 75 to 96°.

Trichinopoly,—has a steady high temperature, a cloudless sky, dry and close atmosphere, with much glare and intense radiation of heat.

Vizagapatam,—on the coast hot, moist, and relaxing; inland equally sultry, but drier.

Bellary is characterized by great aridity; rain 12 to 26 inches; therm. falls in January to 55 or 50°; thunder-storms frequent in summer months.

Cuddapah,—average max. temperature for several years (in the

exceeded 65 inches; the greatest registered fall was 72 inches, and that was in 1809. Average fall of rain for eight years, 48-10 inches. Proceeding westward towards the Ghauts and Indian Ocean, the rains become heavier until reaching Mahabalahur, where the fall is probably unexampled in amount; in 1849 it was 294 inches. The mean annual quantity is 239 inches, of which 227 fell in the four monsoon months. The greatest annual fall was in 1834, when it amounted to 297 inches. Another report gives the mean annual fall, as deduced from the observations of ten years, at 229 inches; and the number of days on which rain falls at 127.

shade), 98°; min., 65°; mean, 81°; mean temperature during monsoon, 77°; max., 89°.

Madura,—on the hills mild and genial in summer; therm. seldom below 50° or above 75°; in the plains, reaching 115° and even 130.

Travancore,—owing to proximity of mountains, humid but not oppressive.

Mysore,—table land cool, dry, and healthy; at Bangalore (3,000 ft. high), therm. range from 56 to 82°. The monsoons which deluge the Malabar and Coromandel coasts, have their force broken by the Ghauts on either side, and genial showers preserve the Mysorean verdure throughout the year.

Neilgherries,—the climate resembles that of the intertropical plateaux of America; at Ootacamund (height 7,300 ft.), mean temperature rather above that of London, but ann. range very small; not sufficient sunshine to bring the finer European fruits to perfection, but corn and vegetables thrive. Lower down the vales enjoy an Italian climate; at Coimbatore (height 4,483 ft.), during the cold season, max., 59°; min., 31°; in April, average 65°; May, 64° Fahr.; there are no sultry nights, a blanket being acceptable as bed-covering in all seasons. In the higher regions, the air beyond the zone of clouds and mists is clear and dry, as evidenced by the great distance within which sound is heard, and by the buoyancy of the human frame.

Coorg is a bracing mountain region. Daily range, 2 to 6°; ann. 50 to 80° Fahr.; annual rain, at Mercara (4,500 ft.), 119 inches; in June, about 40 inches.

Malabar coast,—warm but agreeable; therm. 68 to 86° Fahr.; ann. rain, 120 to 130 inches.

Canara and the Concans,—beneath the Ghauts are not, tropically speaking, unhealthy, except where marsh and jungle prevail, when malaria is produced.

Bombay,—hot; tropical heat diminished by sea-breezes.

Bronch,—December to March, cool; average rain, 33 inches.

In *Goozerat*, which is the hottest part of W. India, the westerly winds are burning in May, June, and July; temperature high for nine months; average fall of rain, 30 inches.

Mahratta country,—near the Ghauts the clouds are attracted from the Indian Ocean, and a profusion of rain falls for three or four weeks without intermission, but often not extending 30 m. to the E. or S.

The *Deccan* table-land is salubrious; at Sattara, mean ann. temperature, 66°. Even in September I enjoyed the air of Poona, as a great relief from the sultry heat of Southern China. Ann. range of therm., 37 to 94°; fall of rain, light and uncertain—22 to 30 inches; among the Ghauts, 300 inches. Proceeding westward towards the Ganges, and northward through *Central India* plateau, there is a modified temperature (at Meerut, therm. falls to 32° Fahr.), with occasional hot winds, which prevail as far as Sinde and the Punjab. Sinde is dry and sultry; at Kurtachce, 6 or 8 inches rain; at Hyderabad, 2 inches; at Larkhana, farther north, there was no rain for three years. Mean max. temperature of six hottest months, 98° in the shade.

Punjab,—more temperate than Upper Gangetic plain; from November to April, climate fine; summer heat, intense; hot winds blow with great violence, and frequent dust-storms in May and June render the air almost unbreathable. Rains commence in July; August and September sickly months. The Great Desert to the S. of the Punjab has a comparatively low temperature; at Bickaneer, in winter, ponds are frozen over in February; but in summer the heat is very great; therm. 110 to 120° in the shade.

Candish has a luxurious climate like that of Malwah.

Upper Assam has a delightful temperature; the heat bearable, and the cold never intolerable. Mean temperature of four hottest months, about 80°; of winter, 57°; mean ann. 67°; heavy rains, which commence in March and continue to October. The quantity which falls is unequal; at Gowhatty, it is about 80; at Chirra Poonjee, 200; and in the Cossya country, 500 to 600 inches=50 ft. At this latter place there fell in 1850 no less than 502 inches=42 ft.; in August, 1841, there were 264 inches=22 ft., in five successive days—30 inches every 24 hours. [Let it be remembered that the annual fall in London is 27; in Edinburgh, 24; in Glasgow, 32 inches.] The eastern side of the Bay of Bengal, to the Straits of Malacca, is more genial and agreeable than that of the Coromandel coast: the greatest heat is in April; therm., at Mergui, 100°; the monsoon is mild, but violent to the northward.

Lower Assam and Arracan a climate similar to Lower Bengal.

This rapid sketch will indicate the variety of climates in India; but it is in the loftier adjoining regions that the greatest extremes exist.

The *Himalaya and Hindoo-Koosh* slopes and valleys exhibit a very varied temperature, and corresponding diversity of products, from the loftiest forest trees to the stunted lichens and mosses, when the last trace of vegetable life disappears as effectually as it does at the Arctic or Antarctic Poles, snow being equally perpetual at an elevation of four to five miles (20,840 to 25,000 ft.) above the sea, as at the extreme northern and southern parts of our globe. On the southern, or Indo-Gangetic side of the Himalaya, which rises like a wall from the sub-Himalaya, the snow-line commences at 12,000 to 13,000 ft. on some of the spurs or buttresses; on the northern side of the same range,—tableland of Tibet 10,000 ft., above the sea, the snow-line commences at 16,000 ft., but in some places is not found at 20,000 ft. On the southern slope cultivation ceases at 10,000 ft.; but on the northern side, cultivation extends to 14,000 ft., where birch trees flourish; the limit of furze-bushes is at 17,000 ft. Vegetation, to some extent, indicates the more or less severity of this mountain climate: the *Deodar* has its favourite abode at 7,000 to 12,000 ft.—attains a circumference of 30 ft., and of great stature, and the wood will last, exposed to the weather, for 400 years. Various species of magnificent pines have a range of 5,000 to 12,000 ft.; the arborescent rhododendron, every branchlet terminated by a gorgeous bunch of crimson flowers, spreads at 5,000 to 8,000 ft.; the horse-chestnut and yew commence at 6,000 ft., and end at 10,000 ft.; the oak flourishes at 7,000 to 8,000 ft.; maple, at 10,000 to 11,000 ft.; ash, poplar, willow, rose, cyprus, at 12,000; elm, at 7,000 to 10,000; birch commences at 10,000, ceases on S. slope at 13,000 ft.; on N. side fine forests of this tree at 14,000 ft. Juniper met with occasionally at latter-

named height; the grape attains great excellence at Koonawur, 8,000 ft., but does not ripen beyond 9,000 ft.; the currant thrives at 8,000 and 9,000 ft.; apricot, at 11,000 ft.; gooseberry and raspberry, at 10,000 to 12,000 ft.

The decrement of heat in proportion to latitude and elevation is, as yet, imperfectly ascertained. Dr Hooker* allows one degree of Fahrenheit's thermometer for every degree of latitude and every 300 ft. of ascent above the sea; at Calcutta, in 22° 34', the mean ann. temperature is about 75°; that of Darjeeling, in Sikkim, 27° 2', 7,450 ft. above Calcutta is 53°, about 26° below the heat of Calcutta. The decrease of temperature with elevation is much less in summer than in winter: in January, 1°=250 ft., between 7,000 and 13,000 ft.; in July, 1°=400 ft.; the decrement also less by day than by night. The decremental proportions of heat to height is roughly indicated by this skillful meteorologist,—

1°=300 ft. at elevation	1,000 to 8,000 ft.
1°=320 ft. "	8,000 to 10,000 ft.
1°=340 ft. "	10,000 to 14,000 ft.
1°=400 ft. "	14,000 to 18,000 ft.

This must be affected by aspect and slope of elevation; by quantity of rain falling, and permeability of soil to moisture; by amount of cloud and sunshine, exposure of surface, absence of trees, undulation of the land, terrestrial radiation, and other local influences.

Within the tropics, in the northern hemisphere, the limit of perpetual congelation is 16,000 to 17,000 ft. above the sea; in lat. 30°, 14,000 ft.; in 40°, 10,000 ft.; in 50°, 6,000 ft.; in 60°, 5,000 ft.; in 70°, 1,000 ft.; and in 80° and further north, at the sea level. In the southern hemisphere, Georgia, which is in lat. 56°, exhibits perpetual frost.

At Kumaon, winter rigour is moderated by great solar radiation, and somewhat tempered by contiguous snow-capped mountains, whence a diurnal current of air sets in as regularly as a sea-breeze on a tropical shore, and with a nearly equally invigorating effect. Snow commences to fall at the end of September and continues until the beginning of April. During the absence of snow for five months, the mercury ranges at sunrise, 40 to 55°; at mid-day 65 to 75° in the shade—90 to 110° Fahr. in the sun. The heat of course diminishes as height increases, except during the cold season. At Almora town, in 29° 30', 5,400 ft. elevation, the therm. before sunrise is always lowest in the valleys, and the frost more intense than on the hills of 7,000 ft. elevation, while at noon the sun is more powerful; extreme range in 24 hours, sometimes from 18 to 51° Fahr. Snow does not fall equally in every season; the natives say the greatest fall is every third year. On the Ghagor range, between Almora and the plains, snow remains so late as the month of May. At Mussoorie, 6,000 to 7,000 ft. high, the mean ann. heat is only 57° Fahr.; indeed, at 4,000 ft. hot winds cease, and vegetation assumes an European character. Annual fall of rain at Almora, 40 to 50 inches.

The northernmost part of Nepal valley, between 27 and 28°, and elevation of 4,000 ft., has a climate somewhat similar to that of the southern parts of Europe. In winter a hoar-frost commonly covers the ground, occasionally for three or four months, freezing the standing pools and tanks, but not severe enough to arrest the flow of rivers. In summer noon, the mercury stands at 80 to 87° Fahr. The seasons are very nearly like those of Upper Hindoostan; the rains set in earlier, and from the S.E. are usually very copious; and break up about October, causing excessive inundations in some places from the mountain torrents. In a few hours, the inhabitants, by ascending the sides of the enclosing mountains, may exchange a Bengal heat for a Siberian winter.

At Darjeeling the atmosphere is relatively more humid than at Calcutta; the belt of sandy and grassy land, at the foot of the Himalaya, only 300 ft. higher than in Calcutta, and 3½° N. of that city, is during the spring months, March and April, 6 or 7° colder; and though there is absolutely less moisture in the air, it is relatively more humid; this is reversed after the rains commence. The south wind, which brings all the moisture from the Bay of Bengal, discharges annually 60 to 80 inches of rain in traversing 200 m. of land; but the temperature is higher in advancing north-west from the Bay of Bengal, which may be caused from the absence of any great elevation in the Gangetic valley and plain, and its being walled in to the northward by the Himalaya mountains.

Elevation causes in Afghanistan a corresponding diversity of climate: at Cabul, which is considered to be very salubrious, and 6,396 ft. above the sea, the air is warmer in summer and colder in winter than that of England; and the diurnal therm. range is great, amounting to 40°. June, July, and August are the hottest. December, January, and February the coldest months,—the mercury falling several degrees below zero Fahr.; but the sun possesses sufficient power at mid-day to melt the surface of the snow, which, however, is again frozen at night. The seasons are very regular; the sky is unclouded, the air bright and clear, with scarcely any rain; in November a few showers are followed by snow; and from the middle of March till the 1st of May there is incessant rain, which melts the snow rapidly, and causes a sudden transition from winter to summer (with but little spring), when thunder and hail-storms occur: earthquakes are not unfrequent during winter in the immediate vicinity of the lofty ranges, but are said to be unknown at Candahar. Prevailing winds, N.N.W. and W.; E. seldom; winter, calm; variable at breaking up of the season.†

Cashmere valley, by its elevation (5,000 ft.), has a cool climate; in winter the celebrated lake is slightly frozen over, and the ground covered with snow to the depth of 2 ft.; hottest months, July and August, therm. 80 to 85° at noon, when the air is sometimes oppressive from want of circulation.

But it is in the loftier regions that the peculiarities caused by altitude are most observable: at—

Bussahir,—the climate varies from that of the intertropical at Rampoor, 3,260 ft.† above the sea, to that of the region of perpe-

tual congelation: in parts bordering on the table-land of Tartary the air is at one season characterized by aridity greater than that of the most scorching parts of the torrid zone. In October, and later in the year, when the winds blow with the greatest violence, woodwork shrinks and warps, and leather and paper curl up as if held to a fire; the human body exposed to those arid winds in a few minutes show the surface collapsed, and if long left in this condition life becomes extinct. Vegetation with difficulty struggles against their effects. Gerard found tracts exposed to them to have a most desolate and dreary aspect; not a single tree, or blade of green grass, was distinguishable for near 30 m., the ground being covered with a very prickly plant, which greatly resembled furze in its withered state. This shrub was almost black, seeming as if burnt; and the leaves were so much parched from the arid winds of Tartary, that they might be ground to powder by rubbing them between the hands. Those winds are generally as violent as hurricanes, rendering it difficult for the traveller by rubbing them between the hands. Those winds are generally as violent as hurricanes, rendering it difficult for the traveller by rubbing them between the hands. The uniform reports of the inhabitants represent the year as continual sunshine, except during March and April, when there are some showers, and a few clouds hang about the highest mountains; but a heavy fall of rain or snow is almost unknown. The excessive cold and aridity on the most elevated summits cause the snow to be there so light, loose, and powdery, that it is continually swept like smoke through the air by the tempestuous winds. The limit of perpetual congelation in Bussahir ascends to the northward.

The direct rays of the sun are extremely hot at great elevations: insomuch, that Jacquemont found the stones on the ground on the table-land of Tartary, at an elevation of 15,000 or 16,000 ft., become so hot in sunshine, as to be nearly unbearable by the hand; at an elevation of 18,000 ft., Gerard found the rays of the sun so oppressive that he was obliged to wrap his face in a blanket.

At Bulti or Little Tibet the atmosphere is very clear and dry. But though rain is almost unknown, snow falls, and lies from the depth of 1 to 2 ft. The cold in the elevated parts is intense in winter; on the high and unsheltered table-land of Deotshuh, it at that season totally precludes the existence of animal life. The heat in the lower parts in summer is considerable, the therm. ranging from 70 to 90° in the shade at noon.

At Ladakh the climate is characterized by cold and excessive aridity. The snow-line is so usually high in Spiti and Rupshu, at the south-eastern extremity of Ladakh, as to show the utter futility of attempting to theorise respecting the so-called isothermal lines, in the present scanty and imperfect state of our information as to the data from which they should be determined. Gerard says, respecting Spiti, in lat. 32°, that the marginal limit of the snow, which, upon the sides of Chimborazo, occurs at 15,700 ft., is scarcely permanent in Tibet at 19,000, and one summit, 22,000 ft. high, was seen by him to be free of snow on the last day in August. This absence of snow probably results, in part, from the very small quantity of moisture kept suspended in the highly rarefied atmosphere, in part from the intense heat of the direct rays of the sun, the latter cause being in some degree dependent on the former. "Wherever we go," observes Gerard, "we find the sun's rays oppressive." In one instance, in the beginning of September, at an elevation of 15,000 ft., a thermometer, resting upon the rocks, marked 158°; in another, at 14,500 ft., the instrument, placed on sand, marked 130°; and in a small tent, at an elevation of 13,000 ft., it indicated 110°. These phenomena he attributed to the rarefaction and tenuity of the atmosphere, from elevation and the absence of moisture,—circumstances which allow of such immediate radiation of heat, that at the same moment there will be a difference of more than 100° between places only a few hundred yards asunder, occasioned by the one receiving, and the other being excluded, from the direct rays of the sun. At Rupshu, at the elevation of 16,000 ft., it freezes every night, even at Midsummer; but the heat of the day so far counterbalances the cold of night, that the Lake Chamoreuil is free from ice during the summer months. At Le, having an elevation of about 10,000 ft., frosts, with show and sleet, commence early in September and continue until May; the therm. from the middle of December to February, ranges from 10 to 20°; even in June, the rivulets are often, at night, coated with ice. Moorcroft, during his Himalayan travels, found the therm., when exposed to the sun's rays at mid-day in July, to range from 134 to 144°. The atmosphere is in general dry in all parts of the country.

In the works of Gerard, Lloyd, Moorcroft, Vigne, Jacquemont, and Hooker, useful details are given on the meteorology of these lofty regions.

The climate of northern India is not inimical to the European constitution, that of Bengal and other low districts is very trying, especially to those who do not follow a strictly temperate course in all things; but there are some instances of Englishmen living for a quarter of a century at Calcutta, and on returning to England, enjoying another quarter of a century of existence, preserving, to old age, a vigorous mental and bodily frame. In the hot and moist parts of India, abdominal diseases,—in the warm and dry, hepatic action or congestion prevail. Exposure at night, especially to malaria or the effluvia arising from intense heat and decomposing vegetable and animal matter, causes a bilious remittent (popularly called jungle fever), which operates as a poison on the human system, and becomes rapidly fatal if not counteracted by mercury, arsenic, or some other poison, or unless the morbid matter be expelled, and the patient have strength of frame to survive the fever.

The direct rays of a nearly vertical sun, and even those also of the moon, cause affections of the brain, which are frequently fatal, and when not so, require removal to the

* In his valuable work, *Himalayan Journals*, ii. 404.

† Notes of observations, 1st April, 1838, to 31st March, 1840, in Afghanistan. —(*Calcutta Jour. Nat. Hist.*)

‡ The Choora district (valley of the Fabur, 4,500 feet) is a beautiful and fertile tract, with a delightful climate.

§ Thornton's *Gazetteer: Afghanistan*, &c., vol. i., p. 120.
|| Mr. W. C. Blaquiere, for a long period police magistrate at Calcutta, died there in 1854, at. 95; he arrived at Bengal in 1774.

temperate zone for their relief. The establishment of sanatoria at elevated and healthy positions, has proved a great benefit to Anglo-Indians, who at Darjeeling, Simla, Landour, Mussoorie, Mount Aboo, the Neilgherries, and other places, are enabled to enjoy a European temperature and exercise—to check the drain on the system from the cutaneous pores being always open—to brace the fibres and tone the nerves, which become gradually relaxed by the long continuance of a high temperature. As India becomes more clear and cultivated, and facilities for locomotion by railroads and steam-boats are augmented, the health of Europeans will improve, and their progeny will derive a proportionate benefit; but it is doubtful whether there is any part of the low country where a European colony would permanently thrive, so as to preserve for successive generations the stamina and energy of the northern races.

The diseases that prevail among the Indians vary with locality; low, continued fever is most prevalent in flat, and rheumatism in moist regions. Leprosy and other skin disorders are numerous among the poorest classes. *Elephantiasis*, or swelling of the legs; *beri-beri*, or enlargement of the spleen; torpidity of the liver, weakness of the lungs, and ophthalmia, are common to all ranks and places; goitre is found among the hill tribes; cholera and influenza sometimes decimate large masses of the people. Numerous maladies, engendered by early and excessive sensuality, exist among rich and poor, and medical or surgical skill are consequently everywhere in great request. The inhabitants of India, generally speaking, except on the plateau, and on the more elevated districts, have not the robust frames or well-wearing constitutions which result from an improved social state, or from the barbarism which is as yet free from the vices and defects of an imperfect civilisation; the inhabitants of the torrid zone do not generally enjoy a longevity equal to those who dwell in the temperate climates of the earth.

GEOLOGY.

It will require many more years of scientific research before an accurate geological map can be laid down for India.* Immense tracts covered with impenetrable forests, the few Europeans in the country occupied with military and civil governmental duties, the lassitude of mind and body which, sooner or later, oppresses the most energetic, and the malaria which inevitably destroys those who attempt to investigate the crust of the earth, overrun with jungle, or immersed in swamp,—these and other obstacles render the prosecution of this science a matter of extreme difficulty. All that can here be attempted is to collate the best known data, and arrange them in outline, for reference and future systematic exposition.†

Representatives of all the series found in Europe and other parts of the world are traceable in India. Mr. Carter has industriously noted the observations of various investigators; and the following summary is partly abstracted from his compilation:—

OLDER METAMORPHIC STRATA.—*Gneiss, Mica Schiste, Chlorite Schiste, Hornblende Schiste, Quartz Rock, Micaceous Slate, Talcose Slate, Clay Slate, Granular Limestone.*

Gneiss.—Most general and abundant,—occurring in different parts of the Himalaya; Oodeypore; near Baroda; Zillah Behar; Rajmahal hills; Phoonda Ghaut; Northern Circars; and more or less throughout "peninsula" (? Deccan) to the Palghat, and probably to Cape Comorin: it is frequently veined by granite, contains in most places specular iron ore: beds of garnets common everywhere; corundum in southern India, and beryl in Mysore. Composition varied in texture, compactness, and with more or less mica; colour—speckled, black, brown, reddish gray to white; sometimes tinted green where chlorite replaces mica: when very fine-grained and decomposing, gneiss bears a close resemblance to fine-grained sandstone.

Mica Schiste.—Southern Mahratta country, and western extremities of Vindhya range, passes into micaceous slate at the Phoonda Ghaut: veined with quartz, but no granite: being associated with gneiss and hornblende schistes, they pass into each other.

Chlorite Schiste.—Southern Mahratta country: it also contains garnets.

Hornblende Schiste, forms the sides of the Neilgherries, where it is from five to seven miles in breadth: garnets found in it. Southern Mahratta country, Salem; and often passes into mica schiste on the Malabar coast.

Quartz Rock.—Hills between Delhi and Alwur, and between Ajmere and Oodeypore; mountains around Deybur Lake, Chittoor, and at the western part of the Vindhya range, with mica slate; southern Mahratta country; more or less in the granitic plains of Hyderabad, and in the *drongs* of Mysore. The rock is compact and granular in the Ajmere mountains: and of a red, violet, gray, or brown colour; brilliantly white in the Mahratta country. Mica is

frequently disseminated throughout the rock in large masses; talc and chlorite, occasionally.

Micaceous Slate and Chlorite Slate.—Both at the Phoonda Ghaut; and the latter in the Mahratta country. The micaceous occurs in the Indo-Gangetic chain, Kunawur; and in the Soolumbur range, Oodeypore.

Clay Slate, appears to be of great thickness, and considerable extent, viz., from the Arravulli range, the lower part of which is composed of this formation; thence to Oodeypore, *via* the Soolumbur range, across the Durgawud valley to Malwa, on the Kistnah; southern Mahratta country, Nellore; and in the Eastern Ghauts at Jungamanipenta, a ferruginous clay-slate overlies the trap at Mahabeshwur. In the Arravulli it is massive, compact, and of a dark blue colour. The Soolumbur range is almost entirely composed of this and chlorite slates. Micaceous passes into clay-slate at the Phoonda, and farther south, the Saltor passes (Western Ghauts). This also occurs at the Carrackpore hills (Behar), where the clay-slate is about twenty miles wide, and extends in the direction of the strata.*

PLUTONIC ROCKS.—*Granite, Diorite or Greenstone.*

Granite.—Himalaya; Ajmere and around Jeypoor, traversing the mountains in veins and dykes; the Arravulli range consists chiefly of granite, resting on slate; Mount Aboo; from Balmeer across the sands to Nuggur Parkur; the Gir; Girnar; between Oodeypore and Malwah, are all varieties: it extends more or less southward to the Nerbudda; on that river between Mundela and Amarkantak, Jubbulpore, Kalleenjir, Zillah Behar, Carrackpore hills; in Bhogulpore and Monghyr districts; near Baitool; Nagpore territory; Cuttack; Orissa; Northern Circars; Hyderabad; between the Kistnah and Godavery; Gooty; Neilgherries; Malabar coast at Vingoria; Coromandel; between Madras and Pondicherry; ending at Cape Comorin. The granitic rocks vary in structure and composition, as they do in colour: thus there are *syenitic, pegmatitic, and protogenic.* It is gray at Ramteak in Nagpore, red generally in the Deccan, but at Vencatigherry (Mysore), and at Vingoria, gray; in the Neilgherries it is syenitic.

Greenstone.—Hazareebaugh, Mahratta country, Mysore, Nellore, Chingleput, Madras, Trichinopoly, Salem, in the granitic plains of Hyderabad; and extensively throughout Southern India. In the Deccan the dykes may be traced continuously for twenty miles; about Hyderabad they are from 100 to 300 feet broad; about four miles from Dhonee, between Gooty and Kurnool, there is one 150 feet high, and 200 feet broad, passing through a range of sandstone and limestone mountains.

SILURIAN ROCKS.—*Greywacke.*—Chiddore, Rajmahal hills; Kumaon. It is a quartzose sandstone; yellow colour, resinous lustre, and compact splintery fracture.

Transition or Cambrian Gneiss, is of great extent in Bhagulpore district, composing two-thirds of the country between the Curruckpore and Rajmahal hills, and the greater portion of the southern ridges of the latter group. It consists of quartz, more or less, hornblende, felspar, mica, and garnet pebbles.

OOLITIC.—*Limestone.*—Cutch; near Neermuch, Malwah; Bundelcund; on the river Sone; Fyzabad, on the Bheema; Kuladgee, in the southern Mahratta country; on the Kistnah; and as far south as Cuddapah. Though its principal characters are its uniform lithographic texture, solidity, conchoidal smooth fracture, and hardness,—dendritic surface, smoky gray colour, passing into dark smoky blue; and parallel thin stratification,—it differs when departing from its general composition, just as the shales differ which interlaminate it, the coal strata, and the sandstone, as being more or less argillaceous, bituminous, or quartziferous; of different degrees of hardness, coarseness, and friability of structure; and of all kinds of colours, streaked and variegated. It is occasionally veined, and interlined with jasper and light-coloured cherts, which, near Cuddapah, give it a rough appearance; also contains drusy cavities, calcedonies, and cornelian, north of Nagpore: in the bed of the Nerbudda between Lamaita and Beragurh, near Jubbulpore, of a snow-white colour, and traversed by chlorite schiste. It is frequently denuded of its overlying sandstone and shales in Southern India, and in this state is not uncommonly covered by trap, as near Ferozabad on the Bheema.

Thickness, 310 feet near Kurnool; 10 to 30 feet on the Bheema, with strata from 2 inches to 2 feet thick. In the part of the Himalaya examined by Captain Strachey, the secondary limestones and shales were several thousand feet in thickness, the upper portion being in some places almost made up of fragments of shells.

If the white crystalline marble generally of India is allowed to be metamorphic strata, this limestone exists in the Girnar rock of Kattywar; the lithographic form in Cutch, and between Neermuch and Chittore; the white marble about Oodeypore, and northwards in the neighbourhood of Nusseerabad, Jeypoor, Bessona, and Alwar; a narrow strip about 150 m. long in Bundelcund; again about Bidjyghur and Rhotasghur on the Sone; white marble in the bed of the Nerbudda, near Jubbulpore; in the hills north-east of Nagpore; near the junction of the Godavery and Prencheta rivers; thence along the Godavery more or less to Rajahmundry; Sholapore district; on the Bheema; of every variety of colour, and greatly disturbed and broken up about Kaludgee, in the southern Mahratta country; along the Kistnah, from Kurnool to Amara-wattee; and more or less over the triangular area formed by the

* In the neighbourhood of Calcutta a series of boring experiments to find water were carried on at intervals between 1804 and 1833; the results were, artificial soil at surface; next, as follows:—A light blue or gray-coloured sandy clay, becoming gradually darker from decayed vegetable matter, until it passed at 30 ft. deep into a 2 ft. stratum of black peat, apparently formed by the *debris* of Sunderbund vegetation, which was once the delta of the Ganges; below the peat a black clay, and in this and the gray clay immediately above the peat, logs and branches of yellow and red wood, found in a more or less decayed state. In one instance only bones were discovered, at 28 feet deep. Under blue clays, at 50 to 70 feet deep, *kunkur* and *bagiri* (apparently small land shells, as seen in Upper India). At 70 feet a seam or loose reddish sand.—75 to 125 feet beds of yellow clay predominate, frequently stiff and pure like potter's clay, but generally mixed with sand and mica; horizontal strata of *kunkur* pass through it, resembling exactly those found at Midnapore. Below 125 feet a more sandy yellow clay prevails, which gradually changes to a gray, loose sand, becoming coarser in quality to the lowest depth yet reached (175 feet), where it contains angular fragments, as large as peas, of quartz and felspar.

* The late eminent geologist, J. B. Greenough, has made an excellent beginning by his large map on this subject, and by the voluminous materials he collected.

† See a valuable *Summary of the Geology of India, between the Ganges, the Indus, and Cape Comorin*; by H. J. Carter, Asst. Surg. Bombay Establishment, Aug. 1853; reprinted from Journal of Bombay British Asiatic Society, p. 166.

latter place, Gooty, and the Tripetty hills. Chunan, an argillaceous limestone, used for building in Bengal, Behar, Benares, &c.;* occurs in nodules in the alluvium, which, at Calcutta, is 500 to 600 feet thick. Near Benares, it contains fragments of fresh-water shells. South of Madras, a dark clay abounds in marine shells, used in preference for lime-burning to those on the beach, as being free from salt.

Sandstone.—appears to be composed of very fine grains of quartz and more or less mica, united together by an argillaceous material. It exists in Cutch; in the Panna range, Bundelcund; the Kymore hills; Ceded Districts; in lat. 16°, 15 m. west of the Godavery; on the banks of the Kistnah; plains of the Carnatic, and the districts watered by the Pennar river. It is present in the sub-Himalaya range, and in the Rajmahal hills. All the towns on the Jumna, from Delhi to Allahabad, appear to be built of this sandstone. The plains of Beekaneer, Joudpore, and Jesulmere, are covered with the loose sand of this formation. It borders on the northern and western sides of the great trappean tract of Malwah, and forms the north-eastern boundary of the Western India volcanic district.

Its thickness varies, either from original inequality or subsequent denudation. Its greatest depth, at present known, is in the eastern part of the Kymore range, where it is 700 feet at Bidjibhur; and 1,300 feet at Rhotazhur; at the scarps of the waterfall's over the Panna range, it does not exceed 360 or 400 feet; from 300 to 400 feet is its thickness near Ryelcherroo and Sandrogam, in the Ceded Districts. Its greatest height above the sea is on the banks of the Kistmah, 8,000 feet. Organic remains are very abundant in this formation. It has been ascertained that the great trap deposit of the Western Ghauts, rests on a sandstone containing vegetable remains, chiefly ferns.

VOLCANIC ROCKS.†—**Trap.**—The largest tract is on the western side of India, and extends continuously from the basin of the Malpurba to Neemuch in Malwah; and from Balsar, about 20m. south of the mouth of the Taptee, to Nagpore. This is probably the most remarkable trap-formation existing on the surface of the globe; its breadth is about 335 m. N. to S.; length about 350 m. E. to W.; and covers an area of from 200,000 to 250,000 sq. m. Another portion extends from Jubulpore to Amarkantak, thence south-westerly towards Nagpore. It constitutes the core of the Western Ghauts, and predominates in the Mahadeo and Sautpoora mountains.

Its two grand geological features along the Ghauts, where it has attained the highest elevation, are flat summits and regular stratification. Fourteen beds have been numbered in Malwah, the lowest and largest of which is 300 feet thick. These are equally numerous if not more so, along the Ghauts, but the scarps are of much greater magnitude. Besides its stratification, it is in many places columnar; as in the beds of the Nerubudda and Chambul; and the hill-fort of Singhur presents a surface of pentagonal divisions.

Wherever the effusions exist to any great extent, they appear to be composed of *laterite* above, then *basalt*, and afterwards *trappite* and *amygdaloid*.

Basalt.—There are two kinds of this rock; a dark blue-black, and a brown black. Both are semi-crystalline. Their structure is massive, stratified, columnar, or prismatic. Dark blue is the basalt of Bombay Island, brown-black that of the Deccan.

To this general description I may add what I have been enabled to glean of the specific structure of some of the principal positions:—

Himalayas.—Formations primary; the first strata, which is towards the plain, consists of limestone, lying on clay-slate, and crowned by slate, greywacke, or sandstone. Beyond the limestone tract, gneiss, clay-slate, and other schistose rocks occur; granite arises in the mountains near the snowy ranges. The peaks are generally composed of schistose rocks, but veined by granite to a great elevation. Kamet, however, is an exception, appearing to consist of granite alone. Greenstone dykes rise through and intersect the regular rocks. Strata fractured in all directions; slate as if crushed, and the limestone broken into masses. The soil is principally accumulated on the northern side.

The formation of the Indo-Gangetic chain, in Kunawur, is mostly gneiss and mica-slate; in some places, pure mica. On the left bank of the Sutlej, granite prevails, forming the Raldang peaks. Further north, it becomes largely intermixed with mica-slate; to the north-east changes into secondary limestone, and schistose rocks, abounding in marine exuvia.‡ In Kumaon, the Himalayas

are composed of crystalline gneiss, veined by granite; the range forming the north-eastern boundary is believed to be of recent formation. The mountainous tract south of the principal chain in Nepal consists of limestone, horn-tone, and conglomerate. The Sewalik (the most southerly and lowest range of the Himalayan system) is of alluvial formation, consisting of beds of clay, sandstone with mica, conglomerate cemented by calcareous matter, gravel, and rolled stones of various rocks. The supposition is, that it is the debris of the Himalaya, subsequently upheaved by an earthquake. The geology of the Sewalik is characterized by the occurrence of quantities of fossil remains.

Punjab.—Near the north-east frontier, in the vicinity of the Himalaya, is an extensive tract of rocks and deposits of recent formation; limestone, sandstone, gypsum, argillaceous slate; occasionally veins of quartz.

The Salt-range.—Greywacke, limestone, sandstone, and red tenaceous clay, with deposits of chloride of sodium, or common salt.

The Sufed-Koh is primary, consisting of granite, quartz, mica, gneiss, slate, and primary limestone.

The Suliman mountains are of recent formations, principally sandstone and secondary limestone, abounding in marine exuvia.

Central India.—Arravulli range, generally primitive, consisting of granite, quartz, and gneiss. Formation along banks of upper course of Nerubudda, trappean; lower down, at Jubulpore, granitic; at Bhera Ghur, channel contracted between white cliffs of magnesian limestone; at the junction of the Towah, there is a ledge of black limestone; at and near Kal Bhyru, slate of various sorts; basaltic rocks scattered over channel. Ranges enclosing Nemauro, banks of rivers, and eminences in the valley, basaltic. Saugor and Nerubudda territory; eastern part, towards amarkantak, generally sandstone; from here it extends westward, forming the table-land bounding Nerubudda valley on the north, and is intermixed with marl, slate, and limestone. The volcanic tract commences about lon. 79°, and extends to about the town of Saugor, which is situated on its highest part. This (trap), with that of sandstone, further east, may be considered to belong to the Vindhya; and the former to the Mahadeo and Sautpoora ranges. In some places, primitive rocks appear through the overlying bed. The Bindyachal hills are of horizontally-stratified sandstone; Panna hills, sandstone, intermixed with schiste and quartz; and, to the west, overlaid by limestone.

Western Ghauts.—The great core is of primary formation, inclosed by alternating strata of more recent origin. These have been broken up by prodigious outbursts of volcanic rocks; and from Mahabeshwur northward, the overlying rock is exclusively of the trap formation; behind Malabar they are of primitive trap, in many places overlaid by immense masses of laterite, or iron-clay. The Vurragherry or Pulnag hills (Madura) are gneiss, stratified with quartz; in some places precipices of granite.

Nagpore.—North-western and western part, volcanic, principally basalt and trap. This terminates at the city of Nagpore, and the primitive, mostly granite and gneiss, rises to the surface.

Mysore.—The *droogs*, huge isolated rocks, scattered over the surface; vary in elevation from 1,000 to 1,500 feet; bases seldom exceeding 2 m. in circumference; generally composed of granite, gneiss, quartz, and hornblende; in many places overlaid by laterite.

SOILS.

Mainly determined by the geological character of each district, except in the deltas, or on the banks of rivers, as in the Punjab, where an alluvium is accumulated. The land in Lower Bengal is of inexhaustible fertility, owing partly to the various salts and earthy limestone with which the deposits from the numerous rivers are continually impregnated: it is generally of a light sandy appearance. The alluvium of Sinde is a stiff clay; also that of Taurjore, Sumbulpore, and Cuttack, by the disintegration of granitic rocks. A nitrous (saltpetre) soil is general in Behar; in the vicinity of Mirzapoor town, it is strongly impregnated with saline particles; and at many places in Vizagapatam. The *regur*, or cotton ground, which extends over a large part of Central India, and of the Deccan, is supposed to be formed by a disintegration of trap rocks; it slowly absorbs,|| and long retains moisture; and it has produced, in yearly succession, for centuries, the most exhausting crops. It spreads over the table-lands of the Ceded Districts and Mysore, flanks the Neilgherry and Salem hills, and pervades the Deccan, but has not been observed in the Concan. It is a fine, black, argillaceous mould, containing, in its lower parts, nodules, and pebbly alluvium. *Kunkur* (a calcareous conglomerate) ¶ fills up the cavities and fissures of the beds beneath it; and angular fragments of the neighbouring rocks are scattered over its surface. It contains no fossils. In some parts it is from 20 to 40 feet thick. *Kunkur* is common in the north-western provinces, the rocks often advancing into the channel of the Jumna, and obstructing the navigation. In the western part of Muttra district, it is mixed with sand: in Oude, some patches of this rock, which unmixed with sand: in Oude, some patches of this rock, which undergo abrasion very slowly, stand 70 or 80 feet above the neighbouring country, which, consisting of softer materials, has been washed away by the agency of water. Its depth, in the eastern part of Meerut district, is from one to 20 feet. In the Doonab, between the Ganges and Jumna, and in many parts of the N.W. provinces, there is a light rich loam, which produces excellent wheat; at Ghazepore, a light clay, with more or less sand, is favourable

* The British Residency at Hydrabad (Deccan) is a specimen; the Corinthian columns, &c., being executed in white chunan.

† Volcanic fires are said by the natives to exist among the loftier peaks of the Hindoo-Koosh and the Himalayan ranges, but earthquakes are of rare occurrence. A severe convulsion was experienced throughout a large extent of country on 16th August, 1833,—vibration from N.E. to S.W., with three principal shocks; first at 6:30 p.m.; second, 11:30 p.m.; and third, at five minutes to midnight. It was most severely felt at and near Katmandoo, where about 320 persons perished; the trembling of the earth commenced gradually, and then travelled with great rapidity towards the westward; and increased in violence until the houses seemed shaken from their foundation—large-sized trees bent in all directions; the earth heaved fearfully; and while the air was perfectly calm, an awful noise burst forth as if from a hundred cannon. Probably in India, as in Australia, subterranean igneous action, which was formerly very violent, is now almost quiet, and finds its vent through ninety chimneys at a height of four or five miles above the sea. The Lunar Lake, 40 m. from Sauna, is a vast crater 500 feet deep, and nearly five miles round the margin; its waters are green and bitter, super-saturated with alkaline carbonate, and containing silic and some iron in solution; the mud is black, and abounds with sulphuretted hydrogen; the water is, nevertheless, pure and void of smell.

‡ The rock in which the Ellora caves are excavated is said to be a basaltic trap, which, from its green tinge and its different stages from hardness to disintegration, is supposed by the natives to be full of vegetable matter, in a greater or less degree of putrefaction; the crumbling rock affords a natural green colour, which is ground up and employed in painting on wet chunan (lime plaster).

§ Dr. Gerard found some extensive tracts of shell formation 15,000 ft. above the sea. The principal shells comprised rocks, mussels, and pearl-fish; nummularies and low cylindrical productions. These shells, of which many were converted into caru. of lime, some crystallized like marble, were lying upon the high land in a bed of granite in a pulverized state; the adjacent rocks composed of shell limestone, the large blocks formed of a multitude of shells of different sizes, imbedded in a mass of calcareous tufa. Four classes of shell formation were distinguished: one in particular, a freshwater bivalve,

resembling the *unio*, which exists in great abundance at the foot of the lower hills and throughout the Doonab. In the Neermal hills, north of the Godavery, on the road from Hydrabad to Nagpore, many very perfect fossil shells, mostly bivalves, and evidently marine, have been discovered imbedded in a volcanic rock, together with the head and vertebra of a fish; the formations around rest everywhere on granite; and there are several hot-springs holding lime in solution. Univalves and bivalves, particularly *buccinum*, *ammonites*, and mussels, abound in Malwah.

|| Most of the soils of India have a powerful absorbing quality; hence their fertile properties.

¶ *Kunkur*.—A calcareous concretion, stratified and in mammillated masses of all sizes, which contains 50 to 80 per cent. of carbonate of lime, some magnesia, iron, and alumina; these nodules are interspersed in large quantities throughout extensive tracts of the alluvial and secondary formations, and are ascribed to the action of calcareous springs, which are of frequent occurrence.

for sugar and for roses. As the Ganges is ascended before reaching Ghazee-pore, the soil becomes more granitic, and is then succeeded by a gravel of burnt clay, argite, and cinders, resembling what is seen in basaltic countries. Assam, which has been found so well adapted for the culture of tea, has for the most part a black loam reposing on a gray, sandy clay; in some places the surface is of a light yellow clayey texture. The soil usually found in the vicinity of basaltic mountains is of a black colour, mixed with sand. Disintegrated granite, where felspar predominates, yields much clay. A sandy soil exists in the centres of the *Dooabs*, of the Punjab; more or less in Paniput, Rhotuck, and Hurriana districts; Jeypoor,

Machery, and Rajpootana; and in some parts of Sinde; in Mysore a brown and rather sandy earth prevails; Trichinopoly is arid and sandy; and near Tavoy town, on the E. side of the Bay of Bengal, there is a large plain, covered with sand.

The soil of Nagpore, in some tracts, is a black, heavy loam, loaded with vegetable matter; red loam is found in Salem and in Mergui. Tinnevely has been found well suited for the cotton plant, and the substance in which it delights looks like a mixture of lime, rubbish, and yellowish brickdust, intermixed with nodules of *Kunkur*.^{*} A chymical analysis of three of the best cotton soils in these districts gives the following results:—

Cotton Soils.	Vegetable matter.	Saline and Extractive.	Iron.			Carb. lime.	Magnesia.	Alumina.	Silica.	Water and loss.	Remarks.
			Protoc.	Deutox.	Tritox.						
Bundelcund -	2.00	0.33	—	7.75	—	11.90	trace	3.10	74.0	1.00	No peat or lignite; nothing soluble in cold water; silica in fine powder; kunkur in the gravel. Gravel, mostly silica, with some felspar, but no kunkur. Gravel, almost wholly kunkur; some carb. iron; half the soil of gravel.
Coimbatore -	2.30	traces	4.00	—	—	7.50	trace	2.80	82.80	0.60	
Tinnevely -	0.15	0.20	—	—	2.88	19.50	0.15	2.00	74.00	1.12	

Goozerat is generally termed the Garden of Western India. With the exception of Kattywar, and to the eastward of Broach, it is one extensive plain, comprising many different soils; the chief varieties being the black or cotton soil, and the *gorat*, or light grain-producing soil.† The former is chiefly confined to Broach, and part of Surat N. of the Tappet; the latter prevails throughout Baroda, Kayra, and part of Ahmedabad, becoming more mixed with sand to the northward; black soil abounds to the westward of the Gulf, and in many of the Kattywar valleys. The numerous vegetable products of India attest the variety of soils which exist there.

MINERALS.

Various metals have been produced and wrought in India from the earliest ages; the geological character of the different districts indicates their presence. So far as we have yet ascertained, their distribution is as follows:—

Iron.—Ladakh.—Mines in the north-eastern part of the Punjab,§ and in almost every part of Kumaon, where the requisite smelting processes are performed, though on a small scale, and in a rude and inefficient manner. Mairwarra; in veins, and of good quality, believed to be inexhaustible. Rajmahal; in gneiss. Lalgang, 16 miles south-west of Mirzapore city. Kuppudgode hills; in schistes, quartz, and gneiss: on the north-east side, one stratum of iron, 60 feet thick. Ranghur; hills abounding in iron, though not of the best quality. Hazareebaugh, in gneiss—flinty brown colour, pitchy lustre, and splintery fracture; 20 feet thick. Various parts of Palamow district; at Singra in inexhaustible quantities. Eastern part of Nagpore territory. Mine of good quality at Tendukhera, near Jubulpore (were the navigation of the Nerbudda available, this would prove a most useful article of export for railways). Western extremity of Vindhya; in gneiss. Southern Mahratta country; in quartz: micaceous and magnetic iron-ore occur in the same district; in clay-slate. In all the mountains of the Western Ghauts; in Malabar; in veins, beds, or masses, in the laterite (here extensively smelted). Salem, southern part (yields 60 per cent. of the metal fit for castings). Nellore district. In many places in Masulipatam. Rajahmundry; in sandstone hills. Vizagapatam. Abundant in many parts of Orissa. Tenasserim provinces; occurs in beds, veins, and in rocks. Between the Salem and Gyne rivers, it is found in sandstone hills. Most abundant between Ye and Tavoy, approximating the sea-coast; the best is at a short distance north of Tavoy town: it is there in two forms—common magnetic iron-ore; and massive, in granular concretions, crystallized, splendid, metallic, highly magnetic, and with polarity. The ore would furnish from 74 to 80 per cent. raw iron. In various places the process of smelting is rudely performed by the natives, but they produce a metal which will bear comparison with the best Swedish or British iron.¶

Tin.—Oodeypore,—mines productive. On the banks of the Barakur, near Palamow; in gneiss. Tenasserim provinces. Tavoy, rich in tin-ore; generally found at the foot of mountains, or in hills: Pakshan river, soil in which the grains are buried, yields 8 or 10 feet of metal; at Tavoy, 7 feet: of superior quality in the vicinity of Mergui town.

Lead.—Ladakh. Kunawur. Ajmere; in quartz rocks. Mairwarra. Eastern part of Nagpore. In the vicinity of Hazareebaugh. Eastern Ghauts at Jungamanipenta; in clay-slate—mines here. Amherst province. Fine granular galena obtained in clay-slate, and clay limestone on the Touser, near the Dehra-Doon.

Copper.—Ladakh. Kunawur, in the valley of the Pabur. Kumaon, near Pokree; but these mines are almost inaccessible, and the vicinity affords no adequate supply of fuel for smelting; others at Dohnpur,‡ Dhobri, Gangoli, Sira, Khori, and Shor Gurang. Mairwarra. Oodeypore; abundant,—it supplies the currency. Southern Mahratta country, in quartz; also in a talcose form. Venicatherry, North Arcot. Nellore district.** Sullivan's and Callagkiank Islands, in the Mergui Archipelago. This metal is most probably extensively distributed, and of a rich quality.

Silver.—In the tin mines of Oodeypore. In the lead mine, near Hazareebaugh, and other places.

Gold.—Sands of Shy-yok, Tibet. Ditto Chenab, Huroo, and Swan Rivers, Punjab. Ditto Aluknunda, Kumaon. Throughout the tract of country W. of the Neilgherries, amid the rivers and watercourses, draining 2,000 sq. m., this coveted metal abounds; even the river stones, when pounded, yield a rich product; it is usually obtained in small nuggets. In the iron sand of the streams running from the Kuppudgode hills, and from the adjoining Saltoor range. Sumbulpore; in the detritus of rocks. In moderate quantities in several places in the eastern part of Nagpore. Many of the streams descending from the Ghauts into Malabar; and in Wynaad. Gold-dust in Mysore.†† In the Assam rivers it is plentiful: near Gowhatty, 1,000 men used to be employed in collecting ore for the state. Various parts of Tenasserim provinces, but in small quantities. The geological structure of India indicates an abundance of the precious metals.

Coal.—The carboniferous deposits of the *oolitic series* in Bengal west of the Ganges and Hooghly, consist of coal, shale, and sandstone, but no limestone, and they appear chiefly to occupy the depressions of the granitic and metamorphic rocks which form this part of India, becoming exposed in the banks or beds of watercourses or rivers which have passed through them, or in escarpments which have been produced by upheaval of the rocks on which they were deposited. The coal occurs in strata from an inch or less to 9 or 10 feet thickness, interstratified with shale and sandstone; the whole possessing a dark black or blue colour, of a greater or less intensity. At Burdwan its character is slaty. The genera of plants are partly English, some Australian, some peculiar. The depth at the Curhurbalee field, situated 60 miles south of the Ganges, near Surajgurrah, is from 50 to 100 feet. Proceeding westerly, towards Palamow district, which contains many valuable and extensive fields, and where several shafts have been sunk, it has been seen about 16 m. from Chergerh, in Singrowla; at the confluence of the Sone and Tipan, about 30 m. E. from Sohajpore. Near Jeria, in Pachete district. Hills in Ramghur, abounding in coal. Jubulpore, 30 m. S. from Hoosingabad; in Shahpore in the same neighbourhood; and abundantly along the valley of the Nerbudda. Traces of it are said to exist in the diamond sandstone north-west of Nagpore, and it has been found in the Mahadeo mountains. In the Punjab, at Mukkad, on the left bank of the Indus, and in the localities of Joa, Meealee, and Nummul. The extremes of this coal formation, so far as have yet been discovered in India, are,—the confluence of the Godavery and Prenzeta in the south, in lat. 19°, and the salt range in about 33° N.; Cutch in the west, and Burdwan in the east; and detached in Silhet, Pegu (recently found of excellent quality), and the Tenasserim provinces (plentiful, and possessing good properties). There are many other places, no doubt, in the country between Bengal and Berar, where this valuable mineral exists; traces of it have been observed in

‡ The gray ore found in Dohnpur affords 30 to 50 per cent. of copper; it is associated with malachite, and contained in a compact red-coloured dolomite. Hence mining operations can be carried on without timbering or masonry.

** Mines discovered by Dr. Heyne, near Wangapadu. "A footpath, paved with stones, led up the hill to the place which was shown me as one of the mines. It is situated two-thirds up the hill, and might be about 400 feet above the village (Wangapadu). An open gallery cut into the rock demonstrated that it had been formerly worked; and as the stones, which lay in abundance near it, were all tinged or overlaid with mountain green, there could be no doubt that the ore extracted had been copper."—(Heyne, *Tracts on India*, p. 113.)

†† In excavating the disintegrating granite in the vicinity of Bangalore, to ascertain the extent to which the decomposing influence of the atmosphere will affect the solid rock (viz. 30 to 35 ft.) the contents of soil were frequently auriferous. In blasting *sicite* at Chinapatam, 40 miles from Bangalore, on the road to Seringapatam, Lieutenant Baird Smith, B.E., observed considerable quantities of gold disseminated in small particles over the fractured surfaces. At Wynaad this metal was obtained from rich yellow earth in sufficient quantity to employ a number of labourers and to yield some return.

* It is curious to note, in different countries, how plants seem to vary in their feeding: thus, at Singapore, the best cotton soil apparently consists of large coarse grains of white sand, mixed with something like rough charcoal-dust, and with fragments of vegetables and mosses of all sorts. A somewhat similar substance, mingled with shells and decayed vegetable matter, is the favourite habitat of the Sea Island cotton of Georgia, U.S.

† See an interesting *Essay on the Agriculture of Hindoostan*, by G. W. Johnston.

‡ See Mackay's valuable *Report on Western India*, p. 41.

§ Colonel Steinbach says that the mineral wealth of the Punjab is considerable; that mines of gold, copper, iron, plumbago, and lead abound, and that "properly worked they would yield an enormous revenue."

¶ The natives of Cutch make steel chain-armor, swords, and various sharp edge tools from their iron; the horse-shoes are excellent—the metal being more malleable, and not so likely to break as English iron.

Orissa, but it has not yet been found available for use; it is not improbable that it extends across the delta of the Ganges to Silhet, distant 900 miles. It also occurs extensively in the grits bounding the southern slope of the Himalaya: it has been questioned whether this is the older coal, or only lignite associated with nagelfluë, where the Teesta issues from the plain, its strata is highly inclined, and it bears all the other characters of the older formation. Analysis of Indian coal found in different parts, and near the surface, gave the following results:—Chirra Poonjee, slaty kind: specific gravity, 1.497; containing volatile matter, 36; carbon, 41; and a copious white ash, 23=100. Nerbudda (near Futtpore), near the surface,—volatile matter, 10.5; water, 3.5; charcoal, 20; earthy residue (red), 64=110. Cossayau hills: specific gravity, 1.275; volatile matter or gas, 38.5; carbon or coke, 60.7; earthy impurities, 0.8=100—(ash very small). Hurdwar: specific gravity, 1.968; volatile matter, 35.4; carbon, 50; ferruginous ash, 14.6=100. Arracan: specific gravity, 1.308; volatile matter, 66.4; carbon, 33; ash, 0.6=100. Cutch: charcoal, 70; bitumen, 20; sulphur, 5; iron, 3; calcareous earths, 2.

Sulphur.—Mouths of Godavery, and at Condapilly, on the Kistnah. Sulphate of alumina obtained from the aluminous rocks of Nepal; used by the natives to cure fresh wounds or bruises: yields on analysis—sulphate of alumina, 95; peroxyde of iron, 3; silic, 1; loss, 1. Sulphate of iron is procured in the Behar hills, and used by the Patna dyers; it yields sulphate of iron, 39; peroxyde of iron, 36; magnesia, 23; loss, 2=100.

Diamonds.—Sumbulpore has been celebrated for the finest diamonds in the world; they are found in the bed of the Mahanuddy. Mines were formerly worked at Wyragher, Nagpore; Malaville, in Masulipatam (near Ellore); and at Panna, in Bundelcund. Mr. H. W. Voyage described, in 1824, the diamond mines of the *Nulla Mulla* mountains, north of the Kistnah,* which were formerly extensively worked.†

Rubies.—Sumbulpore; in the detritus of rocks.

Pearls.—Gulf of Manaar, near Cape Comorin, and on the coast of many of the islands in the Mergui Archipelago.

Muriate of soda (common salt) is found in rock and liquid form at various places. A salt lake, 20 m. long by 1½ broad, is situated in lat. 26° 53', long. 74° 57'; it supplies a great portion of the neighbouring country with salt after the drains are dried up. A salt lake in Berar contains in 100 parts,—muriate of soda, 20; muriate of lime, 10; muriate of magnesia, 6. Towards the sources of the Indus, salt lakes exist at 16,000 ft. above the sea. There are extensive salt mines in the *Salt range* of the Punjab. Natron and soda lakes are said to exist in the Himalaya.

Cornelian is found and worked in different places: the principal mines are situated at the foot of the western extremity of the Rajpeepa hills, close to the town of Ruttunpoor; the soil in which the cornelians are imbedded consists chiefly of quartz sand—reddened by iron, and a little clay. Agates abound in Western India: at one part of Cutch the sides of the hills (of amygdaloid) are covered with heaps of rock crystal, as if cart-loads had been purposely thrown there, and in many parts of the great trappean district the surface is strewn with a profusion of agatoid flints, onyx, hollow spheroids of quartz, crystals, and zoölitic minerals. There are evidences of several extinct volcanoes in Cutch.

This is but an imperfect sketch of the minerals of India: doubtless, there are many more places where metals exist; but during the anarchy and warfare which prevailed prior to British supremacy, the very knowledge of their locality has been lost. At no distant day this subterranean wealth will be developed; and probably, when the gold fields of Australia are exhausted, those of India may be profitably worked.

POPULATION.

From remote antiquity India has been densely peopled; but we know nothing certain of its indigenous inhabitants,—of accessions derived from immigration, or from successful invasions by sea and land,—of the progressive natural increase,—or of the circumstances which influence, through many generations, the ebb and flow of the tide of population.‡ There is direct testimony,

* These mountains are bounded on all sides by granite, that everywhere appears to pass under it, and to form its basis: some detached portions have only the upper third of their summits of sandstone and quartz, the basis or remaining two-thirds being of granite. Deep ravines are not infrequent. The diamond is procured only in the sandstone breccia, which is found under a compact rock, composed of a beautiful mixture of red and yellow jasper, quartz, chaledony, and hornstone, of various colours, cemented together by a quartz paste; it passes into a pudding-stone of rounded pebbles of quartz, hornstone, &c., cemented by an argillo-calcareous earth of a loose friable texture, in which the diamonds are most frequently found. The breccia is seen at depths varying from 5 to 50 feet, and is about 2 feet in thickness; immediately above it lies a stratum of pudding-stone, composed of quartz and hornstone pebbles, cemented by calcareous clay and grains of sand. The miners are of opinion that the diamond is always growing, and that the chips and small pieces rejected, ultimately increase to large diamonds.—*Trans. A.S. Bengal*, vol. xiv, p. 120.

† The diamonds of Golconda have obtained great celebrity throughout the world, but they were merely cut and polished there, having been generally found at Partail, in a detached portion of the Nizam's dominions, near the southern frontier, in lat. 16° 40', long. 80° 20'.

‡ It is not improbable that some of the early immigrants were offshoots of the colonists who are said to have passed from Greece into Egypt, thence travelled eastward, forming settlements on the banks of the Euphrates and Tigris; and ultimately reached the Indus and Ganges. In craniological and facial characteristics, many Hindoos present a striking similitude to the ancient Greek, modified by climate, food, and habits; and in several architectural structures, of which ruins are still extant, there is considerable resemblance to the ancient buildings of Egypt, and those erected on the Babylonian plains. Bryant is of opinion that Chaldea was the parent country of the Hindoos; Vans Kennedy traces the Sanscrit language to Mesopotamia; H. H. Wilson deems that the Hindoos connected with the *Rig Veda* were from a northern site, as in that work the worshipper on more than one occasion, when soliciting long life, asks for a hundred winters, which the Professor thinks would not have been desired by the natives of a warm climate. This is not conclusive. In Britain men frequently date his age from the number of summers he has seen. There can, however, be little doubt that many of the early invaders of

India were of the tribe of Japhet,—some of them acquainted with maritime commerce, and all comparatively more civilized than the *indigènes* who were driven towards the southward and eastward, and to mountain and jungle fastnesses. When this occurred it is impossible to determine. General Briggs says that the *Vedas* were written in India at the period when Joshua led the Israelites over Jordan into Canaan. The date when Menu, the lawgiver, lived has not yet been ascertained. Whatever the period, the Hindoos had not then occupied the country farther south than the 23rd degree, as Menu describes the people beyond as "barbarians, living in forests, and speaking an unknown language." Remote annals are lost in legends and traditions; and the chronology of Hindoism is an absurdity, except on the principle of cutting off the spheres attached to the apocryphal figures.

For more than a thousand years after the Greek invasion, we have no knowledge of what was taking place among the population of India, and but a scanty notice, in the eighth century, of the Arab incursions of the regions bordering on the Indus. Even the marauding forays of Mahmood the Ghaznevide, in the eleventh century, afford no internal evidence of the state of the people, save that derived from a record of their magnificent cities, stately edifices, immense temples, lucrative trade, and vast accumulations of wealth; the Hindoos were probably then in a more advanced state of social life, though less warlike, than during the Alexandrine period: they had gradually occupied the whole of India with a greatly augmented population, and possessed a general knowledge of the arts, conveniences, and luxuries of life.

During the desolating periods of Moslem forays, and of Mogul rule, there appears to have been a continued diminution of men and of wealth, which Akbar in vain essayed to check by some equitable laws. We have sufficient indirect and collateral evidence to show that whole districts were depopulated, that famines frequently occurred, and that exaction, oppression, and misgovernment produced their wonted results in the deterioration of the country. No census, or any trustworthy attempt at ascertaining the numbers of their subjects, was made by the more enlightened Mogul sovereigns, even when all their energies were directed to the acquisition of new dominions.

The English, until the last few years, have been as remiss in this respect as their predecessors in power. An idea prevailed that a census would be viewed suspiciously as the prelude to a capitation tax, or some other exaction or interference with domestic affairs. In Bengal, Behar, and Orissa, which we have had under control for nearly a century, no nearer approximation has yet been made to ascertain the number of our subjects, than the clumsy and inaccurate contrivance of roughly ascertaining the houses and huts in a village or district, and then supposing a fixed number of mouths in each house (say five or six). The fallacy of such estimates is now admitted, and rulers are beginning to see the value of a correct and full census, taken at stated intervals, in order to show the rates of increase or decrease, and to note the causes thereof. I believe that the Anglo-Indian Government have no reason to apprehend displeasing disclosures if a decennial census be adopted for all the territories under their sway: the natural fecundity of the Hindoos would lead to an augmentation where peace and the elements of animal sustenance exist; and a satisfactory proof would be afforded of the beneficence of our administration, by the multiplication of human life. With these prefatory remarks, I proceed to show briefly all that is at present known on the subject.

In the returns collected by Mr. Edward Thornton, head of the statistical department of the East India House, there must be erroneous estimates somewhere, otherwise there would not be so great a disproportion of mouths to each square mile, as appears between the British territories (157) and the other states (74)—105,000,000 on 666,000 sq. m., and 53,000,000 on 717,000 sq. m. Estimating the entire area, as above, at 1,380,000 sq. m., and the population thereon at 158,000,000, would give 114 to each sq. m. Viewing India as including the entire region, from the Suliman on the west, to the Youmadoug mountains on the east, and from Cape Comorin to Peshawur, and estimating the area at 1,500,000 sq. m., and the number of inhabitants to each sq. m. at 130, would show a population of 195,000,000; which is probably not far from the truth.

The Chinese census shows 367,632,907 mouths on an area of 1,297,999 sq. m., or 283 to each sq. m. In England the density is 333; Wales, 134; Ireland, 200; Scotlan. 100. India, with its fertile soil, a climate adapted to

India were of the tribe of Japhet,—some of them acquainted with maritime commerce, and all comparatively more civilized than the *indigènes* who were driven towards the southward and eastward, and to mountain and jungle fastnesses. When this occurred it is impossible to determine. General Briggs says that the *Vedas* were written in India at the period when Joshua led the Israelites over Jordan into Canaan. The date when Menu, the lawgiver, lived has not yet been ascertained. Whatever the period, the Hindoos had not then occupied the country farther south than the 23rd degree, as Menu describes the people beyond as "barbarians, living in forests, and speaking an unknown language." Remote annals are lost in legends and traditions; and the chronology of Hindoism is an absurdity, except on the principle of cutting off the spheres attached to the apocryphal figures.

§ There have been several censuses of China, of which we have little reason to doubt the accuracy; that of 1753 showed 102,798,258; that of 1792, 207,467,200; that of 1812, 301,221,900. In some districts, along river banks, the density is very great, such as Kangsoo (Nankin)—774 to the square mile; in others the density varies from 515 down to 51. (See vol. i, p. 29, of my report on China to Her Majesty's Government, in 1847.)

¶ See Preface (p. xv.) to my Australian volume, new issue, in 1855, for density of population in different European States.

inhabitants, and with an industrious and comparatively civilized people, might well sustain 250 mouths to each sq. m., or 375,000,000 on 1,500,000 sq. m. of area.*

The following table, framed from various public returns and estimates, is the nearest approximation to accuracy of

the population of each district under complete British rule it shows (excluding Pegu) a total of about 120,000,000 (119,630,098) persons on an area of 829,084 sq. m., or 14 to each sq. m. :—

British Territories in Continental India—Area, Chief Towns, and Position.

Provinces, Districts, &c.	Area in Square Miles.	Population.	Principal Town.	Position of Town.		Date of Acquisition.
				Lat. N.	Long. E.	
BENGAL PROVINCE :—						
Calcutta and 24 Pergunnas	1,186	701,182	Calcutta	22 34	88 26	1700 & 1757
Hooghly	2,089	1,520,840	Hooghly	22 55	88 23	1757 & 1762
Nuddea	2,942	298,736	Kishnugur	23 24	88 28	1765
Jessore	3,512	381,744	Jessore	23 9	89 11	"
Backergunge and Shabazpore	3,794	733,800	Burrisol	22 33	90 22	"
Dacca	1,960	600,000	Dacca	23 43	90 25	"
Tipperah and Bulloah	4,850	1,406,950	Tipperah	23 28	91 10	"
Chittagong	2,560	1,000,000	Chittagong	22 20	91 55	"
Sylhet and Jyntea	8,424	380,000	Sylhet	24 54	91 50	1835
Mymensing	4,712	1,487,000	Sowara	24 44	90 23	1765
Rajeshaye	2,084	671,000	Rampoor	24 33	88 38	"
Moorshedabad	1,856	1,045,000	Berhampore	24 12	88 18	"
Beebhoom	4,730	1,040,876	Sooree	23 53	87 31	"
Dinapore	3,820	1,200,000	Dinapore	25 34	88 38	"
Rungpoor	4,130	2,559,000	Rungpoor	25 40	89 16	"
Burdwan	2,224	1,854,152	Burdwan	23 12	87 56	1760
Baraset	1,424	522,000	Baraset	22 43	88 33	"
Bancoorah	1,476	480,000	Bancoorah	23 14	87 6	1760
Bogulpore	5,806	2,000,000	Bogulpore	25 11	87 0	1765
Monghyr	2,558	800,000	Monghyr	25 19	86 30	"
Maldah	1,000	431,000	Maldah	25 2	88 11	"
Bagoorah	2,160	900,000	Bagoorah	24 50	89 25	"
Pubna	2,606	600,000	Pubna	24 0	89 12	"
Purneah	5,878	1,600,000	Purneah	25 46	87 34	"
Fureedpore, Deccan, and Jelalpoore	2,052	855,000	Fureedpore	23 36	89 50	"
Darjeeling	834	30,882	Darjeeling	27 2	88 19	1835 & 1850
Singhbhoom	2,944	200,000	Chaibassa	22 36	85 44	1765
Maunbhoom	5,652	772,340	Pachete	23 36	86 50	"
SOUTH WEST FRONTIER :—						
Chota Nagpore	5,308	482,900	Lohadugga	23 6	84 46	1818
Palamow	3,468		Palamow	23 50	84 1	"
BAHAR PROVINCE :—						
Ramghur	8,524	372,216	Ramghur	24 0	85 24	1765
Behar	5,694	2,500,000	Gyah	24 43	85 2	"
Patna	1,828	1,200,000	Patna	25 53	85 16	"
Shahabad	3,721	1,600,000	Arrah	25 31	84 43	1775
Tirhoot	7,402	2,400,000	Mozufferpoor	26 6	85 28	1765
Sarun and Chumparun	2,560	1,700,000	Sarun or Chupra	25 45	85 48	"
Sumbulpore	4,693	800,000	Sumbulpore	21 29	84 0	1850
ORISSA PROVINCE :—						
Midnapore and Hidgelice	5,029	666,328	Midnapore	22 25	87 23	1760
Cuttack and Pooree	4,829	1,000,000	Cuttack	20 28	85 55	1803
Balasore	1,876	556,395	Balasore	21 30	87 0	"
Koordah	930	571,160	Koordah	20 10	85 43	"
MADRAS PRESIDENCY :—						
Ganjam	6,400	926,930	Ganjam	19 24	85 7	1765
Vizagapatam	7,650	1,254,272	Vizagapatam	17 41	83 21	"
Rajamundry	6,050	1,012,036	Rajamundry	17 0	81 50	"
Masulipatam	5,000	520,866	Musulipatam	16 10	81 12	1759
Guntoor	4,960	569,968	Guntoor	16 20	80 30	1788
Bellary	13,056	1,229,599	Bellary	15 9	76 59	1800
Cuddapah	12,970	1,451,921	Cuddapah	14 28	78 52	"
North Arcot	6,800	1,485,873	Chittoor	13 12	79 9	1751
South Arcot	7,610	1,006,005	Cuddalore	11 42	79 50	"
Chingleput and Madras	3,050	1,283,462	Madras	13 6	80 21	1765
Salem	8,200	1,195,367	Salem	11 39	78 14	1792
Coimbatore	8,280	1,153,862	Coimbatore	11 0	77 2	1799
Trichinopoly	3,000	709,196	Trichinopoly	10 48	78 46	1801
Tanjore	3,900	1,676,068	Tanjore	10 48	79 11	1799
Madura	10,700	1,756,791	Madura	9 55	78 10	1801
Tinnivelly	5,700	1,269,216	Tinnivelly	8 44	77 44	1801

* In illustration of this remark, the following statement, derived from the Commissioners' Report on the Punjab,—of the population of Julundur Zill. situated between the rivers Sutlej and Beas,—is subjoined, with the note appended by the census officer, Mr. R. Temple, 25th of October 1851.

Pergunnahs.	Hindoo.		Mussulmen.		Total.		Grand Total.	Total Area in Acres.	Area in Sq. Miles of 640 Acres each.	Number of Inhabitants per Sq. Mile.	Number of Acres to each Person.
	Agricultural.	Non-Agricultural.	Agricultural.	Non-Agricultural.	Agricultural.	Non-Agricultural.					
Phuloor	41,997	38,591	20,442	19,211	62,499	57,802	120,241	187,001	299	412	1.51
Julundur	48,967	49,652	46,049	50,668	95,016	100,220	195,236	250,397	391	499	1.22
Rahoon	42,739	47,201	25,145	19,027	67,884	66,228	134,112	199,472	312	430	1.48
Nakodur	28,787	19,349	44,085	26,181	72,872	45,630	118,402	226,031	351	337	1.81
Total	162,490	154,793	135,721	114,987	298,211	269,760	667,991	861,901	1,346	422	1.54

Note.—This return certainly shows a considerable density of population. It may of course be expected that a small and fertile tract like this, which contains forest, waste, or hill, should be more thickly peopled than an extensive region like the north-western provinces, which embraces every variety of plain an mountain, of cultivation and jungle; we find therefore that in the provinces we have 322 inhabitants per square mile, while here we have one-fourth more, or 422; the population of this district proportionately exceeds that of 22 out of 31 districts of the north-western provinces, and is less than that of nine. It also exceeds the average population of any one out of the six divisions. It about equals that of the districts of Agra, Muttra, Furruckabad, and Cawnpore, but is inferior in density to the populous vicinities of Delhi or Benares, and to the fertile districts of Juanpoor, Azeemgurb, and Ghazepore. The comparative excess of Indian over European population has become so notorious, that it is superfluous to comment on the fact, that the population averages of this district exceed those of the most highly peopled countries of Europe.

British Territories in Continental India—Area, Chief Towns, and Position.

Provinces, Districts, &c.	Area in Square Miles.	Population.	Principal Town.	Position of Town.		Date of Acquisition.
				Lat. N.	Long. E.	
Madras Presidency— <i>continued.</i>				o	'	
Malabar	6,060	1,514,909	Calicut	11	15	75 50
Canara	7,720	1,056,333	Mangalore	12	52	74 54
Nellore	7,930	935,690	Nellore	14	27	80 2
Kurnool	3,243	273,190	Kurnool	15	50	78 5
Coorg	1,420	{ 65,437 in 1836 }	Merkara	12	27	75 48
BOMBAY PRESIDENCY:—						
Concan, North	5,477	815,849	Tanna	18	57	72 53
" South	3,964	665,238	Rutnagheriah	17	0	73 20
Bombay Island	18	566,119	Bombay	18	57	72 52
Dharwar	3,837	754,385	Dharwar	15	28	75 4
Poona	5,298	666,006	Poona	18	31	73 53
Kandeech	9,311	778,112	Malligaum	20	32	74 30
Surat	1,629	492,684	Surat	21	9	72 51
Broach	1,319	290,984	Broach	21	42	73 2
Ahmednuggur	9,931	995,585	Ahmednuggur	19	6	74 46
Sholapore	4,991	675,115	Sholapore	17	40	76 0
Belgaum	5,405	1,025,882	Belgaum	15	50	74 36
Kaira	1,869	580,631	Kaira	22	43	72 40
Ahmedabad and Nassik	9,931	995,585	Ahmedabad	23	0	72 36
Sattara	10,222	1,005,771	Sattara	17	40	74 3
BERAR PROVINCE:—						
Deogur above the Ghauts	76,432	4,650,000	Chindwarrah	22	3	78 58
" below the Ghauts			Nagpore	21	10	79 10
Wein-Gunga			Bundara	21	11	79 41
Choteesgurh			Ryepore	21	11	81 40
Chandarpoor			Chandah	19	57	79 23
NERBUDDA DISTRICTS:—						
Saugor	1,857	305,594	Saugor	23	50	78 49
Jubbulpore	6,237	442,771	Jubbulpore	23	10	80 1
Hoosingabad	1,916	242,641	Hoosingabad	22	44	77 44
Seeni	1,459	227,070	Seeni	22	1	79 40
Dumoh	2,428	363,584	Dumoh	23	49	79 30
Nursingpore	501	254,486	Nursingpore	24	0	79 28
Baitool	990	93,441	Baitool	21	50	77 58
AGRA PRES., OR N.W. PROVINCE:—						
Benares	995	851,757	Benares	25	17	83 4
Ghazeepore	2,181	1,596,324	Ghazeepore	25	32	83 39
Azimghur	2,516	1,653,251	Azimghur	26	0	83 14
Goruckpore	7,340	3,087,874	Goruckpore	26	42	83 24
Jounpoor	1,552	1,143,749	Jounpoor	25	44	82 45
Allahabad	2,788	1,379,788	Allahabad	25	26	81 45
Banda	3,009	743,872	Banda	25	27	80 23
Futtypore	1,583	679,787	Futtypore	25	57	80 54
Cawnpore	2,348	1,174,556	Cawnpore	26	29	80 25
Etawah	1,677	610,965	Etawah	26	46	79 5
Furruckabad	2,122	1,064,607	Furruckabad	27	24	79 40
Shajehanpore	2,308	986,096	Shajehanpore	27	52	79 58
Allyghur	2,153	1,134,565	Allyghur	27	56	78 8
Bareilly	3,119	1,378,268	Bareilly	28	23	79 29
Moradabad	2,698	1,138,461	Moradabad	28	50	78 51
Agra	1,864	1,001,961	Agra	27	10	78 5
Deihi	789	435,744	Deihi	28	38	77 19
Saharanpore	2,162	801,325	Saharanpore	29	58	77 36
Paniput	1,269	389,085	Paniput	29	23	77 2
Hissar	3,294	330,852	Hissar	29	8	75 50
Rohtuk	1,340	377,013	Rohtuk	28	54	76 38
Goorgaon	1,939	662,486	Goorgaon	28	28	77 5
Mozuffernuggur	1,646	672,861	Mozuffernuggur	23	28	77 45
Meerut	2,200	1,135,072	Meerut	28	59	77 46
Booldundshur	1,823	778,342	Burrn	28	24	77 56
Bijnore	1,900	695,521	Bijnore	29	22	78 11
Budaon	2,401	1,019,161	Budaon	28	2	78 11
Muttra	1,613	862,909	Muttra	27	30	77 45
Mynpoory	2,020	832,714	Mynpoory	27	14	97 4
Humeerpore	2,241	548,604	Humeerpore	25	58	80 14
Mirzapore	5,152	1,104,315	Mirzapore	25	6	82 38
Jaloun	1,873	176,297	Jaloun	26	9	74 24
Ajmere	2,029	224,891	Ajmere	26	29	74 43
Mairwarra	282	37,715	Nyanugga	26	6	74 25
CIS SUTLEJ:—						
Umballa	293	67,134	Umballa	30	24	76 49
Loodiana	725	120,898	Loodiana	30	55	75 54
Kythul and Ladwa	1,538	164,805	Kythul	29	49	76 28
Ferozepore	97	16,890	Ferozepore	30	55	75 55
Sikh States	1,906	249,686	Patialah	30	20	76 25
PUNJAB:—						
Jhelum	13,959	1,116,035	Jhelum	32	56	73 47
Lahore	13,428	2,470,817	Lahore	31	36	74 21
Leia	30,000	1,500,000	Leia	30	57	71 4
Mooltan	14,900	500,000	Mooltan	30	12	71 30
Jullundur	1,324	569,722	Jullundur	31	21	75 31
Peshawur	4,836	{ about 850,000 }	Peshawur	34	71	71 38
Kangra		Kangra	32	5	76 18	
SINDH PROVINCE:—						
Kurrachee	16,000	185,550	Kurrachee	24	56	67 3
Shikarpore	6,120	350,401	Shikarpore	28	1	68 39
Hyderabad	30,000	551,811	Hyderabad	25	12	69 29

British Territories in Continental India—Area, Chief Towns, and Position.

Provinces, Districts, &c.	Area in Square Miles.	Population.	Principal Town.	Position of Town.		Date of Acquisition.
				Lat. N.	Long. E.	
ULTRA-GANGETIC DISTRICTS:—						
Arracan - - - - -	15,104	321,522	Akyab - - - - -	20 10	92 54	1826
Assam, Lower - - - - -	8,948	710,000	Gowhaty - - - - -	26 9	91 45	"
Assam, Upper - - - - -	12,857	260,000	Seebpore - - - - -	27 0	94 40	"
Goalpara - - - - -	3,506	400,000	Goalpara - - - - -	26 8	90 40	1765
Cossya Hills - - - - -	729	10,935	Chirra Ponjee - - - - -	25 14	91 45	1826
Silchar - - - - -	4,000	60,000	Silchar - - - - -	24 49	92 50	1830
Tenasserim, Mergui, Ye, &c. - - - - -	29,168	115,431	Mergui - - - - -	12 27	98 42	1826
Pegu Province - - - - -	25,000	550,000	Prome - - - - -	17 40	96 17	1853

A more recent return (28th July 1855) from the East India House, gives the population of India thus:—

British States.—Bengal, &c., 59,966,284; N. W. Provinces, 30,872,766; Madras, 22,301,697; Bombay, 11,109,067; Eastern settlements, 202,540: total, 124,452,354.

Native States.—Bengal, 38,259,862; Madras, 4,752,975; Bombay, 4,460,370: total, 47,473,207.

Foreign States.—French settlements, 171,217; Portuguese ditto, not known. Grand total, 172,096,778*.

The varying degree of density of population to area forbids reliance being placed on any mere "estimates," or "approximations to actual amount." Thus in Bengal, Behar, and Cuttack, the number of mouths to each square mile is stated to be—in Jessore, 359; Moorshedabad, 394; Bogulpore, 318; Patna, 506; Cuttack, 220; Dacca, 193; Chittagong, 324: average of all, 324.† These are high ratios; but the soil is fertile, and the inhabitants very numerous along the banks of rivers. In Assam, on the N.E. frontier of Bengal, and along the rich valley of the Brahmapootra, the density is placed at only 32 to the square mile; in Arracan, at 21; Tenasserim provinces, at 4; on the S.W. frontier (Chota Nagpore, &c.), at 85; in the Saugor and Nerbudda territories, at 109; in the non-regulation provinces, Kumaon, Ajmeer, &c., at 44.

The census of the Madras presidency shows, on an area of 138,279 sq. m., a population of 22,281,527, or 161 persons to each sq. m. In some districts the inhabitants are much more thinly scattered: for instance, at Kurnool, 84; at Bellary, 94; at Masulipatam, 104; the highest is the rich district of Tanjore, with 430 to each sq. m. Madras has a much less density than the British N.W. Provinces, which,

according to the return of 1852-3, shows the following results:—

Districts.	Square M.	Population.	Mouths to each sq. m.
Agra - - - - -	9,298	4,373,156	465
Allahabad - - - - -	11,971	4,526,607	378
Benares - - - - -	19,737	9,437,270	478
Delhi - - - - -	8,633	2,195,180	254
Meerut - - - - -	9,985	4,522,165	453
Rohilcund - - - - -	12,428	5,217,507	419
Total - - - - -	72,052	30,271,885	420

By the two full censuses of Madras and the N.W. Provinces, we gain at last a fair estimate of the small number of Mohammedans, as compared with the Hindoos, in India: the Madras census of 1850-1 shows, on a total of 21,581,572, that the *adult* Hindoos numbered 13,246,509; Mohammedan adults and others, 1,185,654: the *children*—Hindoos, 6,655,216; Mohammedans and others, 594,193: total census (exclusive of Madras city and suburbs, containing 700,000)—

Class.	Males.	Females.	Total.
Hindoos - - - - -	10,194,098	9,707,627	19,901,725
Mohammedans and others - - - - -	852,978	826,869	1,679,847
Total - - - - -	11,047,076	10,534,496	21,581,572

The proportion of Moslems to Hindoos in Southern India, is as 1 to 10.

The N.W. Provinces return, in 1852-3, shows—

Class.	Males.	Females.	Total.
Hindoos - - - - -	13,303,645	11,920,464	25,224,109
Mohammedans and others - - - - -	2,376,891	2,170,880	4,547,771
Total - - - - -	16,180,536	14,091,344	30,271,880

London, 1861.

R. M. MARTIN.

† As regards the censuses of Madras and the N.W. Provinces, I have seen no details given of the means adopted to ensure an accurate enumeration in a single day; they must, I think, be considered as "near approximations" to truth; they appear to be the best yet obtained.

* The sum 124,452,354 is a higher figure than the Anglo-Indian subjects of the British crown have hitherto been rated, and is probably the result of a more accurate numbering of the people; thus, until a census now (July 1855) in progress was made of the Punjab, the population was, as usual, underestimated. According to the *Lahore Chronicle* of 30th of May 1855, the returns then received show for Lahore, 3,458,322; Jhelum, 1,702,488; Cis-Sutlej, 2,313,969; which are higher figures than those given from the Parliamentary Papers. The enumerations made up to May last for the Punjab gave 10,755,478; and it was supposed that the grand total, when completed, would be about eleven millions and a half, or nearly four millions more than the official document previously given for the Punjab and Cis-Sutlej states. In my first work on India, twenty years ago, I assumed the population under British jurisdiction to be about one hundred millions, which some considered an exaggeration; the above augmentation of twenty-four millions is accounted for by the addition of new states, such as the Punjab. I have little doubt that an accurate census will show a larger aggregate than 124,000,000.

† I obtained in India, in 1830, "a census," or rather estimate of these districts, showing an aggregate of area in square miles, 113,792; villages, 154,268; houses, 7,781,240; mouths, 39,957,561; or about one village to each square mile of 640 acres, five houses to each village, five and a half persons to each house, and 259 mouths to each square mile. (See first *History of the British Colonies*, vol. 1, Asia; 2nd edition, p. 166; published in 1835.)

D VIEWS of the MOUNTAINS and PASSES, their Position, Elevation, and Extent; also the TABLE-LANDS, their Extent and Height, and the RIVERS.—To illustrate or explain the TOPOGRAPHICAL MODEL of INDIA constructed by R. MONTGOMERY MARTIN, Esq.

of Range.	Extent and Position of Extremities.	Elevation above the Sea.	General Remarks.
or "abode of	This stupendous mass extends in an irregular curve over 22° of lon., from the defile above Cashmere, where the Indus penetrates into the plains of the Punjab, lon. 73° 23', to the S. bend of the Sanpoo, lon. 95° 23'. It is 1,500 m. long, with an avg. breadth of 150 m.	1. Dairimal, 26,629 ft.; 2. Bal Tal, 17,839; 3. Ser and Mer, 23,447; 4. Hanle, 20,000; 5. Gya, 24,764; 6. Porgyal, 22,600; 7. Raldang, 20,103; 8. St. Patrick, 22,798; 9. St. George, 22,654; 10. The Pyramid, 21,579; 11. Gangoutri, 22,906; 12. Jumnoutri, 21,155; 13. Kedarnath, 23,062; 14. Badrinath, 22,954; 15. Kamet, 25,550; 16. Nanda Devi, 25,749; 17. Gurla, 23,900; 18. Dhawalagiri, 27,600; 19. Gonsainthan, 24,740; 20. Junnoo, 25,311; 21. Kinchinjunga, 28,176; 22. Chomomo, 19,000; 23. Kanchan Jhow, 22,000; 24. Chumalari, 23,929; 25. Three peaks on lower bank of Deemree, 21,000; 26. Kailas, 22,000. Average elevation, 18,000 to 20,000 ft. M. Everest, 29,002.	Limit of perpetual snow, or congelation on S. slope, 15,000 to 17,000 ft. Deep narrow valleys, separated by ranges running either parallel or at angles with the main ridge, contain the numerous sources of the rivers flowing into the Ganges, the Indus, and the Brahmapootra.* The face is towards the plain, and to the N. the chain supports the lofty land of Tibet. The greater part of the giant peaks, which rise to a height of 25,000 or 28,000 ft., are situated not on the central axis, but south of it. Viewed from Patna, at a distance of about 150 miles, the mountains present a long line of snow-white pinnacles, which, on the approach, are seen towering above the dark line of lower but steeper mountains.† With the exception of a strip of land at the foot of the mountains, the whole of Bootan presents a succession of the most rugged mountains on the surface of the globe. It is a series of ridges separated only by the narrow beds of roaring torrents.
pass, † Kouenlun, ‡ Caugh.	About 850 m. long. From Kara-korum, lat. 35°, lon. 77°; to Bamian, † lat. 34° 50', lon. 67° 48' † About 60 m.,—along lat. 34° 30', between lon. 67° 30', and 68° 30'. At the S.W. extremity of Hindoo-Koosh with which it is connected by the transverse ridges of Kalloo and Hajeguk.	1. Hindoo-Koosh, 35° 40', 68° 50', 21,000 ft.; § 2. Summit N. of Jelalabad, 20,248; 3. Koushan Pass, 15,200; 4. Khawak Pass, 13,200; 5. Akrobat, 10,200 feet. Laram Mountains, 35° 20', 62° 54': about 60 m. from N.E. to S.W., dividing the valley of Suwat from that of Panjkora; and Laspissor Mountains, S. of, and subordinate to, Hindoo-Koosh, about 50 m. from E. to W., 36°, 70°—little known. Variously estimated. According to Burnes and Lady Sale, 18,000 ft.; Outram, 20,000 ft.; Humboldt, 2,800 toises, or 17,640 ft.; the most probable is 16,000 ft. Highest accessible point, 34° 40', 67° 30'; 13,200 ft. Hajeguk Pass, 11,700 ft.	Limit of perpetual snow on S. slope (lat. 37°), 17,000 ft. The remarkable feature of Hindoo-Koosh is, that to the S. it supports the low tract of Turkestan. Koondooz town, distant in a direct line 80 miles of Hindoo-Koosh, only 900 ft. above the sea. The Hindoo-Koosh is a distinct mountain system, its parallelism being from S.W. to N.E. that of the Himalaya is from S.E. to N.W.** It is a vast rounded mass, the culminating ridge ascending in lofty peaks covered with perpetual snow, stretching as far as the eye can reach to the W. it sinks into the mazy mountains forming the Huzareh highlands. Supposed to be the Parapamissus of the Greeks.

sections of the Himalaya furnish points of resemblance, in presenting almost insurmountable obstacles to communication between the countries which they divide, thereby separating the Botis or people of Tibet from the family of India. Major Cunningham considers the distinction of climate not less positively marked, both ranges forming the lines of demarcation between the cold and dry climate of Tibet, with its dearth of trees and humid climate of India, with its luxuriance of vegetable productions. Some analogy, moreover, may be traced between the drainage systems of the two sections; the one separating the waters of the Samnpo into the Ganges and its affluents; and the other intervening between the Indus, flowing at its northern base, and the subsequent tributaries of that river rising on its southern slope.

of the Himalaya, especially at a sufficient distance for the snowy peaks to be seen overtopping the outer ridges, is very rare, from the constant deposition of vapours over the forest-clad ranges during a greater part of the haziness of the dry atmosphere of the plains in the winter months. At the end of the rains, when the south-east monsoon has ceased to blow with constancy, views are obtained, sometimes from a distance of several miles.

often been observed, the Koh Kosh, or mountain of Kosh, offers a plausible etymology for the Caucasus of the classical writers. It is supposed by Ritter and Wilford to be the Mount mentioned by Pliny, under the name of Caucasus, but slightly deviating from the Sanscrit *Gravahsas* (shining rock).

able for its mass and elevation. Viewed from the Koushan Pass, distant ten miles south, its appearance is very sublime. The outline is serrated, being crowned by a succession of lofty peaks, with sides steeply ascending, and it is wrapped in a perpetual covering of snow, in all parts not too steep to admit its lying.

series appear to diverge from the apex of the plain, expanding "like the sticks of a fan."

ldt regards it as the "most striking phenomenon amongst all the mountain-ranges of the old world." He considers that it may be traced from Taurus, in Asia Minor, across Persia, then, in the Huzareh mountains, to the Hindoo-Koosh, and to the frontier of China; and that it is distinct from the Himalaya. The two ranges are physically discriminated by the depression down which the Indus flows, which, with its numerous irregularities, believe could have been hollowed out by the water's force even of that great river.

elevated expanse of Pameer," to the north of Hindoo-Koosh, observes Humboldt, "is not only a radiating point in the hydrographical system of Central Asia, but is the focus from which originate its principal mountains common to India, China, and Turkestan; and from it, as from a central point, their several streams diverge."

Tabulated Views of the Mountains and Passes, Table-Lands, and Rivers, &c.—continued.

	Extent and Position of Extremities.	Elevation above the Sea.	General Remarks.
Kabool	Near Attock, lon. 72° 16' W. to lon. 69° 36', proceeding nearly along the parallel of lat. 33° 50'; then sinking into a maze of hills stretching to the Kohistan of Kabool.	There are three ranges, running nearly parallel to the S. of the Kabool River; they rise in height as they recede from the river, the highest between 69° 40', and 70° 30', attaining an altitude of 14,000 ft.	Covered with perpetual snow. Generally of primary formation, of granite, quartz, gneiss, mica-slate, and primary limestone. The Rood, the Kara Su, and many other shallow but impetuous streams run down its northern face, and are discharged into the Kabool river, which conveys their water to the Indus. The two lowest ranges are covered with pine forests; the highest and most distant has a very irregular and steep and rocky, yet furrowed by many beautiful vales.
Koh-Damaun	Subordinate to Hindoo-Koosh, running along its S. base, generally from N.E. to S.W.	Estimated at 13,000 ft. Oona Pass, 34° 23' and 68° 15'; 11,320 ft. Erak Summit, 34° 40' and 68° 48'; 12,480 ft.	Always covered with snow. Its south-eastern brow overhangs the region of Koh-Damaun and also Cabul; its northern face forms the southern boundary of the Ghorbund valley.
Kohistan	Separates the valley of Kabool from plain of Jelalabad; and connects the Hindoo-Koosh with Sufied-Koh.	From 1,000 to 2,000 ft. above Kabool, and the highest part, 34° 25' and 69° 30'; 8,000 ft. above the sea.	Four routes over this range practicable only for a man and horse; the highest, the Ghorbund Pass, 4,000 British troops were destroyed in their retreat. Cold intense during winter, the frost splitting the rocks into fragments.
Khyber	Length, about 50 m.; breadth, about 20 m. Between 33° 30' and 34° 20', and 71° 10' and 71° 30'. They connect Hindoo-Koosh with Sufied-Koh.	Tartara summit, highest point, 4,800 ft. Summit of Khyber Pass, 3,373 ft.	Appear at first irregularly grouped, but the distinct arrangement of the rocks is afterwards observable. Four passes through this range, which generally consist of slate and primary limestone, with overlying strata.
Kojuck	Lat. 33° 22', lon. 67° 50'; 30 m. S.W. from Ghuznee.	Estimated at 13,000 ft.	
Kojuck	Lat. 30° 50', lon. 66° 30'	General elevation, about 8,000 ft. Highest part, 30° 50' and 66° 30'; about 9,000 ft. Kojuck Pass, 7,457 ft.	Bounds the table lands of Shawl and Pisheen on the W., as the Hindoo-Koosh does to the E.
Kojuck	Length, 150 m. Between 30° 40' and 32° 40', and 66° 40' and 68° 20'; extending N.E. from the N. side of Pisheen valley.	General elevation, 9,000; above Pisheen, 3,500 ft. Tukatoo Hill, 30° 20' and 66° 55'; 11,500 ft.	Country, though generally rugged, fertile.
Kojuck	Length, about 90 m. from C. Monze to lat. 26°.	Supposed to equal those of W. Sinda, viz., 2,000 ft. Highest part, about 25° 30'.	In 25° 3' and 66° 50', they are crossed by the Guncloba Pass, descending to the stony, and of easy ascent and descent.
Kojuck	60 to 70 m. S.W. from Sehwan to Dooba. Between 25° 32', 26° 20', and 67° 48', 68° 8'.	Steep—in few places less than 2,000 ft.	The road from Sehwan to Kurrachee lies between them, and Keertee is to the W.
Kojuck	Parallel with the Jutteel, more to the W., between 25° 50', 26° 40', and about 67° 40'.	Average height, probably below 2,000 ft.	Imperfectly explored.
Kojuck	Length, about 50 m. From Jutteel, S.E. towards Hyderabad. Centre of range, 26°, 67° 50'.	Highest part, 1,500 to 2,000 ft. Between Lukkee and Schwan the mountains have a nearly perpendicular face, towards the Indus, above 600 ft. high.	They are of recent formation, and contain a profusion of marine fossils. Huge fissures traverse this range, and hot springs and sulphureous waters are of frequent occurrence.
Kojuck	Length, about 400 m. From Tukatoo to Arabian Gulf forming the E. wall of Beloochistan table-land.	Average height, 5,000 to 6,000 ft. Kurklekee Mountains, that part which borders on the Bolan Pass, from 29° 20' to 30° 10', and 67° to 67° 30', where the crest of Bolan Pass intersects them, 5,793 ft.	The range is crossed by the Bolan Pass, through which the route from Shikarpore to Kandahar and Ghuznee; and though important from a military point of view, inferior in commercial interest to the range farther N.
Kojuck	Length, about 350 m. From 33° 40', they run nearly S. in the 70th meridian of lon. to the mountains about Hurund and Kahun, in lat. 29°.	Highest elevation, Takht-i-Suliman, called also Khaissa-Ghar, lat. 31° 35'; 11,000 ft.	E. face dips rather steeply to the Indus, but the W. declivity more gradual, to the table-land of Sewestan. Sides of mountains clothed to the summits with dense forests; valleys overgrown with a variety of indigenous trees, shrubs, and flowers.
Kojuck	Stretch from the E. base of Suliman Mountains to Jhelum River, N.E. to S.W., in lon. 32° 30' to 33° 30'.	Highest elevation, 2,500 ft.	Vegetation scanty; the bold and bare precipices present a fine aspect. About 32° 50', 71° 40', the Indus makes its way down a rocky channel, 350 yards broad; and the mountains have an abrupt descent to the river.

RANGE -	Length, 155 m., greatest breadth, 10 m. From Hurdwar to Roopur, S.E. to N.W.	From 3,000 to 3,500 ft.; highest part, 30° 17', and 77° 50', between the Timli and Lal Derwaza Passes.	In many places each hill might be represented by a right-angled triangle, the base resting on the pass, perpendicular facing towards the north, the hypotenuse sloping towards the Dhoons, in the opposite direction.
MOUNTAINS, AND HILLS -	500 m., breadth from 90 to 150 m. From Kumaon to Sikkim.	Diversified by several inhabited valleys, elevated from 3,000 to 6,000 ft. above the plains of Bengal. The hills rise towards the culminating ridge of the Himalayas. Katmandou, 4,628 ft. above sea, in a valley surrounded by stupendous mountains. † Bynturee, 29° 35', and 79° 20'; 5,615 ft.	Hills consist of limestone, hornstone, and conglomerate. Nepal, to its elevation, enjoys a climate resembling that of S. Europe. It occasionally falls in the valley. The whole region is well watered.
RANGE -	Length, 200 m.; average breadth, 10 to 15 m. Extent from 22° 40' to 26° 50', and from lon. 74° to 75°.	Average 3,000 ft. Highest elevation, Mt. Aboo, 5,000 ft. Crest of Koulmair Pass, 3,353 ft. Twelve m. from Beawr; country one mass of hills, intersected by small vales.	Forms the western buttress of a plateau of Central India. The mountains of Pokur are of a rose-coloured quartz, displaying bold pinnacles and rocky sides. The geological formation of Mt. Aboo is granitic.
MOUNTAINS -	The peninsula lies between 20° 42', 23° 10', 69° 5', 72° 14'; area, 19,850 sq. m.	The Gir, a succession of ridges and hills, some 1,000 ft.; elevation diminishing towards N. Girnar, a granitic peak, 3,500 ft. Palithana Mt., 1,500 ft. Group near Poorbunder, 2,000 ft. Low ridge running from Choteyla to Gir, 400 ft. The centre of peninsula is the highest, and here all the rivers take their rise.	Caverns, deep ravines, and other fastnesses, very numerous in the mountains. The base of Girnar Mt. is clothed with jungle, diversified with rocks, which appear through the vegetation. After this, the mountains are an immense bare and isolated granite rock, the face being quite black with white streaks; and the N. and S. sides nearly perpendicular scarps.
RANGE -	From Goozerat on the W. to the basin of the Ganges on the E.; and comprised between the 22nd and 25th parallels of latitude.	Avg. height 1,500 to 2,000 ft. Chumpaneer, 22° 31', 73° 41'; 2,500 ft. Crest of Jam Ghaut, 2,300 ft. Mountain in Bhopal, 2,500 ft. Mahadeo Mountains, between 21° 30', 22° 40', and 78° 30'; Doulagheree, said to be the highest; Ambarmarph, estimated at 2,500 ft. Chindwarra, 2,100 ft.; and Patchmaree, vaguely stated to be 5,000 feet; but this is probably an exaggeration; Dokgur, stated to be 4,800 ft.; Putta Sunka, and Choura Doo, the highest, conjectured at 5,000 ft. Amarakantak, a jungly table-land, computed to be 3,463 ft. Leela, a summit in Lanjhee hills, 21° 55', 80° 25', 2,300 ft.; another of the same hills, in 21° 40', 80° 35', 2,400 feet.	The chain forms the southern buttress of the plateau of Malwah, Bhilwara, &c. In the Saugor and Nerbudda territories, its crest is but the brow of a table-land; but in the western part it rises a few hundred feet above the high land on its northern side. The Passes that have been made across the range are, for the most part, bad. The geological formations are granite and sandstone, overlaid by trap rock.
RANGE, THREE -	Commence near Seundah, lat. 26° 14', lon. 78° 50'; proceeds S.W. to Narwar, 25° 39', 77° 52'; S.E. to 24° 12'; N.E. to Ajegarh, 24° 53', 80° 20'; and Kalleenjur, in the same vicinity, and E. to Barghar, 25° 10', 81° 36'.	None more than 2,000 ft. Average between the Tara and Kuttra passes, about 520 ft. The Tons falls over the brow by a cascade of 200 ft.; Bilohi, 398 ft.; and Bouti, 400 ft.	The lower parts are primary, overlaid by sandstone, in many places other formations of volcanic origin. The plateau, which surmounts the range, is from 10 to 12 m. wide.
RYACHAL -	Rises S. of the Bindyachal plateau	Average elevation between Kuttra Pass and Lohargaon, 1,050 ft. Elevation between Lohargaon and the foot of the hills near Patteriya, about 1,200 ft.	Summit an undulating platform, about ten miles wide. Where deep ravines allow examination, an enormously thick bed of sandstone is found, a primary rock superincumbent, itself overlaid by volcanic rocks. Generally of sandstone, intermixed with ferruginous gravel. The hills near Lohargaon is of lias limestone. The outer limit of this hilly range is marked by abrupt isolated hills.
NDIAIR -	Separated from the Panna range by the valley of Lohargaon, rising from a platform from 10 to 20 m. wide.	Average elevation, 1,700; on some of its undulations, amounting to 2,000 ft.	In the E. the rock is of trap; in one place there is a conical hill, having at the top a cavity resembling the crater of an extinct volcano. The neighbouring hill sends forth smoke, luminous at night. In the W. the rock is of quartz, or coarse jasper and flint, containing ore of iron lead.
HILLS -	Rise about 20 m. S. of the Ganges; stretch S. and S.W. to the Vindhya range and the highlands of the Deccan. They terminate at the pass of Sikri-gali.	Of moderate elevation. Cluster on the W. of the Phalgu, one on the E. of that river, a third near Shukpoora; 700 ft. Hills towards the S. probably twice that elevation. Railway sweeps round the eastern extremity of the range.	

country between Sufed-Koh and Hindoo-Koosh is hilly; breadth about 20 m. It is divided into a series of plains by cross ranges (Khyber, Kurkutcha, &c.), which pass between Sufed-Koh and the outer range. These plains are generally barren and stony, and have a slope from E. to W. The Kabool river, which flows through them, has to make its way by narrow passages. The range of Katmandou, nearly of oval shape; length, N. to S., 12 m.; E. to W., about 10 m. Bounded on the N. and S. by stupendous mountains. To the E. and W. by others less lofty, the western end defined by a ridge, called Naga-Arjoon, which passes close behind Sumbhoo-Nath, and is backed by a more considerable one named Dhoahouk. To the eastward, the most remarkable hills are those of Ranichouk and M. They do not reach the elevation of Phalchouk (the highest on the south), or of Sheepoori, which is by far the highest mountain. The bottom of the valley is uneven, intersected by deep ravines, and dotted throughout with numerous peaks which crown this mountain is variously stated. According to Tod, there are six, the most elevated of which is that of Gorucknath, having on its summit an area of only ten feet in diameter, and a shrine dedicated to Gorucknath; each of the other peaks has its shrine. On a small table-land on the mountain, about 600 feet below its summit, is the ancient palace of Khengar, and numerous other ruins.

from Indore (1,998 feet), gradual; descent, to the Nerbudda, steep and abrupt.

Tabulated Views of the Mountains and Passes, Table-Lands, and Rivers, &c.—continued.

Range.	Extent and Position of Extremities.	Elevation above the Sea.	General Remarks.
TAINS -	Length, 90 m.; breadth, 85 m. Lie between 22° 34', 24° 54', and 82° 40', 84° 6'.	Rugged and mountainous, from 500 to 600 ft. above adjoining table-land of Chota Nagpore.	Drained by the rivers Kunher and Rhern, with its feeder the Moh in a direction generally northerly. These rivers are mostly shallow during the rains, when they become rapid torrents.
-	Length, 105 m.; breadth, 95 m. Lie between 22° 56', 23° 54', 85° 46', 87° 10'.	Imperfectly known. N. part described as marked by hills from 400 to 600 ft. About 23° 35', 85° 50', a mountain conjectured at from 2,500 to 3,000 ft. Near the centre of district some hills about 900 ft.	Formation generally primitive, of either granite, gneiss, or sienite has been found near Jeria, 23° 44', 86° 25'; and iron-ore exists at a distance. The chain unites the N. extremities of the W. and E. and forms the base of the triangle on which rests the table-land of India. By the Moguls the country to the N. was called Hindustan that to the S. the Deccan.
TAINS -	Divides the Nerbudda from the Taptee valleys, extending from 21° and 22°, and 73° 40', to 78°, when it becomes confounded with the Vindhya.	Avg. elevation, supposed, 2,500 ft. Asseerghur hill-fort, 1,200 ft. They form the northern base of the Deccanic table-land.	S. declivity towards Taptee abrupt; N. towards Nerbudda, gentle. Mountains rise into peaks, or swell into forms denoting a primitive structure. They are volcanic.
, called Syadree rt; and part.—	Length, about 800 m. From about 21° 15', to 73° 45', and 74° 40', where they terminate almost precipitously, forming the N. side of the Gap of Palgatcheri.	Avg. height, 4,000 ft. About 21°; 2,000 ft. Mahableswhur, 18°, 73° 45'; 4,700 ft. Poorundher, 4,472 ft. Singhur, 4,162 ft. Hurreechundurghur, 3,894 ft. About 15°; 1,000 ft. Towards Coorg: Bonasson Hill, 7,000 ft. Tandianmole, 5,781 ft. Papagiri, 5,682 ft.	Seaward face, though abrupt, not precipitous, but consists of terraces or steps. Chasms or breaks in the range give access to the interior lands, and are denominated ghauts or passes, a name which is generally applied to the range itself. The core is primary, alternating strata of more recent origin. Scenery delightful displaying stupendous scarps, fearful chasms, numerous waterfalls, and perennial verdure.
UP -	Length, about 50 m.; breadth, about 20 m.; area from 600 to 700 sq. m. Between 11° 10' and 11° 35', and 76° 30' and 77° 10'.	Elevation from 5,000 to 8,000 ft. Dodabetta, 8,760 ft. Kudiakad, 8,502 ft. Kundah, 8,353 ft. Duvursolabeta, 8,380 ft. Beroyabeta, 8,489 ft. Murkurti, 8,402 ft. Ootacamund, lat. 10° 50'; 7,361 ft. General surface, an undulating table-land.	The foundation rocks are primary. Principal mineral,—iron ore, and calcareous nor stratified rocks, nor organic remains are found here are the precipices, that in many parts a stone dropped from the top will fall several thousand feet without striking anything. Neighbouring hills, "neil," blue, and "gherries," hills; blue hills.
- -	Length, about 200 m. From the Gap of Palgatcheri nearly to C. Comorin.	Elevation from 4,000 to 7,000 ft. A spacious table-land, 4,740 ft. A peaked summit, 6,000 ft. Another 7,000 ft. Varragherry ms., 5,000 to 6,000 ft. Near C. Comorin, in the extreme S., 2,000 ft. Several not measured.	The W. brow is, with little exception, abrupt; on the E. side the descent is gradual. Such a conformation would seem to indicate a volcanic origin along the W. precipitous face.
s, along COAST.	Length, about 1,000 m. From Balasore, S.W. to Ganjam; thence to Naggery, near Madras; where it joins the range which crosses the country in a north-easterly direction, from the W. Ghauts, N. of the Gap of Palgatcheri.	Average elevation, about 1,500 ft. Cauvery Chain, 4,000 ft. Condapilly, 1,700 ft. W. of Madras, estimated, 3,000 ft. Hill seen from the Moghalbundi, between Pt. Palinyras and Chilka Lake, appearing in irregular scattered groups, 300 to 1,200 ft.	Granite constitutes the basis of the range; and clay, hornblende, primitive slate, or crystalline limestone, forms the sides of the range and the level country, as far N. as the Pennar, appears to consist of debris, when the laterite formation covers a large surface. Kistnah, northward, the granite is often penetrated by trap and basalt. To Vizagapatam and Ganjam sienite and gneiss predominate, and is covered by laterite.
, viz.—LS.	Length, about 250 m. On the S.E. border of Assam, stretches to the mountain-range forming the N.W. boundary of Burmah. Centre, about 26° 30', lon. 95°.	In the Khaibund range, supposed 4,000 ft. Some peaks are almost inaccessible.	The country is a wild unexplored tract. The measures adopted by the British Government to restrain the outrages committed by the hill tribes within British territory, have led to their submission.
and ABOR	Mountains N. of Assam, inhabited by Bhooteans, Duphala, and Abor tribes.	From 5,000 to 6,000 ft. above the surrounding level	The face of Assam presents an immense plain, studded with hills rising abruptly from the general level. The mountains on the N. are supposed generally of primitive rocks. Those to the S., of tertiary and metamorphic.
Y HILLS -	On the N.E. frontier of Bengal - -	A confused assemblage, from 1,000 to 6,000 ft. Estimated area, 4,347 sq. m.	Character of country, wild. The rock formation is supposed to be of gneiss, or stratified granite.
HILLS -	Estimated area, 7,290 sq. m. Between 25° and 26°, and 91° and 92°.	Chirra Poonjee, 4,100 ft.	

<p>g, or Arracan</p> <p>MOUNTAINS -</p>	<p>80 m. in length from N. to S., and 40 in breadth. Extends from lat. 24° 55' to 26° 7', and from long. 91° 55' to 92° 48'.</p> <p>Length, about 600 m. From Munneepoor, lat. 22° 20' to C. Negrais, lat. 16°.</p>	<p>About 16 m. on the Sylhet side, and about the same on that of Assam, consists of low land interspersed with small hills. In the interior, about 50 m. in extent, is an undulating hilly table-land, from 1,500 to 2,500 feet high.</p> <p>Average height, 3,000 to 5,000 ft. Blue Mountain, 22° 37', 93° 11', 8,000 ft. Pyramid Hill, 3,000 ft. Crest of Aeng Pass, 4,517 ft. Pass from Podangmew to Ramree, 4,000 ft. From Blue Mountain there is a gradual slope to C. Negrais, which is about 300 ft. high.</p> <p>From Promé to Ava, characterised by unevenness and general elevation. Northerly, it is decidedly mountainous. Mountains 4 m. N. of Ava, 4,000 ft. Zyangait Mts., forming a kind of elevated dooab between the Saluen and Sittang rivers.</p>	<p>Coal is said to abound in the hills of Jynteah.</p> <p>It is a continuation of the great mountain chain commencing at Assam, in 26° 30'; and extends S. running parallel with the river Irrawaddy and forms a natural barrier between Arracan and Ava.</p>
<p>MOUNTAINS -</p>	<p>Little known - - - - -</p>	<p>Siamese Mts., running N. to S. along Tenasserim provinces, 3,000 to 5,000 ft. Mountains in Ye province, three parallel ridges, from 3,000 to 4,500 ft., gradually diminishing towards the coast, about 500 ft. Buffalo Mts., about 70 m. from Moulmein, 1,543 ft.</p>	<p>Gold, silver, iron, tin, lead, antimony, and other metals, are met with. Veins of marble are worked near Ummerapoora. Coal has been discovered on the Irrawaddy.</p> <p>Coal of excellent quality has been discovered. Iron, tin, and gold frequently met with. Country unexplored by Europeans.</p>

MOUNTAIN PASSES ON THE INDIAN FRONTIERS, FROM THE INDUS TO THE IRAWADDY—AS FAR AS KNOWN.—By R. MONTGOMERY MARTIN.

Name and Position.	Lat. and Lon. of Extremities; Length and Breadth.	Heights, in Feet.	General Remarks.
GUNDAVA—CUTCH	Lat. 28° 10', lon. 66° 12'; lat. 28° 24', lon. 67° 27'.—About 100 m. Open spaces, connected by defiles.	Bapow, 5,250 ft.; Peesee Bhent, 4,600; Nurd, 2,850; Bent-i-Jah, 1,850; Kullar, 750 ft.	Descent, 4,650 ft., average 46 ft. per m. Water abundant and practicable for artillery.*
GHOCHISTAN - -	Lat. 29° 30', lon. 67° 40'; lat. 29° 52', lon. 67° 4'.—55 m.; $\frac{1}{2}$ m. wide at entrance.	Entrance, 800 ft.; Ab-i-goomb, 2,540; crest, 5,793 ft.	Average ascent, 90 ft. per m.† Dito.
GOOLAIREE—DE-	Lat. 32°, lon. 70° 30'.—About 100 m. - - - - -	20 m. from entrance road N.W., then 80 m. S.W., then N.W. to Ghuznee.	Winding course.‡
PESHAWER - -	Lat. 33° 58', lon. 71° 30'.—About 33 m. - - - - -	Crest, 3,373 ft. Ali-Musjid, 2,433 ft. - - -	Rises gradually from the E., but has a steep declivity westward.
AFGHANISTAN - -	Lat. 34° 50', lon. 67° 48'.—About 1 m. wide, bounded by nearly perpendicular steepes.	Bamian, 8,496 ft., over a succession of ridges from 8,000 to 15,000 ft.	Only known route over Hindoo-Koosh for artillery or carriages.‡
HINDOO-KOOSH -	Lat. 35° 37', lon. 68° 55': over principal shoulder of Hindoo-Koosh peak.—About 40 m.; narrow.	Crest, 15,000 ft. - - - - -	Road rocky and uneven descent, 200 ft. per m.‡
HINDOO-KOOSH -	Lat. 35° 38', lon. 70°.—About 15 m. - - - - -	Crest, 13,200 ft. - - - - -	Ascent on N. side, an uniformly inclined plane.**
OF SHUR-JI-LA—	Lat. 34° 10', lon. 70° 15' - - - - -	Crest, 10,500 ft. - - - - -	
- CASHMERE - -	Lat. 34° 10', lon. 74° 30' - - - - -		Only pass into Cashmere practicable for an army.
- TIBET - -	Lat. 32° 44', lon. 77° 31'. - - - - -		
- HIMALAYA - -	Lat. 32° 25', lon. 77° 12'. - - - - -		
- HIMALAYA - -	Lat. 31° 56', lon. 78° 24' - - - - -	Crest, 18,612; source of Darbung, 15,000 ft. - - -	Very difficult.
- HIMALAYA - -	Lat. 31° 24', lon. 78° 35' - - - - -	Crest, 17,348 ft. - - - - -	Extremely difficult.

the Anglo-Indian detachment marched through it. It is preferable to the Bolan Pass in a military point of view. A continuous succession of ravines and gorges. The air in the lower part of the pass is in summer oppressively hot and unhealthy. Commercial importance. Every spring, large caravans traverse it from Hindoostan to Afghanistan. The Key of Afghanistan. At Ali-Musjid, merely the bed of a rivulet, with precipices rising on each side at an angle of 70°. Near Lamdee Khana, a gallery 12 ft. wide; on one side a perpendicular wall, and on the other a precipice. It was twice forced by the British. At commercial route from Kabout to Turkestan; the several Passes to the eastward are less frequented on account of their difficulty and their elevation. The most frequented east of Bamian; impassable for wheeled carriages. The most frequented, yet may be considered the most practicable. Tamerlane crossed it on his march into Hindoostan.

Tabulated Views of the Mountains and Passes, Table-Lands, and Rivers, &c.—continued.

Position.	Lat. and Lon. of Extremities; Length and Breadth.	Heights, in Feet.	General Remarks.
ALAYA - -	Lat. 31° 23', lon. 78° 12'.—Length of crest, 50 paces	Crest, 15,095 ft.	Most elevated part a narrow glen, very steep.*
N - - -	Lat. 30° 28', lon. 80° 14'	- - - - -	Over a high ridge extending E. and W.
- - - -	Lat. 30° 57', lon. 79° 54'	Crest, 16,814; village of Niti, 11,464 ft.	Open from the end of June to October.†
PAL - - -	Lat. 27° 38', lon. 88° - - - - -	Crest, 15,770 ft.	Broad shelf of snow between rocky eminences.‡
EPAL - - -	Lat. 27° 33', lon. 88° 1'	Crest, 16,000 ft.	Temperature, 24° at 5 p.m.
NEPAL - - -	Lat. 27° 52', lon. 87° 14'	Crest, 16,755 ft.	Path leading up the pass for eight miles, a narrow steep gorge. Top, a low saddle, between two ridges.
- - - -	Lat. 27° 38', lon. 88° 56'	Crest, 16,100 ft.	Ascent, on N.W. side, gradual, over a snow-bed a descent, on S.E., steep, but grassy.
- - - -	Lat. 27° 56', lon. 88° 48'	Crest, 18,600 ft.	View of Tibet from summit.
- - - -	Lat. 19° 49', lon. 94° 9'.—34 miles	Crest, 4,517; Khen-Kyomig, 3,777; Aeng, 147 ft.	Average rise, 250 ft., average descent, 472 ft. per m.
N - - - -	Lat. 19° 14', lon. 94° 30'	- - - - -	Myhee village, a police station.

the Outer Himalaya range:—Sugla, 31° 13' lat., 78° 29' lon.—elevation, 16,000 ft.; Kimlia, 31° 15', 78° 25', 17,000; Siaga, 31° 16', 78° 20', 16,000; Marga, 31° 16', 78° 21', 16,000; Luarga, 31° 16', 78° 19', 15,000; Nulgun, 31° 19', 78° 13', 14,891; Rupin, 31° 2', 78° 10', 15,480; Ghusul, 31° 21', 78° 8', 15,851; Nibrung, 31° 22', 78° 10', 16,035; Gunas, 31° 21', 78° 8', 16,777; Sundru, 31° 24', 78° 2', 16,000; Shatul, 31° 25' lat., 77° 58' lon., 15,555 ft. In Kunawur there are fifteen passes, at elevations varying from 15,000 to 17,000 ft. The best pass between Kumaon and Tibet, and is one of the principal channels of trade between Chinese Tartary and Hindoostan.

Dr. Hooker, December 1848. The distance to which the voice was carried was very remarkable: he could hear distinctly every word spoken at from 300 to 400 yards off. Trade carried on over this pass between Ava and Arracan.

BRITISH INDIA, their Source, Course, Discharge, and Length; TRIBUTARIES OR CONFLUENTS; and ESTIMATED AREA, in Square Miles, drained; Forty-nine Main Streams, having their Outlet in the Bay of Bengal, and large Tributaries having their Outlet in other Rivers.—By R. MONTGOMERY MARTIN.

Name.	Source, Course, Discharge, and Length.	Tributaries, and their Length in British Miles; and Area drained.	General Remarks.
BHAGEERUTTEE at POODDA near	Gangoutri, Himalaya, 1,400 ft. above the level of the sea. N.W. to Johnioi; W. and S.W., 19 m.; S.W., 36 m.; S., 15 m.; S.E., 39 m.; S., 8 m.; W., 24 m.; S.W., 15 m.; S., 130 m.; S.E. to Allahabad, E., 270 m.; E. to Sikrigalee; S.E. remainder of course into Bay of Bengal, by numerous mouths. The Ganges gives off some of its waters to form the Hoogly, and also anastomoses with the Megna.—Length, 1,514 m.	Jumna, 860; Ghogra, 606; Gunduck, 450; Goomtee, 482; Sone, 465; Coosy, 325; Ramgunga, 373; Mahananda, 240; Karumnassa, 140; Koniae or Jumna, 130; Aluknunda, 80; Bhillung, 50 m.—398,000 sq. m. drained, exclusive of Hooghly.	Navigable for river craft as far as Hurdwar, 1,100 m. Above Hurdwar, the navigation is very difficult, especially as far as Gurmukteesur, 393 miles above Allahabad. From Calcutta to Delhi, 930 miles; at Cawnpore, 1,100 miles; at Allahabad, the navigation is plied with great activity. Mean discharge of water there, throughout the year, 1,500,000,000 cub. ft. per second.
- - - -	Formed by junction of Bhageeruttee and Tellinghee, two branches of Ganges. S. to Calcutta; S.W. to Diamond Harbour; E. and S.W. into the sea at Saugor road-head, by an estuary 15 m. wide.—Length, 160 m., by winding of stream.	Dammoodah, 350; Dalkissore, 170; Coosy, 240; Mor, 130.—About 49,000 sq. m. drained.	Formerly navigable for a line-of-battle ship to Chatterjee, now, vessels drawing more than 17 ft., not safe in passage to Calcutta to the sea, by reason of shoals.
INDUS ("Blue")	Tibet, behind Kailas range, to the N. of Kailas peak, 22,000 ft. above the sea. N.W. to Dras R.; more northerly to Shy-yok; W.N.W., 115 m. to Makpon-i-Shagarön; S.S.W. and S. to Attock; a little W. of S. to confluence with Punjnad; S.W. to Khyrpoor; S. to Sehwan; S.E. to Hyderabad; W. of S. to Arabian Sea, Indian Ocean.—Length, 1,800 m.	Eekung-Choo, 110; Hanle, 70; Zanskar, 150; Dras, 75; Shy-yok, 300; Shy-ghur, 70; Ghilgit; Cabool, 320; Suttlej, 850; Chenab, 765; Jhelum, 490; Ravee, 450; Punjnad, 60 m.—About 390,000 sq. m. drained.	Navigable to Attock, 942 m. from sea, there from 50 to 100 m. wide; depth, 60 ft. Breadth and depth varies at junction with Punjnad; breadth, 1 to 30 m.; depth, 186 feet.

POOTRA — MEONA, e sea.	N.E. extremity of Himalaya range; lat. 28° 30', lon. 97° 20'. S.W., 63 m.; W., S.W., S.E., S.W., and E. to Bay of Bengal, through three mouths, Hattia, Ganges, and Shebazpoor.—Length, 933 m.	Sanpoo, 1,000; Dibong, 140; Noh-Dihong, 100; Boree Dehing, 150; Soobu-Sheeree, 180; Monas, 189; Bagnée, 150; Guddala, 160; Durlah, 148; Teesta, 313; Barak, 200; Goomtee, 140 m. In lat. 25° 10', lon. 89° 43', it gives off the Koniae.—305,000 sq. m. drained.	The branches of the Brahmapootra, together with those of the Ganges, intersect Lower Bengal in such a variety of directions as to form a complete system of inland navigation.
BY	E. extremity of Himalaya, lat. 28° 5' lon. 97° 58'. Nearly N. to S. through Burmah, and the recently acquired British territory of Pegu; into the Bay of Bengal, by numerous mouths.—Length, 1,060 m.	Khyendwen, 470; Shwely, 180; Moo, 125 m.—164,000 sq. m. drained.	The Bassein branch affords a passage for the largest ships 100 miles from its mouth. No river of similar magnitude, stated, presents so few obstructions to navigation.
BY	E. declivity of W. Ghauts, near Nassik, 3,000 ft. above the sea. S.E., 200 m.; E. 100 m.; S.E., 85 m.; E., 170 m.; S.E., 200 m.; into Bay of Bengal, by three mouths.—Length, 898 m.	Wein-Gunga, 439; Manjera, 330; Poorna, 160; Pairs, 105; Inderaotee, 140 m.—130,000 sq. m. drained.	In 1846, the sanction of the Court of Directors of E. I. Co. was given to the construction, at an expense of 47,500L., of a canal of sufficient height to command the delta, and to supply the rich alluvial soil of which that tract is composed, with water of constant irrigation. The experiment of navigating the canal by steam has been entertained by the Madras government, and means for carrying it into effect are under consideration.
I, or KRISHNA	<i>N.B.—Where no tributaries or area drained are mentioned, it is because, as regards the former, there are none of note; and the latter is small, and imperfectly defined.</i>	Beemah, 510; Toongabudra, 325; Gutpurba, 160; Mulpurba, 160; Warna, 80; Dindee, 110; Peedda Wag, 70 m.—110,000 sq. m. drained.	The Kistnah, in consequence of the rapid declivity of its upper way and rockiness of its channel, cannot be navigated by craft, even for short distances. An extensive system of irrigation in connection with this river is now in progress, and is estimated to cost £150,000.
NA	Amarkantak, a jungly table-land, lat. 22° 39', lon. 81° 49'; from 3,500 to 5,000 ft. above the sea. Nearly due W., with occasional bends, to Gulf of Cambay, by a wide estuary.—Length, 801 m.	Herrun; Samarsee, 60; Suktha, 70 m.—About 60,000 sq. m. drained.	The river, notwithstanding the great width of its bed, and the parts of its upper course, appears to be scarcely continuously navigable for any considerable distance, in consequence of the innumerable basaltic rocks scattered in its channel. Bed full of micaceous quartzose rock; banks low, and little above the surrounding level.
S	Arravulli Mts., near Pokur, lat. 26° 37', lon. 74° 46'. S.W., nearly parallel with Arravulli range, into Runn of Cutch, by two mouths, principal in lat. 24° 42', lon. 71° 11'.—Length, 320 m.	Raيرة, 88; Sokree, 130 m.—About 19,000 sq. m. drained.	
S	In a cluster of summits in the Arravulli range, lat. 24° 47', lon. 73° 28'. S.W. into Runn of Cutch, by several small channels.—Length, 180 m.	About 17,000 sq. m. drained.	
S	Kattywar, lat. 22° 10', lon. 71° 18'. S.W., into Indian Ocean, near Poorbunder, lat. 21° 38', lon. 69° 46'.—Length, 135 m.		
S	Kattywar, lat. 21° 31', lon. 70° 50'. Circuitous, but generally W., into backwater, behind Poorbunder.—Length, 75 m.		
S	Kattywar, lat. 22° 10', lon. 76° 31'. N.W., into Gulf of Cutch.—Length, 60 m.		The surface of Kattywar peninsula is generally undulating, with low ridges of hills, running in irregular directions. The highest part in the middlemost part is the highest, and here all the hills take their rise, disembodying themselves respectively into the Runn, the Gulf of Cutch, and the Gulf of Cambay.
S	Kattywar, lat. 21° 15', lon. 70° 25'. E. into Gulf of Cambay.—Length, 60 m.	Area of peninsula, 18,950 m.	
S	Kattywar, lat. 22°; lon. 71° 20'. E. into Gulf of Cambay.—Length, 60 m.		
S	Kattywar, lat. 22° 18', lon. 71° 30'. E., into Gulf of Cambay.—Length, 88 m.		
S	Sautpoora Mts., near Mooltae, lat. 21° 46', lon. 78° 21'. Generally W., to Gulf of Cambay.—Length, 441 m.	Poorna, 160; Girna, 160; Boree, 90; Panjar, 92 m.—About 25,000 sq. m. drained.	It can scarcely be deemed a navigable stream, as at Surat from its mouth, it is fordable when the tide is out. It can be navigable in the dry season for boats of light draught, and is obstructed by numerous sandbars. The mouth is obstructed by numerous sandbars. Navigable for 15 m. from its mouth. At 50 m. up the river, it is wide; bed, 400 yds.; depth, 1ft.
S, or MAKE	Vindhya Mts., lat. 22° 32', lon. 75° 5'; 1,850 ft. above the sea. N.W., 145 m.; W. 25 m.; S.W., 180 m., into Gulf of Cambay.—Length, 350 m.	Amass, 90; Manchun, 55 m.	

Western side of India.

Tabulated View of the Mountains and Passes, Table-Lands, and Rivers, &c.—continued.

	Source, Course, Discharge, and Length.	Tributaries, and their Length in British Miles ; and Area drained.	General Remarks.	
Western side of India.	W. Ghauts, lat. 17° 50', lon. 73° 36'. S.—W.—S.E.—W., into Indian Ocean.—Length, 55 m.	No tributaries of note; area drained small, and imperfectly defined.	Though rugged, the Concans have many fertile vall which, for the most part, affords a passage for a or torrent, holding a westerly course from the Indian Ocean. The most fertile spots are on th streams. The rivers abound with fish, but are als by alligators. The Savitree is navigable as far as l from its mouth.	
	W. Ghauts, lat. 18° 17', lon. 73° 27'. S.E.—W., into Indian Ocean.—Length, 70 m.			
	W. Ghauts, lat. 19° 41', lon. 73° 29'. S.W.—W.—W.S.W.—W., into Indian Ocean.—Length, 58 m.			
	W. Ghauts, lat. 19° 54', lon. 73° 24'. W.—S., into Indian Ocean.—Length, 68 m.			
	W. Ghauts, lat. 20° 11', lon. 73° 42'. W.—N.—W.N.W., into Indian Ocean.—Length, 58 m.			
	W. Ghauts, lat. 20° 30', lon. 73° 43'. W., into Indian Ocean.—Length, 50 m.			
	W. Ghauts, lat. 20° 50', lon. 73° 42'. W., into Indian Ocean.—Length, 70 m.			
	W. Ghauts, lat. 20° 59', lon. 73° 44'. W., into the Indian Ocean.—Length, 60 m.			Nothing worthy note.
	Plain of Dharwar, lat. 15° 45', lon. 75° 10'. S.—S.W., into Indian Ocean.—Length, 100 m.			No tributaries of any extent; and area drained imperfectly. Known.
	Plain of Dharwar, lat. 15° 33', lon. 74° 47'. S., 61 m.; W., 30 m., into Indian Ocean.—Length, 91 m.				Navigated by the largest patimars for 20 m. From M Shedashegur, rendered easy by uniformity of chanr
Coimbatore, lat. 10° 19', lon. 77° 6'. N.W.—W., into Indian Ocean.—Length, 128 m.		Navigable for canoes as far as Palghat, 63 m. from th		
Madura, lat. 10° 17', lon. 77° 37'. S.E., into Bay of Bengal.—Length, 130 m.		The large anicuts upon it are Conoor, diverting a str name, Parea Anai, & Chittanaik.		
Base of E. Ghauts, lat. 10° 28', lon. 78° 21'. E., into Gulf of Manaar.—Length, 80 m.				
Vellanuddhee hills, Madura. S.E., into Gulf of Manaar.—Length, 95 m.				
Coorg, lat. 12° 25', lon. 75° 34'. E., 33 m.; N.E., 28 m.; S.E., 95 m.; N.E.—E.—S.E., 47 m.; S., 47 m.; S.E.—E.—N.E., into Bay of Bengal. Length, 472 m.	Magunmurchy, 40; Bhovani, 120; Noyel, 95 m.; Hennavutty; Leechman-Teert; Cubbany; Shimaska; Arkavati; Ambrawutty.—About 36,000 sq. m. drained.	Navigable for craft through the low country inundation. Gungan Zooka fall, 370 ft. Burr Z		
Base of E. Ghauts. E., into Bay of Bengal, near Porto Novo		The river is small at its mouth, and admits only coas		
Mysore table-land, lat. 13° 20', lon. 78° 2'. S.E., 55 m.; E., 87 m.; S.E., 48 m., into Bay of Bengal.—Length, about 220 m.	Pony, 40; Sheyaroo, 90 m.	The entrance of the Palar, near Sadras, is contract or narrow ridge of sand, inside of which the river considerable width.		
Mysore table-land, lat. 13° 26', lon. 79° 11'. N.E., to Bay of Bengal.—Length, 99 m.				
Nundidroog table-land, lat. 13° 23', lon. 77° 43'. N.W. 30 m.; N., 95 m.; E., 230 m., into Bay of Bengal.—Length, 355 m.	Chittravutti, 107; Paupugnee, 130; Chittair, 75 m.	Gold is found in its sands, in its passage through the		
N. Nundidroog table-land, lat. 13° 32', lon. 77° 45'. S. to Mootanhalli, 55 m.; S.E., 190 m., into Bay of Bengal, a mile N. of Ft. St. David.—Length, 245 m.				
Lat. 15° 40', lon. 78° 49'. Very circuitous; E.—N.E.—S.S.E.—S.E., into Bay of Nizampatnam.—Length, 155 m.				
Table-land of Orissa, lat. 19° 39', lon. 83° 27'. S., into Bay of Bengal.—Length, 130 m.				
Table-land of Orissa, near source of Bondsora. S., into Bay of Bengal.—Length, 133 m.				
Eastern side of India.				

DDY	-	Native state of Nowagudda, lat. 20° 20', lon. 82° W., 30 m.; N.E., 110 m.; S.E., 300 m., to Bay of Bengal by numerous mouths.—Length 520 m.	Hutsoo, 130; Aursg. 117; Tell, 130; Bang Nuddee, 60 m.—About 46,000 sq. m. drained.	From July to February, navigable for boats for 460 m.
NY	-	Palamow table-land, lat. 23° 25', lon. 84° 13'. S.—E.—S.E., into Bay of Bengal, near Pt. Palmyras.—Length, 410 m.		
KE	-	Near Lohardugga, lat. 23° 29', lon. 84° 55'. N.—E.—S.—S.W.—S.E.—E., into Bay of Bengal, by Dhumrah river.—Length, 345 m.	Sunk, 95 m.—About 26,000 sq. m. are drained by Brahminy and Byturnee.	Sacred in the Hindoo mythology, more especially at its source.
BEKKA (En. India)	-	Chota Nagpore table-land. N.E.—E.—S.E.—S.—S.E.—E.—S.E.—S., into Bay of Bengal.—Length, 280 m.	Karow, 80 m.—About 12,000 sq. m. drained.	
N, or COLADYNE	-	Near Blue Mountain, Youmadoung range, lat. 22° 27', lon. 92° 51'. S., into Combermere Bay.—Length, 160 m.	Myoo; Lemyo - - - - -	Navigable within a few miles of Arracan town, for ships of 100 tons burden. 90 m. above Akyab, the stream is narrow and navigable only for canoes. 10 m. broad at its mouth.
or SALWEEN	-	Burmah, lat. 21° 40', lon. 96° 50'. S., into Gulf of Martaban.—Length, 420 m.	Yennan, 115; Saar, 120 m. - - - - -	It is a navigable river. For about 190 m. forms the boundary between the Tenasserim provinces and Pegu. It enters the British dominions about lat. 18° 40'.
ERIM	-	N. of Yunnan province, China; about lat. 27° 10', lon. 98° 57'. S., into Gulf of Martaban, by two mouths, formed by Pelewgewen Island.—Length, 430 m.	Attaran or Weingo, 110; Thung-yin Myit, 225; Meloun, 90 m.	
tributary to GANGES	-	Supposed to lie in the mountains to the N.E. of Tavoy, between the 14th and 15th parallel of latitude. S. to Metamio, lat. 14° 13'; S.E. and S. to Tenasserim town; N.W. into Bay of Bengal, by two mouths.—Length, 270 m.	Baing-Khiaung; Little Tenasserim; Kamaun Khiaung.	Upper part of course through a wild and uncultivated country, sometimes between high and perpendicular banks. Towards the lower part, it opens on extensive plains. On many parts of its course exist forests of fine teak, and the valuable sapan wood.
tributary to GANGES	-	Jumnoutri, Himalaya, lat. 31° lon. 78° 32'; 10,849 ft. above the sea. S.W.—S.E., to Ganges, at Allahabad.—Length, 860 m.	Tonse or Supin, about 100; Hindan, about 160; Hansoutee, 99; Bangunga, 220; Chumbul, 570; Sinda, 260; Betwa, 360; Cane, 250; Baghiu Nuddee, 90; Seyngur, 210; Urrund Nuddee, 245 m.—About 105,000 sq. m. drained.	In consequence of its bed being obstructed by shoals and rocks, navigation is not practicable for craft above Delhi, except by means of the canal. Its banks are lofty and precipitous, and ridges of rock in many places advance into the stream, rendering navigation with its general shallowness and strong current to be extremely difficult and dangerous.
tributary to GANGES	-	N. of Kumaon, lat. 30° 28', lon. 80° 40', probably between 17,000 and 18,000 ft. S.E., 83 m.; S.W., 70 m.; S.E., 12 m.; S., 30 m.; S., 23 m. further; S.E., to Ganges, near Chupra.—Length, 606 m.	Raptee, 134; Kurnalli, 225; Bhyrvee, 70; Dhauli, 45; Goringunga, 60 m.—About 49,000 sq. m. drained.	Butter describes it as navigable for the largest class of boats in all seasons.
tributary to GANGES	-	In a small lake or morass, 19 m. E. of the town of Pillebheet. Lat. 28° 35', lon. 80° 10'; 520 ft. above the sea. S.—S.E., into Ganges, 30 m. below Benares.—Length, 482 m.	- - - - -	In the rainy season, boats of 1,000 or 1,200 maunds (1 maund = 82 lb. burthen), are sometimes seen proceeding to Lucknow.
tributary to GANGES	-	Amarkantak table-land, lat. 22° 41', lon. 82° 7'; from 3,500 to 5,000 ft. above the sea. N., 30 m.; N.W., 80 m.; N., 40 m.; N.E., 125 m.; E., 47 m.; N.E., into the Ganges, 10 m. above Dinapoor.—Length, 465 m.	Koel, 140; Kunher, 130; Johila, 100 m.—Including the Phalgu and other rivers falling into the Ganges above Rajmahal, about 42,000 sq. m. drained.	The navigation of the river is not considered available for the purposes of important utility higher than Daudnagar, 60 m. above the confluence with the Ganges.
tributary to GANGES	-	Near Dhawalagiri peak, Himalaya. S.—S.E.—S.W.—S.E., into Ganges, near Patna.—Length, 407 m.	Trisula-gunga, 100; Marachangdi, 100; Naling, 110 m.—About 40,000 sq. m. drained.	Though navigable continuously through its whole course, towards from Bhelaunji, there are in the part of its course nearer that place many rapids and passes, where, the stream being obstructed by rocks, navigation becomes difficult and dangerous.
tributary to JUMNA	-	Malwah, lat. 22° 26', lon. 75° 45', 8 or 9 m. S.W. from Mhow, which is 2,019 ft. above the sea. It rises in the cluster called Janapava. N., 105 m.; N.W., 6 m.; S.E., 10 m.; N.E., 23 m.; N.W., 25 m.; N. to junction with Kallee Sinda; N.E., 145 m.; S.E., 78 m., to Jumna.—Length, 570 m., described in a form nearly semicircular, the diameter being only 330 m.	Chumbela, 70; Seepra, 120; Parbutty, 220; Kallee Sinda, 225; Banas, 320; Chota Kallee Sinda, 104 m.—About 56,000 sq. m. drained.	It does not appear to be used for navigation, which is probably incompatible with the average declivity of its bed (2 in. per m.), and still more so with the general rugged and precipitous character of its channel. Its average volume of water is considerable, that on its junction it has been known to be united stream 7 or 8 feet in 12 hours.
tributary to GANGES	-	Kumaon, lat. 30° 6', lon. 79° 20'; about 7,144 ft. above the sea. S.E., 20 m.; S.W., 70 m.; S. to Moradabad—S.E.—S., into Ganges.—Length, 373 m.	Kosee, 150; Gurra, 240 m. - - - - -	Fordable at Moradabad, at 15 m. below confluence with the Jumna, but not usually fordable below Jellalabad.
tributary to GANGES	-	Himalaya Mountains, lat. 28° 25', lon. 86° 11'. S.W.—S.E.—S.—S.E.—S., into Ganges.—Length, 925 m.	Arun, 310; Tambur, 95; Gogaree, 235; Dud Coosy, 50; Tiljuga, 40 m.—46,000 sq. m. dr.	Where narrowest, and when lowest, stream, 1,200 ft. wide and 15 ft. deep. It is larger than the Jumna or the Ghogra.

Tabulated Views of the Mountains and Passes, Table-Lands, and Rivers, &c.—continued.

e.	Source, Course, Discharge, and Length.	Tributaries, and their Length in British Miles, and Area drained.	General Remarks.
tributary to	Near Darjeeling, in the Sikkim hills, lat. 26° 57', lon. 88° 20'. S., 40 m.; S.W., 60 m.; S.E., 50 m.; S., 20 m.; S.E., 40 m.; S., 30 m.—Length, 240 m.	-	Navigable during the dry season for craft of 8 to 10 tons. Kishengunge, for those of much larger burthen during rains.
tributary to	In the Kymore range, lat. 24° 38', lon. 83° 11'. N.—N.W., into the Ganges, near Ghazeeepore.—Length, 140 m.	-	-
to GANGES	Lat. 24°, lon. 80° 30'. N.W.—E.N.E.—N., into the Ganges, a few miles below Allahabad.—Length, 165 m.	Satni, Behar, Mahana, Belun, and Seoti.—Including small streams, 13,000 sq. m. drained.	-
tributary to	Lat. 30° 33', lon. 79° 38'. N.W.—S.W.—W.—S.W., into the Bhageeruttee, at Deoprayag.—Length, 80 m.	Doulee, 35; Vishnuganga, 25; Mundakni, 32; Pindur, 60 m.	At confluence with Bhageeruttee, 142 ft. broad; during the melting of the snow.
tributary to GANGES	Lat. 30° 46', lon. 78° 55'. S.W., into the Bhageeruttee.—Length, 50 m.	-	Between 60 and 70 ft. wide in the beginning of March at its mouth.
tributary to	Ramghur district, lat. 23° 55', lon. 84° 53'. E. and S.E., to Burdwan; S., to Diamond Harbour.—Length, 350 m.	Barrachur, 155 m.	Crossed by a ferry 50 m. above its mouth. At Ramghur, 500 yds. wide, fordable, with a depth of about 1 ft. deep in December.
to HOOGHLY	Ramghur district, lat. 23° 35', lon. 85° 58'. Circuitous, but generally S.E., into Hoogly.—Length, 240 m.	Comaree	It is crossed at Amednuggur, 80 m. from source, and at 41 m. from mouth, by fords during the dry season during the rains.
tributary to	Pachete district, lat. 23° 30', lon. 86° 34'. S.E.—S.—S.E., into Hoogly at Diamond Harbour.—Length, 170 m.	-	Crossed at Bancoora, 50 m. from source, and at Jhansi, by means of fords.
tributary to INDUS	Near Kara-korum Pass. S.E.—N.W., into Indus, near Iskardo.—Length, 300 m.	Chang-Chenmo, 58; Nubra, 66 m.	-
to INDUS	Lat. 34° 15', lon. 68° 10', near Sir-i-Chusma, in Affghanistan; elevation, 8,400 ft. Generally E., through the valley of Cabul, and plains of Jellalabad and Peshawur, into the Indus.—Length, about 320 m.	Punchshir, 120; Tagao, 80; Alishang, 120; Soorkh-Rood, 70; Kooner, 230; Suwat, 150 m.—About 42,000 sq. m. drained.	Not navigable along the N. base of Khyber Mts. except in the winter. Navigable for boats of 40 or 50 tons to the mouth.
tributary to INDUS	N. declivity of Barra-Lacha Pass, lat. 32° 47', lon. 77° 33'. N.W.—W.—N.W.—N.E.—N.W.—N.E., into the Indus, a few miles below Le.—Length, 150 m.	Trarap, 42; Zingchan-Tokpo, 22 m.	-
to INDUS	Remote sources, Lakes Manasarowar and Rahwan Hrad, lat. 30° 8', lon. 81° 53'; 15,200 ft. above the sea. N.W., 180 m.; S.W. through Bussahir; W. to junction with Beas; S.W. to Punjnad.—Length, 550 m., to junction with Beas; 300 m. farther to Punjnad; total, 850 m.	Spiti, 120; Buspa, 52; Beas, 290 m.—About 29,000 sq. m., or, including Ghara and Beas, about 65,000 sq. m. drained.	At Roopur, 30 ft. deep, and more than 500 yds. wide as far as Filoor in all seasons, for vessels of 100 tons burthen.
to SUTLEJ	On S. verge of Rotang Pass, lat. 32° 24', lon. 77° 11'; 13,200 ft. above the sea. S., 80 m.; W., 50 m.; then a wide sweep to N.W. for 80 m.; S., 80 m., to Sutlej, at Endreesa.—Length, 290 m.	Parbati; Sainj, 88; Gomati, 55 m.; Ul; Gaj.—About 10,000 sq. m. drained.	-
tributary to INDUS	Near Barra-Lacha Pass, lat. 32° 48', lon. 77° 27'. N.W. to Murumurdwan; S.W. to confluence with Jhelum, thence S.W. to Ghara, or continuation of Sutlej.—Length, 605 m. to Jhelum, 765 m. to Ghara.	Suruj-Bhagur, 44; Myrumurdwan, 86; Dharh, 56 m.—About 21,000; including Jhelum, 50,000; and with Ravee, 72,000 sq. m. drained.	Becomes navigable for timber rafts at Aknur. Depth average rate of 40 ft. per m. for the first 200 m. elevation at Kishtewar, 5,000 ft.
to CHENAB	The Lidur, in N.E. mountains of Cashmere, near Shesha Nag. Through valley of Cashmere, and into Punjab by Baramula gorge; S. to Chenab confluence, in lat. 30° 10', lon. 79° 9'.—Length, 409 m.	Lidur, 50; Vishnau, 44; Sinde, 72; Lolab, 44; Kishengunga, 140; Kunihar, 100; Pirpanjal, 115 m.—About 280,000 sq. m. drained.	Navigable for 70 m. through Cashmere. Navigable from Indus to the town of Ohind.
to CHENAB	Lat. 32° 26', lon. 77°, in the Pirpanjal, or Mid-Himalaya range, to the W. of Rotang Pass. S.W., about 40 m.; W. to Lahore; S.W. to junction with Chenab.—Length, 450 m.	Nye, 20; Sana, 36; Chakki, 50 m.—About 22,000 sq. m. drained.	Tortuous course; fordable in most places for eight months in the year.

tributary to BRAHMA-	N. face of Himalayas, lat. 30° 25', lon. 82° 5'. E., winding its way through Tibet, and washing the borders of the territory of Lassa. It then turns suddenly S., and falls into the Brahmapootra, under the name of Dihong.—Length, about 1,000 m.	Sanki-Sanpoo, Niamtsion, Zzangtsiou, Lalee Nuddee.	
tributary to BRAHMA-	About lat. 27° 59', lon. 88° 50'. S.—S.E., into Brahmapootra.—Length, 333 m.	Lachooong, 23; Rungbo, 22; Rungeet, 23 m.	Navigable for craft of 6 or 7 tons as far up as Puharpoot beyond the divergence of the Attree.
tributary to BRAHMA-	It is an offset from the Jeree, which leaves in lat. 24° 43', lon. 93° 13'. W. through Cachar and Silhet; S.W., into Megna.—Length, 200 m.	- - - - -	Banks low and marshy along the valley of the Cachar.
tributary to BRAHMA-	Himalaya range, lat. 28° 20', lon. 91° 18'. S., 40 m.; S.W., 110 m.; S.W., into Brahmapootra.—Length, 189 m.	Deemree, of greater length than itself.	
tributary to IRA-	Burmah, lat. 26° 28', lon. 96° 54'. Generally S., into Irawaddy, near the town of Amyennyoo.—Length, 470 m.	Myitia Khyoung, 170 m.	
tributary to PRA-	Mahadeo Mountains, lat. 22° 25', lon. 79° 8'. E., 80 m.; S., 34 m.; S., 25 m.; S.W., 80 m.; S., 100 m.; into Godavery.—Length, 439 m.	Pench Nuddee, 150; Kanhan Nuddee, 130 m.—About 21,000 sq. m. drained, exclusive of Payne-Gunga and Wurda.	Elevation at Bundara, lat. 21° 12'; 872 ft. above the sea.
tributary to WEIN-	Sautpoora Mountains, lat. 21° 44', lon. 78° 25'. Generally N.W. to S.E.—Length, about 250 m.	Payne-Gunga, 320 m.—About 8,000 sq. m. drained.	Fordable, except at the height of the rains; then navigable 100 m. above its mouth.
tributary to WINGA-	Lat. 20° 32', lon. 76° 4', in Candish. Very circuitous, but generally E., into Wurda.—Length, 320 m.	Araun, 105; Koony, 65 m.—About 8,000 sq. m. drained.	
tributary to GODAVERY	Lat. 18° 44', lon. 75° 30'. S.E., S.W., into Godavery.—Length, 330 m.	Thairnya, 95; Narinja, 75; Munnada, 100 m.—About 11,000 sq. m. drained.	
tributary to KISTNAH	Lat. 19° 5', lon. 73° 33', in the table-land of the district of Poona; 3,090 ft. above the sea. S.E., into Kistnah.—Length, 510 m.	Goor, 100; Neera, 120; Seena, 170; Tandoor, 85 m.—About 29,000 sq. m. drained.	
tributary to RA-	Lat. 14°, lon. 75° 43', junction of Toonga and Budra rivers. N.—N.E., into Kistnah.—Length, 325 m.	Chinaa Hugry; Hundry, 225 m.; Wurda.—About 28,000 sq. m. drained.	Rocky obstacles to navigation in upper part of course; teak forests on banks.
tributary to TAPTEE	Lat. 21° 35', lon. 77° 41'. S., 65 m.; W., 25 m.; into the Taptee.—Length, 160 m.		
tributary to TAPTEE	E. slope of W. Ghauts, lat. 20° 37', lon. 73° 25'. E., 120 m.; N., 50 m.; into the Taptee.—Length, 160 m.		
tributary to CAUVERY	Among the Kundah group, lat. 11° 15', lon. 76° 4'. E. into Cauvery.—Length, 120 m.		
tributary to CAUVERY	E. slope of W. Ghauts, lat. 10° 59', lon. 76° 44'. E., into Cauvery.—Length, 95 m.		
tributary to MAHA-	Lat. 23° 18', lon. 82° 32'. S., into Mahanuddy.—Length, 130 m.		
tributary to MAHANUDDY	Lat. 19° 54', lon. 82° 41'. N.W., into Mahanuddy.—Length, 130 m.		

NOTE.—Of the above-named rivers, 49 main streams flow to the sea; the chief tributaries to these number 210; and 30 flow for 200 m. and upwards; 63 have a course of 100 to 200 m.; and the remainder under 100 m.

TABULATED VIEW OF RIVERS IN AFGHANISTAN, and in the COUNTRIES adjacent to INDIA on the North-west, so far as known.—By R. MONTGOMERY MARTIN.

Length.	Source, Course, and Discharge.	Tributaries or Confluents, and their Length in English Miles.	General Remarks.
—650 miles	Pughman range, lat. 34° 40', lon. 68° 2'; at an elevation of 10,076 ft. above the sea. Westerly; south-westerly to Pullaluk; north-westerly; in the Hamoon marshy lake, and that of Duk-i-Teer, by numerous channels.	At 25 m. below Girislik receives the Urgundab, 250 m.; Turnak.	At Girislik, 350 m. from source; banks about 1,000 yards in spring spreads beyond these limits; depth 10 or 12 ft. a rapid current. At Pullaluk it was crossed by Christy; found it, at the end of March, 400 yards wide, and very deep. In April the water (which is briny) is 7 or 8 yards wide, and deep. It is crossed on the route from Shawl to Kanda
About 80 miles	Shawl table-land, lat. 39° 49', lon. 67° 20'. South-westerly, until lost in the sands of the desert of Khorasan.	- - - - -	

Tabulated Views of the Mountains and Passes, Table-Lands, and Rivers, & c.—continued.

Length.	Source, Course, and Discharge.	Tributaries or Confluents, and their Length in English Miles.	General Remarks.
out 800 miles	Valley of Bamian, about lat. 34° 52', lon. 67° 40'. Easterly; northerly; north-easterly; northerly; and north-westerly; into the Amoo or Jinoon River.	Inderaub, 65; and Khanah-i-had, 90 m.	
Lyaree.—About	Huzareh Mountains, lat. 34° 50', lon. 66° 20'; 9,500 ft. above the sea. Generally westerly to Herat, where it turns north-westerly, forming a junction with the Moorghaub; the united stream is ultimately lost in the desert of Khorasan.	Sir-i-Jungle, 90 m. - - - -	At Herat, it was formerly crossed by a brick bridge out of thirty-three arches being swept away, completely intercepted in time of inundation. It is remarkable for the purity of its water.
0 miles -	Jhalawan province, about lat. 27° 23', lon. 66° 21'. Southerly, through Lus province into the Indian Ocean, in lat. 25° 23', lon. 66° 20'; near Sonmeanee.	N.B.—The tributaries of these rivers, in the countries adjacent to India, are as yet very imperfectly known,—as indeed are also the origin and courses of the rivers themselves, or the countries through which they flow.	From the bund N. of Lyaree, the river has no bed during the rains, the bund is swept away, and the dates the plain, which is here about 5 m. broad.
ut 60 miles -	Huzareh Mountains, about lat. 33° 50', lon. 65° 20'. Generally southerly, as far as lat. 33°; afterwards south-westerly; into Lake Abistada, in lat. 32° 42', lon. 68° 3'.		
70 miles -	Sir-i-Bolan, Bolan Pass, lat. 29° 51', lon. 67° 8'; 4,494 ft. above sea. Remarkably sinuous, but generally south-easterly; from a junction with the Nari River.		
150 miles -	A few miles S. of Kelat, in Beloochistan. South easterly, about 80 miles; north-easterly; and easterly; ultimately absorbed in the desert of Shikarpore.		
miles -	Huzareh Mountains, about lat. 33° lon. 67°. South-westerly to 25 m. past Kandahar; westerly remainder of course,—falls into the Helmund River.	Turnak - - - -	LIABLE TO INUNDATIONS; and as its bed, in some parts the whole breadth of the ravine, travellers are frequently taken by the torrent. Falls 3,751 ft. in 50 m., from Dadur. The Moola or Gundava Pass winds along its course.
160 miles -	Afghanistan, about lat. 33°, lon. 69° 6', at the foot of an offshoot from Sufed-Koh. S.; W.; and a little E. of S. to Goolkuts; thence E., N.E., and S.E., until absorbed by the sands of the Daman.	Zhobe, about 170 m	Where crossed 12 m. from Kandahar, it is, ordinarily, yards wide, from 2 to 3 ft. deep, and fordable; but in seasons of inundations, becomes much increased. Greater part drawn off to fertilize the country. Its bed for a great distance forms the Goolairee Pass, the middle route from Hindoostan to Khorasan, by Khan and Ghuznee: crosses the Sulliman range,

TABLE-LANDS OF BRITISH INDIA—their Extent, Height, &c.—By R. MONTGOMERY MARTIN.

Locality.	Elevation, in Feet.	General Remarks.	
INDIA, in- HYPORE, BOPAL, and	Extends by the Arravulli, Dongurpoor, Vindhya, Bindyachal, Panna, and Bandair ranges,—73° to 84°; about 700 m. long; breadth very various,—greatest from Amjherra to Ajmeer, 250 m.; from Mhow to Mokundurra, 150 m.; at Saugor and Dumoh, 75 m.; afterwards very narrow.	Highest towards S. and W.; average of Oodeypore, 2,000 ft. Malwah, 1,500 to 2,000 ft. Bhopal, 2,000 ft. Bundelcund, about 1,000 ft. Shahabad, 700 ft. Plain of Ajmere, 2,000 ft. Oodeypore town, 24° 37', 73° 49'; 2,064 ft.—slope to N.E., Banas River flowing in that direction; gradual fall also to valley of Chumbul River, where it rises to Malwah; Mhow, 2,019 ft. Deetaun, 1,881 ft. Dhar, 1,908 ft. Indore, 1,998 ft. Crest of Jaum Ghaut, 2,328 ft. Oojein, 1,698 ft. Adjygurb, 1,340 ft. Amjherra, 1,890 ft. Saugor, 1,940 ft. Rhotasgurb, 700 ft. Sonar River, source, 1,900 ft. From the Vindhya range the surface has a generally gradual, but in some places abrupt, descent; as at Mokundurra, and the Bindyachal hills, where rivers occasionally fall over the brow in cascades. Shahabad district very rocky and uneven.	Tin and copper are found in Oodeypore. In Bhopal the prevailing geological formation appears to be trap overlying sandstone. Minerals are few and unimportant. Water is plentiful. The mineral resources of the country appear to be considerable.
INDIA, in- N, MY-	Supported as it were by a triangle formed by the Sautpoora or sub-Vindhya on the N., W. Ghauts on the W., and E. Ghauts on the E.;	Highest parts, those nearest W. Ghauts, and in centre of Mysoor. Mahabulishwar 18°, 73° 45'; 4,700 ft. Source of Kistnah, 4,500 ft. Source of Godavery, 3,000 ft. Poona, 2,823 ft. Source of Manjera, 3,019 ft. Rivers rising in ravines between spurs of W.	Hypogene schists, penetrated and broken up by prodigious outbursts of plutonic rocks, occupy by far the greater portion of the country.

the Sautpoora range constituting the base. Length, from Sautpoora River to Salem, about 700 m.; breadth from Mahabelishwur to Sirgoojah, about 700 m. If Choota-Nagpore be considered as part of this great table-land, it may be said to extend nearly 250 m. farther in a north-easterly direction.

Ghats, wind their way through E. Ghats across the Deccan, the slope being in that direction. Plains of Nagpore, 1,000 ft.—slope to S.E.; drained by Wein-Gunga, which falls into Godavery. Hyderabad, 1,800 ft. Secunderabad, 17° 26', 78° 33'; 1,837 ft. Beder, 17° 53', 77° 36'; 2,359 ft. From the Wein-Gunga the surface rises towards N.E., where Rypoor, 21° 12', 81° 40', is 1,747 ft. Source of Mahanuddy, 2,111 ft.; and Konkeir, 20° 16', 81° 33', 1,953 ft. Nundy-droog, highest in Mysore, 4,856 ft.; slope from hence on all sides.—S. to Bangalore, 3,000 ft.; E. to plains of Carnatic—Chittoor, 1,100 ft.; N. to plains of Gooty, 1,182 ft.; and those of Bellary, 1,600 ft. Colar, 13° 8', 78° 10'; 2,800 ft. Mysore town, 12° 18', 76° 42'; 2,450 ft. Seringapatam, 12° 25', 76° 45', 2,412 —from hence, there is a gradual rise to Coorg, where Verajenderpetta is 3,999 ft., and Merkara, 4,506 ft. From Bangalore, descent to S. by rather abrupt steps to plains of Salem, 1,400 ft., and Coimbatore, 1,483 ft. From Belgaum, 15° 50', 74° 36', 2,500 ft. there is a gradual fall to the E. Bellary plains, 1,600 ft. Gooty plains 1,182 ft.; Cuddapah town, 507 ft.; and E. part of Cuddapah district 450 ft.

superficies of Southern India. The centre of the Deccan is composed of waving d which, at one time, present for miles a sh green harvests, but in the hot season, be appearance of a desert, without a tree or to relieve its gloomy sameness. The se face of the table land towards the W., th abrupt, is not precipitous, but consists of cession of terraces or steps. On the Cor del side the slope to the sea is gentle, exhib the alluvial deposits borne down from the portions of the table-land.

FRONTIER including PORE, SIR-PALAMOW, HAZAREE-NTPAT and AK.

Between 22° 30' and 24° 30'; and easterly, from about 85° to 82'.

Chota-Nagpore, 3,000 ft.; hills running E. and W., but of little elevation; Sirgoojah, mountainous, rising 600 to 700 ft. above level of Chota-Nagpore. Mynpat table-land, about 30 m. S.E. from Sirgoojah town; area not ascertained—about 3,000 or 3,500 ft. Palamow dist., very mountainous—little known. Hazareebaugh town, 24° 85' 54'; 1,750 ft. Slope of country to S., towards Sumbulpore.—N. and E. parts of dist. very mountainous, but level, and even depressed towards Mahanuddy. Sumbulpore town, only 400 ft. Orissa table-land then rises on the other side of Mahanuddy, in some places to 1,700 ft. backed by the chain of E. Ghats. Amarkantak, jungly table-land, 22° 40', 81° 50'; 3,500 ft.

The soil in the plains is generally fertile, prod abundant crops of wheat, barley, rice, excellent vegetables, cotton and sugar-cane. uncultivated parts are overrun with a grass. A great part of the region is quite known to us.

At the foot of the Himalaya range, between Himalaya and the Terrai; 500 m. long; E. to W., 160 m. broad; area, 54,500 sq. m.

The surface generally consists of valleys varying from 4,000 to 6,000 ft. above Bengal plains. Khatmandoo (in an oval-shaped valley 12 m. long), 27° 42', 85° 18'; 4,628. Bhynturee, 29° 84', 80° 30'; 5,615 ft. Slope to S. drained by Ghogra, Gunduck, and Coosy.

The geological formation of the hilly tract—stone, hornstone, and conglomerate. Veg. productions of most remarkable state beauty, and variety. Climate resembles southern Europe.

TABULATED VIEW OF TABLE-LANDS OF AFGHANISTAN AND THE COUNTRIES ADJACENT TO INDIA, ON THE NORTH-WEST.—By R. MONTGOMERY MARTIN.

Locality.	Elevation, in Feet.	General Remarks.	
AFGHANISTAN	From about Ghuznee or Sufed Koh, to Amran Mountains, N. to S.; and from near Kandahar to the Suliman range.	Crest of highland of Ghuznee, lat. 30° 43', long. 68° 20'; 9,000 ft. Ghuznee, 33° 34', 68° 18'; 7,726. Yerghuttoo, 33° 20', 68° 10'; 7,502. Mookur, principal source of Turnak River, 32° 50', 67° 37'; 7,091. Abistada Lake, 32° 35', 68°; 7,000. Punguk, 32° 36', 67° 21'; 6,810. Shuftul, 32° 28', 67° 12'; 6,514. Sir-i-Asp, 32° 15', 66° 54'; 5,973. Kelat-i-Gilje, 32° 8', 66° 45'; 5,773. Julduk, 32° 66° 28'; 5,396. Hydurzie, 30° 23', 66° 51'; 5,259. Hykulzie, 30° 32', 66° 50'; 5,063. Teer-Andaz, 31° 55', 66° 17'; 4,829. Kandahar, 32° 37', 65° 28'; 3,484 ft.	Afghanistan, for four-fifths of its extent, is a of rocks and mountains, interspersed with v of great fertility, and in many places conta table-lands, cold, bleak, and barren. Its surface as rugged as that of Switzerland, mountain summits of much greater h General slope of the country, from N.E. to Slope from W. to E.; Cabul River flowing that direction; lofty mountains enclosing of Jellalabad on N. and S. sides. Course of obstructed, and bed contracted by ridges of connecting them. City of Cabul surrou by hills on three sides. Jellalabad, on a plain.
AFGHANISTAN	Between Hindoo-Koosh on the N., and Sufed-Koh on S.; and Huzareh country on the W., and Khyber hills on the E.	Kurzar, near source of Helmund, 34° 30', 67° 54'; 10,939 ft. Kalloo, 34° 30', 67° 56'; 10,883 ft. Youart or Oord, 34° 22', 68° 11'; 10,618. Gooljatooe, 34° 31', 68° 5'; 10,500 ft. Shilbertoo, 34° 50', 67° 20'; 10,500 ft. Siah Sung, 34° 34', 68° 8'; 10,438 ft. Gurdan Dewar, 34° 25', 68° 8'; 10,076 ft. Sektah, 34° 40', 67° 50'; 9,839 ft. Khawak Fort, 35° 38', 70° 5'; 9,300 ft. Topchee, 34° 45', 67° 44'; 9,085 ft. Chasgo, 33° 45', 68° 22'; 8,697 ft. Bamian, 34° 50', 67° 45'; 8,496 ft. Huftasaya, 33° 49', 68° 15'; 8,420 ft. Sir-i-Chusma, 34° 21', 68° 20'; 8,400 ft. Zohak's Fort, 34° 50', 67° 55'; 8,186 ft. Killa Sher Mahomed, 34° 16', 68° 45'; 8,051 ft. Kot-i-Asruf, 34° 28', 68° 35'; 7,749 ft. Maidan, 34° 22', 68° 43'; 7,747 ft. Urghundee, 34° 30', 68° 50'; 7,628 ft. Khoord Kabool, 34° 21', 69° 18'; 7,466 ft. Kabool, 34° 28', 69°; 6,396. Boothauk, 34° 30', 69° 15'; 6,247 ft. Jugdulluk, 34° 25', 69° 46'; 5,375. Gundamuk, 34° 17', 70° 5'; 4,616 ft. Crest of Khyber Pass, 34° 8', 71° 15'; 3,373. Ali-Musjid, 34° 3', 71° 22'; 2,433 ft. Jellalabad, 34° 25', 70° 28'; 1,964 ft.	

Tabulated Views of the Mountains and Passes, Table-Lands, and Rivers, &c.—*continued.*

	Locality.	Elevation, in Feet.	General Remarks.
FISHEEN -	Between Hala and Amran ranges, on the N. frontier of Beloochistan.	Khojuck Pass, Amran Mts., 30° 45', 66° 30'; 7,449 ft. Shawl exceeds 5,000 ft. Town of Shawl, 5,563 ft. Siriab, 30° 8', 66° 53'; 5,793 ft. Fisheen, from 5,000 to 6,000 ft. Dasht-i-Bedowlat, 30° 57'; about 5,000 ft.	Wildest parts of enclosing mountains wild sheep and goats; more acc. yield pasture for herds and flocks numerous. Dasht-i-Bedowlat (w. destitute of water.
-	S. of Afghanistan - - - - -	Kelat, 28° 53', 66° 27'; 6,000 ft. Sohrab, 28° 22', 66° 9'; 5,800 ft. Munzilgah, 29° 53'; 67°; 5,793 ft. Angeera, 28° 10', 66° 12'; 5,250 ft. Bapow, 28° 16', 66° 20'; 5,000. Peesee-Bhent, 28° 10', 66° 35'; 4,600 ft.; Sir-i-Bolan, 29° 50', 67° 14'; 4,494. Putkee, 28° 5', 66° 40'; 4,250 ft. Paesht-Khana, 27° 59', 66° 47'; 3,500 ft. Nurd, 27° 52', 66° 54'; 2,850. Ab-i-goom, 29° 46', 67° 23'; 2,540. Jungikoosht, 27° 55', 67° 2'; 2,150 ft. Bent-i-Jah, 28° 4', 67° 10'; 1,850 ft. Beebee Nancee, 29° 39', 67° 28'; 1,695 ft. Kohow, 28° 20', 67° 12'; 1,250 ft. Gurmab, 29° 36', 67° 32'; 1,081 ft. Kullar, 28° 18', 67° 15'; 750 ft.	Coast craggy, but not elevated; in sandy shore; inland surface bec. Most remarkable features of rugged and elevated surface, bar deficiency of water. It may be d. maze of mountains, except on t. which direction the surface desc. Great Desert on the S., where stretches along the sea-shore.
BUL-LITTLE	Western Himalaya - - - - -	Average elevation of Cashmere valley, between 5,000 and 6,000 ft. above the sea. Huramuk Mt. 13,000. Pir-panjal, 15,000. Small elevations in valley, 250 to 500 ft. Average of valley of Indus (N. of Cashmere vale), 6,000 to 7,000 ft. Slope from S.E. to N.W. Mountains on each side rising from 6,000 to 8,000 ft. higher.	Mountains enclosing Cashmere v. Ranges on each side of Bultistan v. bare, and nearly inaccessible; generally of gneiss; that of the v. and sand.

R. M. MARTIN.

149, Piccadilly, London

SANITARY STATISTICS

OF

**THE BRITISH TROOPS OF THE EAST INDIA COMPANY'S ARMY,
AND OF HER MAJESTY'S REGIMENTS SERVING IN INDIA.**

SANITARY STATISTICS OF BRITISH TROOPS OF THE EAST INDIA COMPANY'S ARMY.

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SANITARY STATISTICS, BRITISH ARMY IN INDIA.

The facts and calculations embodied in the following series of tables have been derived from the annual rolls of strength and casualties in the various regiments; these documents are transmitted periodically from the military officers in India to the Home Government, and are deposited at the India Office. The annual alphabetical long rolls of strength for each regiment contain the name, age, personal description, date and place of attestation, and date of arrival in India of each man borne on the strength in each year.

The annual casualty rolls contain the same particulars as the rolls of strength, with the addition of a column showing the nature of each casualty, whether by death, discharge, invaliding, or any other cause.

The *period of service*, and *age* of every man who has *DIED* in the different corps during the 10 years 1847-56, have been abstracted from the above-mentioned casualty rolls; but in getting the *age* and *period of service* of the *STRENGTH* it has been deemed sufficient to take three enumerations only, in order to save time; and therefore the mortality has been deduced by dividing *three-tenths of the total deaths* by the total of the three enumerations of strength.

INDIA.—SUMMARY TABLES.—1770-1856.

The Tables 1 to 10 show the mortality, &c. in each year, extending over a period of 87 years, from the year 1770 to 1856. The facts for the earlier years up to 1800 are no doubt imperfect, but they have been abstracted from the books at the India Office, by Messrs. Bremner and Bacon, with very great care, and they present the only results which can be obtained from the Annual Long and Casualty Rolls at the India Office.

The calculations have been carefully made by Mr. Lewis, and although they to a great extent check themselves, yet, as a matter of precaution, Mr. Williams has checked the column of proportion of Total Casualties to Strength, and thus the accuracy of the whole is ensured.*

General Register Office, April 18, 1860.

* MEMORANDUM by Colonel Baker, explaining the Nature of the Casualty Rolls of the East India Company's European Troops. Casualty Rolls are transmitted from India, monthly and annually, under orders which will be found at pages 362 and 366 of Pay and Audit Regulations of 1845, a copy of which, it is understood, has been furnished for the use of the Commission.

The annual rolls are compiled on the principle of accounting for every man become non-effective in the year.

They are verified by the signatures of the commanding officers and adjutants of corps, and they are transmitted to the local Governments through the respective Town Majors for eventual transmission home.

India Office, December 7, 1859.

If the years in the period 1770 to 1799, for which there are no Returns at the India Office, are supplied by taking for each of the missing years the average of the Strength, Deaths, &c., during the period, and thus completing the series of observations, it is estimated that during the 87 years, 1770 to 1856, out of a Total Strength of 857,895 European non-commissioned officers and men of the late East India Company's forces in India, 55,140 deaths have occurred, making the average annual mortality for the period 6·4 per cent.

*Mean Strength of European Non-commissioned Officers and Men
in India during the 87 years*

1770-1856	=	9,861
1770-1799	=	8,969
1800-1829	=	7,985
1830-1856	=	12,936

No. 1.

TABLE showing the PROPORTION per Cent. of DEATHS and other CASUALTIES to STRENGTH of the EUROPEAN FORCES of the late EAST INDIA COMPANY during the Period 1800-56.

INDIA.

Years.	Aggregate Strength.	Casualties.			Proportion per cent. to Strength.		
		Deaths.	Other Casualties.	Total Casualties.	Deaths.	Other Casualties.	Total Casualties.
1800-56	588,820*	40,420	48,262	88,682	6·86	8·20	15·06
1800-29	239,557	20,272	20,734	41,006	8·46	8·66	17·12
1830-56	349,263	20,148	27,528	47,676	5·77	7·88	13·65

BENGAL.

1800-56	257,768	19,104	23,625	42,729	7·41	9·17	16·58
1800-29	105,695	8,523	10,323	18,846	8·06	9·77	17·83
1830-56	152,073	10,581	13,302	23,883	6·96	8·75	15·71

MADRAS.

1800-56	211,164	13,404	12,774	26,178	6·35	6·05	12·40
1800-29	92,291	7,783	5,911	13,694	8·43	6·40	14·83
1830-56	118,873	5,621	6,863	12,484	4·73	5·77	10·50

BOMBAY.

1800-56	119,888	7,912	11,863	19,775	6·60	9·90	16·50
1800-29	41,571	3,966	4,500	8,466	9·54	10·83	20·37
1830-56	78,317	3,946	7,363	11,309	5·04	9·40	14·44

* The aggregate strength is the sum of the mean annual strengths = mean strength multiplied by the years under observation.

No. 2.—BENGAL.

TABLE showing the PROPORTION per Cent. of DEATHS and other CASUALTIES to STRENGTH in each of the Years 1770-1799, amongst the EUROPEAN FORCES of the late EAST INDIA COMPANY.

Years.	Mean Strength in each Year.	Casualties during each Year.			Proportion per cent. to Strength.		
		Deaths.	Other Casualties.	Total Casualties.	Deaths.	Other Casualties.	Total Casualties.
1770	2,858	305	76	381	10·67	2·66	13·33
1771	2,858	245	249	494	8·57	8·71	17·28
1772	3,837	242	414	656	6·31	10·79	17·10
1773	4,147	312	394	706	7·52	9·50	17·02
1774	4,335	253	273	526	5·84	6·30	12·14
1775	4,322	243	454	697	5·62	10·50	16·12
1776	4,141	304	384	688	7·34	9·27	16·61
1777	4,102	266	502	768	6·48	12·24	18·72
1778	4,019	279	636	915	6·94	15·82	22·76
1779	3,483	174	290	464	5·00	8·33	13·33
1780	2,667	121	252	373	4·54	9·45	13·99
1781	—	—	—	—	—	—	—
1782	2,535	231	330	561	9·11	13·02	22·13
1783	2,985	215	560	775	7·20	18·76	25·96
1784	—	—	—	—	—	—	—
1785	—	—	—	—	—	—	—
1786	—	—	—	—	—	—	—
1787	—	—	—	—	—	—	—
1788	—	—	—	—	—	—	—
1789	—	—	—	—	—	—	—
1790	—	—	—	—	—	—	—
1791	—	—	—	—	—	—	—
1792	3,900	374	254	628	9·59	6·51	16·10
1793	4,505	436	204	640	9·68	4·53	14·21
1794	4,203	332	228	560	7·90	5·42	13·32
1795	3,746	234	183	417	6·25	4·89	11·14
1796	3,472	208	291	499	5·99	8·38	14·37
1797	3,555	225	347	572	6·33	9·76	16·09
1798	3,699	175	531	706	4·73	14·36	19·09
1799	—	—	—	—	—	—	—
Average of the years	3,669	259	343	602	7·06	9·35	16·41

NOTE.—In consequence of the facts for the years in the above Table being imperfect, the results must be regarded as an approximation to the true mortality, &c. No returns could be found for the years 1781, 1784-91, and 1799.

No. 3.—MADRAS.

TABLE showing the PROPORTION per Cent. of DEATHS and other CASUALTIES to STRENGTH in each of the Years 1770-99 amongst the EUROPEAN FORCES of the late EAST INDIA COMPANY.

Years.	Mean Strength in each Year.	Casualties during each Year.			Proportion per cent. to Strength.		
		Deaths.	Other Casualties.	Total Casualties.	Deaths.	Other Casualties.	Total Casualties.
1770	—	—	—	—	—	—	—
1771	—	—	—	—	—	—	—
1772	5,142	223	43	266	4·34	·84	5·18
1773	5,190	239	6	245	4·61	·12	4·73
1774	4,491	226	12	238	5·03	·27	5·30
1775	3,823	155	16	171	4·05	·42	4·47
1776	3,828	173	23	196	4·52	·60	5·12
1777	3,870	158	135	293	4·08	3·49	7·57
1778	3,936	247	109	356	6·28	2·77	9·05
1779	—	—	—	—	—	—	—
1780	4,983	99	74	173	1·99	1·49	3·48
1781	6,043	103	55	158	1·70	·91	2·61
1782	5,223	150	153	303	2·87	2·93	5·80
1783	—	—	—	—	—	—	—
1784	—	—	—	—	—	—	—
1785	2,678	61	32	93	2·28	1·19	3·47
1786	2,220	65	47	112	2·93	2·12	5·05
1787	2,943	186	28	214	6·32	·95	7·27
1788	4,175	166	76	242	3·98	1·82	5·80
1789	4,026	151	71	222	3·75	1·76	5·51
1790	4,463	109	298	407	2·44	6·68	9·12
1791	5,465	299	550	849	5·47	10·06	15·53
1792	5,923	299	579	878	5·05	9·78	14·83
1793	6,126	199	355	554	3·25	5·79	9·04
1794	6,140	154	309	463	2·51	5·03	7·54
1795	6,060	85	276	361	1·40	4·55	5·95
1796	6,124	341	380	721	5·57	6·21	11·78
1797	6,106	179	99	278	2·93	1·62	4·55
1798	1,558	51	69	120	3·27	4·43	7·70
1799	1,534	84	69	153	5·48	4·50	9·98
Average of the years	4,483	168	155	323	3·75	3·46	7·21

NOTE.—In consequence of the facts for the years in the above Table being imperfect, the results must be regarded as an approximation to true mortality, &c. No returns could be found for the years 1770, 1771, 1779, 1783, and 1784.

No. 4.—BOMBAY.

TABLE showing the PROPORTION per Cent. of DEATHS and other CASUALTIES to STRENGTH in each of the Years 1770-99 amongst the EUROPEAN FORCES of the late EAST INDIA COMPANY.

Years.	Mean Strength in each Year.	Casualties during each Year.			Proportion per cent. to Strength.		
		Deaths.	Other Casualties.	Total Casualties.	Deaths.	Other Casualties.	Total Casualties.
1770	313	12	5	17	3.83	1.60	5.43
1771	312	12	12	24	3.85	3.85	7.70
1772	319	18	31	49	5.64	9.72	15.36
1773	370	10	52	62	2.70	14.06	16.76
1774	389	23	48	71	5.91	12.34	18.25
1775	339	5	7	12	1.47	2.06	3.53
1776	305	45	14	59	14.75	4.59	19.34
1777	315	37	14	51	11.75	4.44	16.19
1778	289	13	3	16	4.50	1.04	5.54
1779	306	33	9	42	10.78	2.94	13.72
1780	270	4	15	19	1.48	5.56	7.04
1781	292	28	14	42	9.59	4.79	14.38
1782	403	47	25	72	11.66	6.20	17.86
1783	431	40	49	89	9.28	11.37	20.65
1784	444	63	63	126	14.19	14.19	28.38
1785	652	42	100	142	6.44	15.34	21.78
1786	1,039	61	48	109	5.87	4.62	10.49
1787	1,243	83	24	107	6.68	1.93	8.61
1788	—	—	—	—	—	—	—
1789	1,129	63	162	225	5.58	14.35	19.93
1790	—	—	—	—	—	—	—
1791	1,030	164	70	234	15.92	6.80	22.72
1792	1,516	221	282	503	14.58	18.60	33.18
1793	1,841	148	109	257	8.04	5.92	13.96
1794	1,714	160	328	488	9.33	19.14	28.47
1795	1,627	110	147	257	6.76	9.04	15.80
1796	1,582	96	162	258	6.07	10.24	16.31
1797	1,592	82	173	255	5.15	10.87	16.02
1798	1,491	104	173	277	6.97	11.60	18.57
1799	1,342	61	124	185	4.55	9.25	13.80
Average of the years	818	64	81	145	7.82	9.90	17.72

NOTE.—In consequence of the facts for the years in the above Table being imperfect, the results must be regarded as an approximation to the true mortality, &c. No returns could be found for the years 1778 and 1790.

No. 5.—BENGAL.

TABLE showing the AVERAGE ANNUAL PROPORTION per Cent. of DEATHS and other CASUALTIES to the STRENGTH of the EUROPEAN FORCES of the late EAST INDIA COMPANY, during the 57 Years 1800-56.

Years.	Average Annual Strength.	Average Annual Casualties.			Proportion per cent. to Strength.		
		Deaths.	Other Casualties.	Total Casualties.	Deaths.	Other Casualties.	Total Casualties.
1800-9	2,293.5	209.8	307.6	517.4	9.15	13.42	22.57
1810-9	3,587.1	246.3	236.7	483.0	6.87	6.60	13.47
1820-9	4,688.9	396.2	488.0	884.2	8.45	10.41	18.86
1830-9	5,016.1	301.5	356.4	657.9	6.01	7.11	13.12
1840-9	5,619.9	446.6	510.3	956.9	7.95	9.08	17.03
1850-6	6,530.4	442.9	662.1	1,105.0	6.78	10.14	16.92
1800-56	4,522.2	335.1	414.5	749.6	7.41	9.17	16.58

No. 6.—MADRAS.

TABLE showing the AVERAGE ANNUAL PROPORTION per Cent. of DEATHS and other CASUALTIES, to the STRENGTH of the EUROPEAN FORCES of the late EAST INDIA COMPANY, during the 57 Years 1800-56.

Years.	Average Annual Strength.	Average Annual Casualties.			Proportion per cent. to Strength.		
		Deaths.	Other Casualties.	Total Casualties.	Deaths.	Other Casualties.	Total Casualties.
1800-9	2,623·4	143·8	68·7	212·5	5·48	2·62	8·10
1810-9	3,108·0	301·6	187·0	488·6	9·70	6·02	15·72
1820-9	3,497·7	332·9	335·4	668·3	9·52	9·59	19·11
1830-9	3,507·6	194·5	227·0	421·5	5·55	6·47	12·02
1840-9	4,598·4	200·1	262·5	462·6	4·35	5·71	10·06
1850-6	5,401·9	239·3	281·1	520·4	4·43	5·20	9·63
1800-56	3,704·6	235·2	224·1	459·3	6·35	6·05	12·40

No. 7.—BOMBAY.

TABLE showing the AVERAGE ANNUAL PROPORTION per Cent. of DEATHS and other CASUALTIES, to the STRENGTH of the EUROPEAN FORCES of the late EAST INDIA COMPANY during the 57 Years 1800-56.

Years.	Average Annual Strength.	Average Annual Casualties.			Proportion per cent. to Strength.		
		Deaths.	Other Casualties.	Total Casualties.	Deaths.	Other Casualties.	Total Casualties.
1800-9	952·3	80·5	79·0	159·5	8·45	8·30	16·75
1810-9	1,354·5	134·9	120·8	255·7	9·96	8·92	18·88
1820-9*	2,055·9	201·3	278·0	479·3	9·79	13·52	23·31
1830-9	2,289·6	106·1	193·0	299·1	4·63	8·43	13·06
1840-9	3,125·0	213·4	332·7	546·1	6·83	10·65	17·48
1850-6*	4,028·5	125·2	351·0	476·2	3·11	8·71	11·82
1800-56	2,179·8	143·7	215·7	359·4	6·60	9·90	16·50

* The returns for the years 1827 and 1850 could not be found at the India Office when this Table was made.

No. 8.—BENGAL.

TABLE showing the PROPORTION per Cent. of DEATHS and other CASUALTIES, to STRENGTH, in each of the Years 1800-56, amongst the EUROPEAN FORCES of the late EAST INDIA COMPANY.

Years.	Mean* Strength in each Year.	Casualties during each Year.			Proportion per cent. to Strength.		
		Deaths.	Other † Casualties.	Total Casualties.	Deaths.	Other Casualties.	Total Casualties.
1800	2,702	211	181	392	7·81	6·70	14·51
1801	2,634	142	230	372	5·39	8·74	14·13
1802	2,519	224	288	512	8·89	11·43	20·32
1803	2,423	211	321	532	8·71	13·25	21·96
1804	2,177	492	126	618	22·60	5·79	28·39
1805	1,953	299	296	595	15·31	15·16	30·47
1806	1,968	175	306	481	8·89	15·55	24·45
1807	2,038	102	270	372	5·00	13·25	18·25
1808	2,103	108	273	381	5·14	12·98	18·12
1809	2,418	134	785	919	5·54	32·46	38·00
1810	3,189	118	299	417	3·70	9·38	13·08
1811	3,345	150	113	263	4·48	3·38	7·86
1812	3,032	224	62	286	7·39	2·04	9·43
1813	3,412	363	65	428	10·64	1·91	12·55
1814	3,697	241	61	302	6·52	1·65	8·17
1815	3,784	217	112	329	5·73	2·96	8·69
1816	3,949	246	334	580	6·23	8·46	14·69
1817	3,917	315	617	932	8·04	15·75	23·79
1818	3,817	379	449	828	9·93	11·76	21·69
1819	3,729	210	255	465	5·63	6·84	12·47
1820	3,829	334	251	585	8·72	6·56	15·28
1821	4,086	351	246	597	8·59	6·02	14·61
1822	4,215	262	368	630	6·22	8·73	14·95
1823	4,695	411	454	865	8·75	9·68	18·43
1824	5,046	412	529	941	8·17	10·48	18·65
1825	4,965	472	721	1,193	9·51	14·52	24·03
1826	4,812	748	609	1,357	15·54	12·66	28·20
1827	4,855	484	666	1,150	9·97	13·72	23·69
1828	5,132	260	539	799	5·07	10·50	15·57
1829	5,254	228	497	725	4·34	9·46	13·80
1830	5,275	274	561	835	5·19	10·64	15·83
1831	5,314	340	526	866	6·40	9·90	16·30
1832	5,198	272	380	652	5·23	7·31	12·54
1833	5,047	370	298	668	7·34	5·91	13·25
1834	4,998	352	288	640	7·04	5·76	12·80
1835	4,898	299	236	535	6·10	4·82	10·92
1836	4,861	151	215	366	3·10	4·42	7·52
1837	4,924	222	297	519	4·51	6·03	10·54
1838	4,895	338	348	686	6·91	7·11	14·02
1839	4,757	397	415	812	8·35	8·72	17·07
1840	5,117	287	507	794	5·61	9·91	15·52
1841	5,516	377	555	932	6·83	10·06	16·89
1842	5,593	600	577	1,177	10·73	10·32	21·05
1843	6,004	481	401	882	8·01	6·68	14·69
1844	6,025	466	419	885	7·73	6·95	14·68
1845	5,841	481	398	879	8·53	7·06	15·59
1846	5,355	561	509	1,070	10·48	9·51	19·99
1847	5,279	290	504	794	5·49	9·55	15·04
1848	5,669	369	554	923	6·51	9·77	16·28
1849	6,000	554	679	1,233	9·23	11·32	20·55
1850	6,208	364	683	1,047	5·86	11·00	16·86
1851	6,353	432	509	941	6·80	8·01	14·81
1852	6,329	260	480	740	4·11	7·58	11·69
1853	6,431	477	617	1,094	7·42	9·59	17·01
1854	6,623	477	786	1,263	7·20	11·87	19·07
1855	6,835	493	709	1,202	7·21	10·37	17·58
1856	6,934	597	851	1,448	8·61	12·27	20·88
1800-56	257,768	19,104	23,625	42,729	7·41	9·17	16·58

* The mean strength for each year has been obtained by taking the *mean* of the two enumerations of strength at the beginning and end of each period during which the deaths and casualties occurred.

† In the returns of casualties it has been observed that in the case of a man leaving his regiment in any year, from ill-health or otherwise, and rejoining it in the same year, two (or more) casualties are recorded on his account. This makes the casualties appear more numerous than they would be if only the cases of men leaving the regiment *entirely* were returned. The returns are also not made for one uniform period of 12 months ending always on the same day, but the dates are frequently changed, and therefore it must be understood that the facts in the above Table opposite each year are the nearest approximation to the deaths, &c., in *that year*, which can be ascertained from the books at the India Office.

No. 9.—MADRAS.

TABLE showing the PROPORTION per Cent. of DEATHS and other CASUALTIES to STRENGTH, in each of the Years 1800-56, amongst the EUROPEAN FORCES of the late EAST INDIA COMPANY.

Years.	Mean Strength* in each Year.	Casualties during each year.			Proportion per cent. to Strength.		
		Deaths.	Other Casualties.	Total Casualties.	Deaths.	Other Casualties.	Total Casualties.
1800	2,414	79	16	95	3.27	.66	3.93
1801	3,234	171	45	216	5.29	1.39	6.68
1802	2,238	81	120	201	3.62	5.36	8.98
1803	1,901	178	28	206	9.37	1.47	10.84
1804	2,379	159	126	285	6.68	5.30	11.98
1805	2,323	130	52	182	5.60	2.24	7.84
1806	2,723	132	40	172	4.85	1.47	6.32
1807	3,057	211	132	343	6.90	4.32	11.22
1808	2,917	130	68	198	4.46	2.33	6.79
1809	3,048	167	60	227	5.48	1.97	7.45
1810	3,192	252	86	338	7.90	2.69	10.59
1811	2,984	274	117	391	9.18	3.92	13.10
1812	2,824	257	125	382	9.10	4.43	13.53
1813	2,926	154	52	206	5.26	1.78	7.04
1814	3,170	364	167	531	11.48	5.27	16.75
1815	3,138	208	98	306	6.63	3.12	9.75
1816	3,214	231	188	419	7.19	5.85	13.04
1817	3,383	329	323	652	9.73	9.55	19.28
1818	3,181	504	164	668	15.85	5.16	21.01
1819	3,068	443	550	993	14.44	17.93	32.37
1820	3,149	295	333	628	9.37	10.57	19.94
1821	3,267	309	225	534	9.46	6.89	16.35
1822	3,485	265	349	614	7.60	10.01	17.61
1823	3,657	220	359	579	6.02	9.82	15.84
1824	3,507	635	614	1,249	18.11	17.51	35.62
1825	3,303	464	363	827	14.05	10.99	25.04
1826	3,324	286	330	616	8.60	9.93	18.53
1827	3,618	344	246	590	9.51	6.80	16.31
1828	3,835	300	234	534	7.82	6.10	13.92
1829	3,832	211	301	512	5.51	7.85	13.36
1830	3,946	214	248	462	5.42	6.28	11.70
1831	3,845	284	218	502	7.39	5.67	13.06
1832	3,593	234	233	467	6.51	6.49	13.00
1833	3,348	250	207	457	7.47	6.18	13.65
1834	3,310	188	145	333	5.68	4.38	10.06
1835	3,419	132	208	340	3.86	6.08	9.94
1836	3,436	133	205	338	3.87	5.97	9.84
1837	3,413	203	241	444	5.95	7.06	13.01
1838	3,392	146	170	316	4.30	5.01	9.31
1839	3,374	161	395	556	4.77	11.71	16.48
1840	3,716	202	296	498	5.44	7.97	13.41
1841	4,434	230	263	493	5.19	5.93	11.12
1842	4,717	285	342	627	6.04	7.25	13.29
1843	4,634	197	268	465	4.25	5.78	10.03
1844	4,562	190	228	418	4.16	5.00	9.16
1845	4,507	191	268	459	4.24	5.95	10.19
1846	4,444	194	214	408	4.37	4.81	9.18
1847	4,706	165	208	373	3.51	4.42	7.93
1848	5,150	142	228	370	2.76	4.43	7.19
1849	5,114	205	310	515	4.01	6.06	10.07
1850	4,988	167	235	402	3.35	4.71	8.06
1851	5,205	214	190	404	4.11	3.65	7.76
1852	5,315	259	187	446	4.87	3.52	8.39
1853	5,326	321	418	739	6.03	7.85	13.88
1854	5,610	333	310	643	5.94	5.53	11.47
1855	5,747	207	297	504	3.60	5.17	8.77
1856	5,622	174	331	505	3.09	5.89	8.98
1800-56	211,164	13,404	12,774	26,178	6.35	6.05	12.40

* NOTE.—In this table the mean annual strength for each year has been obtained thus :—

Strength on 1st January 1800 - - - - - 1,510
Do. on 1st January 1801 - - - - - 3,317

2) 4,827

2,413.5 = mean annual strength for 1800.

The deaths and casualties for the year 1800 occurred in the interval between the two enumerations.

No. 10.—BOMBAY.

TABLE showing the PROPORTION per Cent. of DEATHS and other CASUALTIES to STRENGTH, in each of the Years 1800-56, amongst the EUROPEAN FORCES of the late EAST INDIA COMPANY.

Years.	Mean Strength* in each Year.	Casualties during each Year.			Proportion per cent. to Strength.		
		Deaths.	Other Casualties.	Total Casualties.	Deaths.	Other Casualties.	Total Casualties.
1800	1,244	149	50	199	11.98	4.02	16.00
1801	1,202	109	45	154	9.07	3.74	12.81
1802	1,178	84	212	296	7.13	18.00	25.13
1803	1,082	69	125	194	6.38	11.56	17.94
1804	939	85	57	142	9.05	6.07	15.12
1805	811	84	89	173	10.36	10.98	21.34
1806	746	85	60	145	11.40	8.05	19.45
1807	768	47	34	81	6.12	4.43	10.55
1808	784	54	64	118	6.89	8.17	15.06
1809	769	39	54	93	5.07	7.03	12.10
1810	771	59	72	131	7.65	9.34	16.99
1811	886	65	48	113	7.34	5.42	12.76
1812	969	89	210	299	9.19	21.68	30.87
1813	1,039	183	40	223	17.61	3.85	21.46
1814	1,252	183	96	279	14.62	7.67	22.29
1815	1,548	124	63	187	8.01	4.07	12.08
1816	1,635	134	272	406	8.20	16.64	24.84
1817	1,699	150	182	332	8.83	10.71	19.54
1818	1,887	155	119	274	8.22	6.31	14.53
1819	1,859	207	106	313	11.14	5.70	16.84
1820	1,832	201	608	809	10.97	33.20	44.17
1821	1,781	217	162	379	12.18	9.10	21.28
1822	1,783	229	138	367	12.84	7.74	20.58
1823	2,010	208	236	444	10.35	11.74	22.09
1824	2,160	160	239	399	7.41	11.07	18.48
1825	2,146	163	227	390	7.60	10.58	18.18
1826	2,155	301	399	700	13.97	18.52	32.49
1827	—	—	—	—	—	—	—
1828	2,251	209	317	526	9.29	14.09	23.38
1829	2,385	124	176	300	5.20	7.38	12.58
1830	2,500	123	406	529	4.92	16.24	21.16
1831	2,556	78	135	213	3.05	5.28	8.33
1832	2,546	77	136	213	3.02	5.34	8.36
1833	2,383	86	195	281	3.61	8.18	11.79
1834	2,176	68	103	171	3.12	4.73	7.85
1835	2,134	127	203	330	5.95	9.51	15.46
1836	2,148	84	132	216	3.91	6.15	10.06
1837	2,127	106	163	269	4.98	7.67	12.65
1838	2,123	125	158	283	5.89	7.44	13.33
1839	2,203	187	299	486	8.49	13.58	22.07
1840	2,406	239	345	584	9.94	14.34	24.28
1841	2,990	132	393	525	4.42	13.15	17.57
1842	3,372	258	297	555	7.65	8.81	16.46
1843	3,297	265	297	562	8.04	9.01	17.05
1844	3,088	391	239	630	12.66	7.74	20.40
1845	2,915	147	204	351	5.04	7.00	12.04
1846	2,953	274	243	517	9.28	8.23	17.51
1847	3,146	132	470	602	4.20	14.94	19.14
1848	3,472	93	249	342	2.68	7.17	9.85
1849	3,611	203	590	793	5.62	16.34	21.96
1850	—	—	—	—	—	—	—
1851	3,767	124	253	377	3.29	6.72	10.0
1852	3,908	119	232	351	3.05	5.94	8.99
1853	3,841	96	226	322	2.50	5.88	8.38
1854	3,892	166	465	631	4.27	11.95	16.22
1855	4,240	133	437	570	3.14	10.31	13.45
1856	4,523	113	493	606	2.50	10.90	13.40
1800-56	119,888	7,912	11,863	19,775	6.60	9.90	16.50

* The mean strength for each year has been obtained by taking the *mean* of the two enumerations of strength at the beginning and end of each period during which the deaths, &c. occurred.

In consequence of the returns not being made for one uniform period of 12 months ending always on the same day, the dates being frequently changed, it must be understood that the facts in the above Table, opposite each year, are the nearest approximation to the correct numbers for that year, which can be ascertained from the returns at the India Office.

The returns for the years 1827 and 1850 could not be found at the time this Table was made.

SUMMARY TABLES.

No. 11.

TABLE showing the MEAN STRENGTH, DEATHS, and ANNUAL RATE of MORTALITY per Cent., in the Ten Years 1847-56, amongst the NON-COMMISSIONED OFFICERS and MEN of the EUROPEAN FORCES of the late EAST INDIA COMPANY in INDIA.

Years.	Mean Strength.			Deaths in each Year.			Annual Rate of Mortality per cent.		
	Total.	Effectives.	Non-Effectives.	Total.	Effectives.	Non-Effectives.	Total.	Effectives.	Non-Effectives.
1847	13,130	11,592	1,538	587	512	75	4.47	4.42	4.88
1848	14,291	12,761	1,530	604	519	85	4.23	4.07	5.56
1849	14,724	13,193	1,531	962	869	93	6.53	6.59	6.07
1850	14,931	13,397	1,534	676	607	69	4.53	4.53	4.60
1851	15,324	13,802	1,522	770	688	82	5.02	4.98	5.39
1852	15,552	14,067	1,485	698	545	93	4.10	3.87	6.26
1853	15,597	14,143	1,454	894	785	109	5.73	5.55	7.50
1854	16,124	14,690	1,434	976	882	94	6.05	6.00	6.56
1855	16,822	15,381	1,441	833	758	75	4.95	4.93	5.20
1856	17,079	15,583	1,496	884	787	97	4.94	5.05	6.48
Aggregate of 10 years	153,574	138,609	14,965	7,824	6,952	872	5.09	5.02	5.83

No. 12.—STRENGTH OF EFFECTIVES.*

TABLE showing the AGE and PERIOD of SERVICE of the NON-COMMISSIONED OFFICERS and MEN of the EFFECTIVES of the EUROPEAN FORCES of the late EAST INDIA COMPANY, for Three Years out of the Ten Years 1847-56.†

Age.	Total.	Period of Service, Years.									
		Under 1 Year.	1	2	3	4	Under 5 Years.	5	10	15	20 and upwards.
Total	39,375	4,318	3,489	2,765	2,860	3,036	16,468	12,556	6,432	2,992	927
10-15	119	79	27	8	5	—	119	—	—	—	—
15	78	30	31	7	8	—	76	2	—	—	—
16	64	20	16	5	13	7	61	3	—	—	—
17	60	12	11	7	9	6	45	15	—	—	—
18	88	23	17	10	14	15	79	9	—	—	—
19	503	393	61	9	9	13	485	17	1	—	—
10-20	912	557	163	46	58	41	865	46	1	—	—
20	10,046	3,045	2,437	1,749	1,300	663	9,194	814	38	—	—
25	13,694	655	819	919	1,421	2,081	5,895	7,398	378	21	2
30	8,749	55	65	50	69	238	477	3,883	4,038	339	12
35	4,225	6	4	1	11	12	34	401	1,774	1,940	76
40	1,358	—	1	—	1	1	3	14	192	621	528
45	227	—	—	—	—	—	—	—	11	58	158
50	80	—	—	—	—	—	—	—	—	8	72
55 and upwards	84	—	—	—	—	—	—	—	—	5	79

* Excluding in each Presidency the 3rd European Regiments, which were not formed until 1854.

† The period of 10 years 1847-56 applies to Bengal and Madras only; at the time these Tables were made the Annual Long Roll for the year 1850 for Bombay could not be found, and consequently the year 1846 was taken for that Presidency in lieu of the year 1850 making the period for Bombay 10 years 1846-49 and 1851-56.

No. 13.—DEATHS OF EFFECTIVES.*

TABLE showing the AGE and PERIOD of SERVICE of the NON-COMMISSIONED OFFICERS and MEN of the EFFECTIVES of the EUROPEAN FORCES of the late EAST INDIA COMPANY, in the Ten Years 1847-56.†

Age.	Total.	Period of Service, Years.									
		Under 1 Year.	1	2	3	4	Under 5 Years.	5	10	15	20 and upwards.
Total	6,716	938	623	518	470	446	2,995	1,968	1,131	429	193
10-15	6	3	2	1	—	—	6	—	—	—	—
15	2	—	2	—	—	—	2	—	—	—	—
16	2	—	1	—	1	—	2	—	—	—	—
17	5	—	1	—	1	2	4	1	—	—	—
18	21	13	—	2	1	—	16	5	—	—	—
19	47	38	5	1	1	—	45	2	—	—	—
10-20	83	54	11	4	4	2	75	8	—	—	—
20	1,892	722	436	307	228	81	1,774	112	6	—	—
25	2,237	149	157	195	221	322	1,044	1,130	60	3	—
30	1,458	13	18	12	15	37	95	631	692	38	2
35	712	—	1	—	1	4	6	84	327	272	23
40	264	—	—	—	1	—	1	2	43	106	112
45	41	—	—	—	—	—	—	1	1	8	31
50	16	—	—	—	—	—	—	—	1	2	13
55 and upwards	13	—	—	—	—	—	—	—	1	—	12

* Excluding in each Presidency, the 3rd European regiments, they not having been formed until 1854.

† See note to preceding table.

No. 14.—EFFECTIVES.

AVERAGE ANNUAL MORTALITY per Cent. at different AGES amongst the NON-COMMISSIONED OFFICERS and MEN of the EFFECTIVES of the EUROPEAN FORCES of the late EAST INDIA COMPANY, during the Ten Years 1847-56. (Deduced from Three Enumerations of the Strength and the Deaths in Ten Years).

Ages.	Mean Annual Strength in 3 Years.	Deaths in 10 Years.	Average Annual Rate of Mortality per cent.
Total -	13,125	6,716	5.12
10-15	40	6	1.51
15	26	2	.77
16	21	2	.94
17	20	5	2.50
18	29	21	7.16
19	168	47	2.80
10-20	304	83	2.73
20-25	3,349	1,892	5.65
25-30	4,564	2,237	4.90
30-35	2,916	1,458	5.00
35-40	1,408	712	5.06
40-45	453	264	5.83
45-50	76	41	5.42
50-55	27	16	6.00
55 and upwards	28	13	4.64

No. 15.—EFFECTIVES.

AVERAGE ANNUAL MORTALITY per Cent., at different PERIODS of SERVICE, amongst the NON-COMMISSIONED OFFICERS and MEN of the EFFECTIVES of the EUROPEAN FORCES of the late EAST INDIA COMPANY, during the Ten Years 1847-56.

Period of Service.	Mean Annual Strength in 3 Years.	Deaths in 10 Years.	Average Annual Rate of Mortality per cent.
Total -	13,125	6,716	5.12
0-1 year	1,439	938	6.52
1-2 "	1,163	623	5.36
2-3 "	922	518	5.62
3-4 "	953	470	4.93
4-5 "	1,012	446	4.41
0-5 years	5,489	2,995	5.46
5-10 "	4,186	1,968	4.70
10-15 "	2,144	1,131	5.28
15-20 "	997	429	4.30
20 and upwards	309	193	6.25

No. 16.—EFFECTIVES.

AVERAGE ANNUAL MORTALITY per Cent., at different AGES and at different PERIODS of SERVICE, amongst the NON-COMMISSIONED OFFICERS and MEN of the EFFECTIVES of the EUROPEAN FORCES of the late EAST INDIA COMPANY, during the Ten Years 1847-56.

Ages.	Years of Service.									
	Under 1 Year.	1	2	3	4	Under 5 Years.	5	10	15	20 and upwards
10-20	2.91	2.02	2.61	2.07	1.46	2.60	5.22	—	—	—
20-25	7.11	5.37	5.27	5.26	3.67	5.79	4.13	4.74	—	—
25-30	6.82	5.75	6.37	4.67	4.64	5.31	4.58	4.76	4.29	—
30-35	7.09	3.81	7.20	6.52	4.66	5.97	4.88	5.14	3.36	5.00
35-40	—	7.50	—	2.73	10.00	5.29	6.28	5.53	4.21	9.08
40-45	—	—	—	30.00	—	10.00	4.29	6.72	5.12	6.36
45-50	—	—	—	—	—	—	—	2.73	4.14	5.89
50-55	—	—	—	—	—	—	—	—	7.50	5.42
55 and upwards	—	—	—	—	—	—	—	—	—	4.56

No. 17.—EFFECTIVES.

AVERAGE ANNUAL MORTALITY per Cent., at different PERIODS of SERVICE, amongst the NON-COMMISSIONED OFFICERS and MEN of the EFFECTIVES of the EUROPEAN FORCES of the late EAST INDIA COMPANY, during the Ten Years 1847-56, showing the AGE on entering INDIA.

Period of Service.	Age on entering India.						
	10-20	15-25	20-30	25-35	30-40	35-45	40-50
0-5	2.60	5.79	5.31	5.97	5.29	10.00	—
5-10	4.19	4.58	4.88	6.28	4.29	—	—
10-15	4.76	5.14	5.53	6.72	2.73	—	—
15-20	3.42	4.21	5.12	4.14	7.50	—	—
20 and upwards	8.52	6.36	5.89	5.42	4.56	—	—

BENGAL.

No. 1.

TABLE showing the STRENGTH and DEATHS in each of the Years 1846 to 1856 of the NON-COMMISSIONED OFFICERS and MEN of the EUROPEAN FORCES of the late EAST INDIA COMPANY in the PRESIDENCY of BENGAL.

Years.	Bengal Artillery.*		1st Bengal Fusiliers.		2nd Bengal Fusiliers.		3rd Bengal Europeans.		Town Major's List.		European Pensioners.		European Invalids.		European Veterans.		Total.	
	Strength on 31st August.	Deaths in the Year ending 31st August.	Strength on 31st August.	Deaths in the Year ending 31st August.	Strength on 31st August.	Deaths in the Year ending 31st August.	Strength on 31st August.	Deaths in the Year ending 31st August.	Strength on 31st August.	Deaths in the Year ending 31st August.	Strength on 31st August.	Deaths in the Year ending 31st August.	Strength on 31st August.	Deaths in the Year ending 31st August.	Strength on 31st August.	Deaths in the Year ending 31st August.	Strength on 31st August.	Deaths in the Year ending 31st August.
1846	2,710	270	638	155	746	38	—	—	602	49	144	14	258	26	110	9	5,208	561
1847	2,740	139	836	38	682	41	—	—	611	43	136	10	246	12	98	7	5,349	290
1848	3,248	143	855	114	779	32	—	—	627	42	130	12	259	20	91	6	5,989	369
1849	3,192	249	839	80	862	145	—	—	649	57	150	8	234	11	84	4	6,010	554
1850	3,260	167	995	65	1,032	62	—	—	635	45	172	8	233	11	79	6	6,406	364
1851	3,220	157	877	173	1,033	32	—	—	722	45	160	6	214	16	73	3	6,299	432
1852	3,291	136	930	44	975	15	—	—	709	41	168	11	217	9	69	4	6,359	260
1853	3,395	183	908	134	1,013	55	—	—	739	60	165	14	217	24	66	7	6,503	477
1854	3,358	155	701	89	768	115	757	45	711	49	176	11	213	10	58	3	6,743	477
1855	3,306	130	814	57	741	206	904	35	726	38	169	8	229	16	39	3	6,928	493
1856	3,113	315	877	29	819	45	941	128	737	35	180	10	237	32	36	3	6,940	597
Total	34,833	2,044	9,270	978	9,450	786	2,602	208	7,468	504	1,750	112	2,557	187	803	55	68,733	4,874

* The first company of Bengal artillery was raised in 1749, and consisted of about six officers and 110 non-commissioned officers and men. In 1778 the artillery had become sufficiently strong to be formed into an independent brigade of one European regiment (about 60 officers and 700 men), and three native battalions. The head-quarters were at Fort William and the practice ground at Dum-Dum. In 1813 the head-quarters were removed to Dum-Dum, where barracks had been built, and the men were much gratified with the change from the narrow limits of a fortress to an airy, roomy cantonment.

The strength of the European non-commissioned officers and men of the Bengal artillery on the 1st December 1827 appears to have been about 3,000, which is nearly the average strength in the 10 years 1847-56.

In July 1845, the corps was re-organized preparatory to taking part in the Sikh war, and it was prominently engaged at the battles of Moodkee, Ferozeshuhur, Aliwal, Sobraon, Mooltan (January 1849), and Goojerat.

In 1854 the head-quarters of the artillery were removed from Dum-Dum to Meerut.

No. 2.

TABLE showing the MORTALITY per Cent., in each of the Years 1847 to 1856, amongst the NON-COMMISSIONED OFFICERS and MEN of the EUROPEAN FORCES of the late EAST INDIA COMPANY, in the PRESIDENCY of BENGAL.

Years ending 31st August.	Bengal Artillery.		First Bengal Fusiliers.		Second Bengal Fusiliers.		Third Bengal Europeans.		Town Major's List.		European Pensioners.		European Invalids.		European Veterans.		Total.
	Mortality per cent.	Station of Head-Quarters at the beginning and end of each Year.	Mortality per cent.	Station of Head-Quarters at the beginning and end of each Year.	Mortality per cent.	Station of Head-Quarters at the beginning and end of each Year.	Mortality per cent.	Station of Head-Quarters at the beginning and end of each Year.	Mortality per cent.	Head-Quarters.	Mortality per cent.	Head-Quarters.	Mortality per cent.	Head-Quarters.	Mortality per cent.	Head-Quarters.	
1847	5.101	Dum-Dum.	5.156	{ Subathoo. Subathoo.	5.742	{ Subathoo. Subathoo.	—	—	7.084	Fort William.	7.143	—	4.762	Chunar.	6.731	Chunar.	5.49
1848	4.776		13.483	{ Subathoo. Cawnpore.	4.321	{ Subathoo. Subathoo.	—	—	6.785		9.023		7.905		6.316		6.51
1849	7.733		9.445	{ Cawnpore. Cawnpore.	17.672	{ Subathoo. Lahore.	—	—	8.934		5.714		4.453		4.545		9.23
1850	5.177		7.088	{ Cawnpore. Lahore.	6.547	{ Lahore. Agra.	—	—	7.003		4.969		4.701		7.317		5.86
1851	4.846		18.483	{ Lahore. Meerut.	3.099	{ Agra. Agra.	—	—	6.627		3.614		7.143		3.947		6.86
1852	4.177		4.870	{ On the Ganges.	1.494	{ Agra. Agra.	—	—	5.726		6.707		4.167		5.634		4.1
1853	5.474		14.581	{ On the Ganges. Rangoon.	5.533	{ Fort Wil- liam.	—	—	8.287		8.383		11.060		10.294		7.4
1854	4.590		11.063	{ Rangoon. Thayetmyo.	12.914	{ Fort Wil- liam. Prome.	5.945	{ Chinsurah. Chinsurah.	6.759		6.433		4.651		4.839		7.2
1855	3.902		7.525	{ Thayetmyo. Dinapore.	27.303	{ Prome. Moulmein.	3.872	{ Chinsurah. Chinsurah.	5.285		4.624		7.240		6.122		7.2
1856	9.813		3.430	{ Dinapore. Dugshai.	5.769	{ Moulmein. Subathoo.	13.603	{ Chinsurah. Agra.	4.781		5.714		13.734		7.895		8.6
Average Annual Mortality in the 10 Years	5.557	—	9.668	—	8.630	—	7.994	—	6.690	—	6.164	—	6.964	—	6.276	—	6.8

No. 3.—STRENGTH OF EFFECTIVES.*

TABLE showing the STRENGTH of NON-COMMISSIONED OFFICERS and MEN in the BENGAL ARTILLERY, for the Three Years 1848, 1851, and 1856; 1ST EUROPEAN FUSILIERS for the Three Years 1847, 1851, and 1856; 2ND EUROPEAN FUSILIERS, for the Three Years 1849, 1851, and 1856; and on the TOWN MAJOR'S LIST for the Three Years 1848, 1851, and 1856.

Age.	Period of Service.														
	Total.	Months.				Years.									
		0—	3—	6—	9—	Under 1 Year.	1	2	3	4	Under 5 Years.	5—	10—	15—	20 and upwards.
Total - -	16,971	23	215	519	1,618	2,375	1,582	1,477	1,627	1,129	8,190	5,043	2,256	1,041	441
10-15	42	6	16	5	1	28	8	4	2	—	42	—	—	—	—
15	43	2	9	4	3	18	13	6	5	—	42	1	—	—	—
16	26	2	1	—	2	5	6	4	7	3	25	1	—	—	—
17	26	—	1	1	3	5	5	6	4	2	22	4	—	—	—
18	51	2	3	4	7	16	8	5	9	5	43	8	—	—	—
19	203	5	53	52	57	167	11	6	3	4	191	11	1	—	—
10-20	391	17	83	66	73	239	51	31	30	14	365	25	1	—	—
20-25	5,096	3	109	864	1,268	1,744	1,116	920	830	216	4,826	249	21	—	—
25-30	5,672	2	15	79	252	348	384	504	725	799	2,760	2,815	82	15	—
30-35	8,423	1	6	9	23	39	27	21	36	96	219	1,747	1,397	53	7
35-40	1,685	—	2	1	2	5	4	1	5	3	18	199	680	747	41
40-45	534	—	—	—	—	—	—	—	1	1	2	8	73	203	249
45-50	80	—	—	—	—	—	—	—	—	—	—	—	2	24	54
50-55	35	—	—	—	—	—	—	—	—	—	—	—	—	—	35
55 & upwards	55	—	—	—	—	—	—	—	—	—	—	—	—	—	55

* The 3rd Bengal European regiment is excluded throughout these Tables unless otherwise stated, as it was not formed until the year 1856.

No. 4.—DEATHS OF EFFECTIVES.

TABLE showing the NUMBER of DEATHS of NON-COMMISSIONED OFFICERS and MEN in the BENGAL ARTILLERY, 1ST and 2ND EUROPEAN FUSILIERS, and on the TOWN MAJOR'S LIST during the Ten Years 1847-56,

Age.	Period of Service.														
	Total.	Months.				Years.									
		0—	3—	6—	9—	Under 1 Year.	1	2	3	4	Under 5 Years.	5—	10—	15—	20 and upwards.
Total -	3,800	162	105	169	182	618	390	304	294	269	1,875	1,076	520	216	113
10-15	3	—	1	1	—	2	1	—	—	—	3	—	—	—	—
15	1	—	—	—	—	—	1	—	—	—	1	—	—	—	—
16	2	—	—	—	—	—	1	—	—	2	—	—	—	—	—
17	3	—	—	—	—	—	1	—	1	3	—	—	—	—	—
18	14	7	1	3	—	11	—	1	—	12	2	—	—	—	—
19	32	6	4	8	7	25	5	1	—	31	1	—	—	—	—
10-20	55	13	6	12	7	38	9	2	2	1	52	3	—	—	—
20-25	1,174	137	79	125	137	478	280	179	147	43	1,127	41	6	—	—
25-30	1,329	12	19	28	35	94	86	116	134	200	630	673	23	3	—
30-35	716	—	1	4	3	8	15	7	10	23	63	322	311	18	2
35-40	357	—	—	—	—	—	—	—	1	2	3	35	163	145	11
40-45	135	—	—	—	—	—	—	—	—	—	—	1	17	46	71
45-50	16	—	—	—	—	—	—	—	—	—	—	1	—	2	13
50-55	10	—	—	—	—	—	—	—	—	—	—	—	—	2	8
55 and upwards	8	—	—	—	—	—	—	—	—	—	—	—	—	—	8

No. 5.—STRENGTH OF NON-EFFECTIVES.

TABLE showing the STRENGTH of NON-COMMISSIONED OFFICERS and MEN of the EUROPEAN PENSIONERS for the Three Years 1848, 1851, and 1856; INVALIDS for the Three Years 1848, 1851, and 1856; and VETERAN COMPANY for the Three Years 1848, 1851, and 1853.

Age.	Period of Service, Years.											
	Total.	Under 5 Years.	5—	10—	15—	20—	25—	30—	35—	40—	45—	50 and upwards.
Total -	1,413	—	41	44	191	355	249	195	140	105	28	65
20-25	4	—	4	—	—	—	—	—	—	—	—	—
25-30	19	—	17	1	1	—	—	—	—	—	—	—
30-35	55	—	17	19	12	6	1	—	—	—	—	—
35-40	138	—	—	16	93	22	7	—	—	—	—	—
40-45	312	—	1	6	56	209	26	13	1	—	—	—
45-50	300	—	1	2	18	94	140	31	8	6	—	—
50-55	235	—	1	—	10	17	58	99	30	17	3	—
55-60	162	—	—	—	1	7	11	39	71	25	3	5
60-65	82	—	—	—	—	—	3	7	16	38	11	7
65-70	52	—	—	—	—	—	3	3	9	13	7	17
70-75	29	—	—	—	—	—	—	3	5	4	4	13
75 and upwards	25	—	—	—	—	—	—	—	—	2	—	23

No. 6.—DEATHS OF NON-EFFECTIVES.

TABLE showing the NUMBER of DEATHS of NON-COMMISSIONED OFFICERS and MEN of the EUROPEAN PENSIONERS, INVALIDS, and VETERANS in the Ten Years 1847-1856.

Age.	Period of Service, Years.											
	Total.	Under 5 Years.	5—	10—	15—	20—	25—	30—	35—	40—	45—	50 and upwards.
Total -	305	—	5	16	57	73	51	35	23	18	12	15
20-25	1	—	1	—	—	—	—	—	—	—	—	—
25-30	1	—	1	—	—	—	—	—	—	—	—	—
30-35	11	—	3	7	1	—	—	—	—	—	—	—
35-40	33	—	—	5	22	5	—	1	—	—	—	—
40-45	85	—	—	3	29	44	7	1	1	—	—	—
45-50	55	—	—	—	5	22	22	3	2	1	—	—
50-55	42	—	—	—	—	2	17	15	4	3	—	1*
55-60	30	—	—	1	—	—	4	8	8	7	2	—
60-65	16	—	—	—	—	—	1	4	4	1	3	3
65-70	17	—	—	—	—	—	—	2	3	4	5	3
70-75	8	—	—	—	—	—	—	1	1	—	2	4
75 and upwards	6	—	—	—	—	—	—	—	—	2	—	4

* Age, 53 years and 6 months; period of service, 50 years (an Indian); received from Lower Orphan School in 1798, and died in 1848.

No. 7.—CASUALTIES OF EFFECTIVES.

NUMBER OF DEATHS, DISCHARGES, and other CASUALTIES amongst the NON-COMMISSIONED OFFICERS and MEN of the BENGAL ARTILLERY, and 1st and 2nd EUROPEAN FUSILIERS, during the Ten Years 1847-56 at different PERIODS of SERVICE.

	Period of Service.														
	Total.	Months.				Under 1 year.	1	2	3	4	Under 5 years.	5—	10—	15—	20 and upwards.
		0—	3—	6—	9—										
DEATHS	3,345	124	96	159	175	554	378	286	282	254	1,754	980	429	143	39.
LEAVING THE CORPS	3,144	24	81	27	52	134	158	137	185	199	813	963	744	340	284
Pensioned	154	—	—	—	—	—	—	1	—	1	2	2	2	13	135
Invalided to Europe	835	1	2	6	22	31	59	50	61	70	271	259	180	81	44
" Chunar, or other parts of India	381	—	—	—	—	—	1	—	4	9	14	40	82	168	77
Sent to lunatic asylum	44	2	1	—	4	7	2	7	6	—	22	14	7	1	—
Discharged by purchase	251	1	—	3	7	11	25	21	29	26	112	98	41	—	—
" (time expired or otherwise)	296	6	13	5	2	26	11	8	7	12	64	85	127	16	4
Promoted	75	—	—	—	—	—	1	1	4	5	11	32	20	4	8
Transferred to Town Major's List	719	1	1	3	5	10	23	21	39	50	143	322	184	54	16
" to other corps	274	4	6	2	—	12	17	18	23	19	89	97	87	1	—
Deserted	107	8	8	8	12	36	19	8	12	6	81	13	12	1	—
Missing	2	—	—	—	—	—	—	—	—	—	2	—	—	—	—
Other causes	6	1	—	—	—	1	—	—	—	1	2	1	2	1	—
JOINING THE CORPS	1,864	1,364	63	20	3	1,450	20	30	20	23	1,543	137	110	59	15
Remanded from Town Major's list	201	—	1	—	1	2	3	4	5	4	18	66	63	46	8
From other corps	192	7	4	9	1	21	11	23	14	14	83	59	33	12	5
Enlisted in India	128	118	1	—	1	120	1	—	—	3	124	3	1	—	—
" in Europe	2	1	—	—	—	1	—	—	—	—	1	—	1	—	—
Rejoined from desertion	17	—	1	3	—	4	1	2	1	1	9	4	3	1	—
Entertained	1,324	1,238	55	8	—	1,302	4	1	—	1	1,308	5	9	—	2
Casualty not specified	8	7	—	—	—	7	—	—	—	—	7	—	1	—	—

No. 8.—CASUALTIES.—TOWN MAJOR'S LIST.

NUMBER OF DEATHS, DISCHARGES, and other CASUALTIES amongst the NON-COMMISSIONED OFFICERS and MEN of the TOWN MAJOR'S LIST during the Ten Years 1847-56 at different PERIODS of SERVICE.

	Period of Service.														
	Total.	Months.				Total under 1 year.	1	2	3	4	Total under 5 years.	5—	10—	15—	20 and upwards.
		0—	3—	6—	9—										
DEATHS	455	38	9	10	7	64	12	18	12	15	121	96	91	73	74
LEAVING THE CORPS	664	2	1	2	—	5	14	18	20	22	79	140	146	92	207
Pensioned	92	—	—	—	—	—	—	—	—	—	1	2	3	86	
Invalided to Europe	31	—	1	1	—	2	2	2	2	1	9	11	7	3	1
" to Chunar, or other parts of India	2	—	—	—	—	—	—	—	—	—	—	—	—	2	—
Sent to lunatic asylum	2	—	—	—	—	—	—	—	—	—	—	—	2	—	—
Discharged by purchase	46	—	—	—	—	—	—	4	2	4	10	26	9	1	—
" (time expired or otherwise)	33	—	—	—	—	—	—	1	2	2	5	8	15	2	3
Promoted	131	—	—	—	—	—	—	—	—	—	—	2	15	24	90
Transferred to Town Major's list	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
" to other corps	288	1	—	—	—	1	7	8	12	10	38	84	87	56	23
Deserted	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Missing	2	—	—	—	—	—	—	—	—	—	—	—	—	—	2
Other causes	37	1	—	1	—	2	5	3	2	5	17	8	9	1	2
JOINING THE CORPS	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Remanded from Town Major's list	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
From other corps	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Enlisted in India	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
" in Europe	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Rejoined from desertion	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Entertained	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Casualty not specified	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

No. 9.—CASUALTIES OF NON-EFFECTIVES.

NUMBER OF DEATHS, DISCHARGES, and other CASUALTIES amongst the NON-COMMISSIONED OFFICERS and MEN of the EUROPEAN PENSIONERS, INVALIDS, and VETERAN COMPANY during the Ten Years 1847–56, at different PERIODS of SERVICE.

	Total.	Under 5 Years.	5—	10—	15—	20—	25—	30—	35—	40—	45—	50 and upwards.
DEATHS - - - - -	305	—	5	16	57	73	51	35	23	18	12	15
LEAVING THE CORPS - - - - -	265	1	17	14	50	153	10	6	1	10	1	2
Pensioned - - - - -	29	—	—	—	1	22	2	2	1	1	—	—
Invalided to Europe - - - - -	3	—	—	—	1	2	—	—	—	—	—	—
" Chunar, or other parts of India - - - - -	—	—	—	—	—	—	—	—	—	—	—	—
Sent to Lunatic Asylum - - - - -	1	—	—	1	—	—	—	—	—	—	—	—
Discharged by purchase - - - - -	—	—	—	—	—	—	—	—	—	—	—	—
" (time expired or otherwise) - - - - -	211	1	10	12	43	123	7	3	—	9	1	2
Promoted - - - - -	5	—	1	—	1	3	—	—	—	—	—	—
Transferred to Town Major's List - - - - -	—	—	—	—	—	—	—	—	—	—	—	—
" other corps - - - - -	15	—	6	1	4	3	—	1	—	—	—	—
Deserted - - - - -	—	—	—	—	—	—	—	—	—	—	—	—
Missing - - - - -	1	—	—	—	—	—	1	—	—	—	—	—
Other causes - - - - -	—	—	—	—	—	—	—	—	—	—	—	—
JOINING THE CORPS - - - - -	342	3	31	60	158	80	8	2	—	—	—	—
Remanded from Town Major's List - - - - -	—	—	—	—	—	—	—	—	—	—	—	—
From other corps - - - - -	342	3	31	60	158	80	8	2	—	—	—	—
Enlisted in India - - - - -	—	—	—	—	—	—	—	—	—	—	—	—
" Europe - - - - -	—	—	—	—	—	—	—	—	—	—	—	—
Rejoined from desertion - - - - -	—	—	—	—	—	—	—	—	—	—	—	—
Entertained - - - - -	—	—	—	—	—	—	—	—	—	—	—	—
Casualty not specified - - - - -	—	—	—	—	—	—	—	—	—	—	—	—

No. 10.

TABLE showing the MEAN STRENGTH, DEATHS, and ANNUAL RATE of MORTALITY per Cent. in the Ten Years 1846-7 to 1855-6, amongst the NON-COMMISSIONED OFFICERS and MEN of the EUROPEAN FORCES of the late EAST INDIA COMPANY in BENGAL.

Years ending (August 31st).	Mean Strength.			Deaths in each Year.			Annual Rate of Mortality per cent.		
	Total.	Effectives.*	Non-Effectives.*	Total.	Effectives.	Non-Effectives.	Total.	Effectives.	Non-Effectives.
1846-7	5,278·5	4,782·5	496	290	261	29	5·49	5·46	5·85
1847-8	5,669	5,189	480	369	331	38	6·51	6·38	7·92
1848-9	5,999·5	5,525·5	474	554	531	23	9·23	9·61	4·85
1849-50	6,208	5,732	476	364	339	25	5·86	5·91	5·25
1850-1	6,352·5	5,887	465·5	432	407	25	6·80	6·91	5·37
1851-2	6,329	5,878·5	450·5	260	236	24	4·11	4·01	5·33
1852-3	6,431	5,980	451	477	432	45	7·42	7·22	9·98
1853-4	6,622·5	6,175	447·5	477	453	24	7·20	7·34	5·36
1854-5	6,835	6,393	442	493	466	27	7·21	7·29	6·11
1855-6	6,934	6,489	445	597	552	45	8·61	8·51	10·11
Average of the 10 years	6,265·90	5,803·15	462·75	481·3	400·8	30·5	6·88	6·91	6·59

NOTE.—To get the mean strength, add the strength at the beginning of the year to the strength at the end of the year, and divide by 2; thus:—Strength on 31st August 1846 (of Effectives) - - - - - 4,696
" " 31st August 1847 - - - - - 4,869

2) 9,565

4,782·5 = Mean Strength 1846-7.

The deaths occurred in the interval between the two enumerations, and are recorded in the Casualty Roll for 1847.

The Effectives in this Table comprise the Bengal Artillery, the 1st, 2nd, and 3rd Bengal Europeans, and the Town Major's List. The Non-Effectives comprise the European Pensioners, Invalids, and Veterans.

No. 11.

TABLE showing the STRENGTH, DEATHS, and AVERAGE ANNUAL RATE of MORTALITY per Cent. in the Ten Years 1847-56, amongst the NON-COMMISSIONED OFFICERS and MEN of the EUROPEAN FORCES of the Late EAST INDIA COMPANY in BENGAL at different AGES.

Ages.	Strength.			Deaths.			Annual Rate of Mortality per cent.		
	Total.	Effectives.	Non-Effectives.	Total.	Effectives.	Non-Effectives.	Total.	Effectives.	Non-Effectives.
Total -	18,384	16,971	1,413	4,105	3,800	305	670	6.72	6.48
10-15	42	42	—	3	3	—	2.14	2.14	—
15	43	43	—	1	1	—	.70	.70	—
16	26	26	—	2	2	—	2.31	2.31	—
17	26	26	—	3	3	—	3.46	3.46	—
18	51	51	—	14	14	—	8.24	8.24	—
19	203	203	—	32	32	—	4.73	4.73	—
10-20	391	391	—	55	55	—	4.22	4.22	—
20-25	5,100	5,096	4	1,175	1,174	1	6.91	6.91	7.50
25-30	5,691	5,672	19	1,330	1,329	1	7.01	7.03	1.58
30-35	3,478	3,423	55	727	716	11	6.27	6.28	6.00
35-40	1,823	1,685	138	390	357	33	6.42	6.36	7.17
40-45	846	534	312	220	135	85	7.80	7.58	8.17
45-50	380	80	300	71	16	55	5.61	6.00	5.50
50-55	270	35	235	52	10.	42	5.78	8.57	5.36
55 and upwards	405	55	350	85	8	77	6.30	4.36	6.60

No. 12.—EFFECTIVES.

AVERAGE ANNUAL RATE of MORTALITY per Cent. amongst the NON-COMMISSIONED OFFICERS and MEN of the EFFECTIVES of the EUROPEAN FORCES of the late EAST INDIA COMPANY in BENGAL, in the Ten Years 1847-56, at different PERIODS of SERVICE.

Period of Service.	Mean Annual Strength.	Deaths in the 10 Years 1847-56.	Average Annual Rate of Mortality per cent.
Total -	5,657	3,800	6.72
0- 1 years	—	618	7.81
1- 2 "	527	390	7.40
2- 3 "	492	304	6.17
3- 4 "	543	294	5.42
4- 5 "	376	269	7.15
0-5 "	2,730	1,875	6.87
5-10 "	1,681	1,076	6.40
10-15 "	752	520	6.91
15-20 "	347	216	6.22
20 and upwards	147	113	7.69

No. 13.—NON-EFFECTIVES.

AVERAGE ANNUAL RATE of MORTALITY per Cent. amongst the NON-COMMISSIONED OFFICERS and MEN of the NON-EFFECTIVES of the EUROPEAN FORCES of the late EAST INDIA COMPANY in BENGAL, in the Ten Years 1847-56, at different PERIODS of SERVICE.

Period of Service.	Mean Annual Strength.	Deaths in the 10 Years 1847-56.	Average Annual Rate of Mortality per cent.
Total -	471	305	6.48
5-10 Years	14	5	3.66
10-15 "	15	16	10.91
15-20 "	63	57	8.95
20-25 "	118	73	6.17
25-30 "	83	51	6.14
30-35 "	65	35	5.38
35-40 "	47	23	4.93
40-45 "	35	18	5.14
45-50 "	9	12	12.86
50 & upwards	22	15	6.92

No. 14.—EFFECTIVES.

AVERAGE ANNUAL RATE of MORTALITY per Cent. of the NON-COMMISSIONED OFFICERS and MEN of the EFFECTIVES of the EUROPEAN FORCES of the late EAST INDIA COMPANY in BENGAL, in the Ten Years 1847-56, at different AGES.

Ages.	Mean Strength.	Deaths in the 10 Years 1847-56.	Average Annual Rate of Mortality per cent.
Total -	5,657	3,800	6.72
10-15	14	3	2.14
15	14	1	.70
16	9	2	2.31
17	9	3	3.46
18	17	14	8.24
19	67	32	4.73
10-20	130	55	4.22
20-25	1,699	1,174	6.91
25-30	1,890	1,329	7.03
30-35	1,141	716	6.28
35-40	562	357	6.36
40-45	178	135	7.58
45-50	27	16	6.00
50-55	12	10	8.57
55 and upwards	18	8	4.36

No. 15.—NON-EFFECTIVES.

AVERAGE ANNUAL RATE of MORTALITY per Cent. of the NON-COMMISSIONED OFFICERS and MEN of the EUROPEAN PENSIONERS, INVALIDS, and VETERANS in the Ten Years 1847-56, at different AGES.

Ages.	Mean Strength.	Deaths in the 10 Years 1847-56.	Average Annual Rate of Mortality per cent.
Total -	471	305	6.48
20—	1.3	1	7.69
25—	6.3	1	1.58
30—	18.3	11	6.00
35—	46.0	33	7.17
40—	104.0	85	8.17
45—	100.0	55	5.50
50—	78.3	42	5.36
55—	54.0	30	5.56
60—	27.3	16	5.85
65—	17.3	17	9.81
70—	9.7	8	8.28
75 and upwards	8.3	6	7.20

No. 16.—EFFECTIVES.

AVERAGE ANNUAL MORTALITY per Cent. at different AGES and at different PERIODS of SERVICE amongst the NON-COMMISSIONED OFFICERS and MEN of the BENGAL ARTILLERY, 1ST and 2ND BENGAL EUROPEAN REGIMENTS, and TOWN MAJOR'S LIST, during the Ten Years, 1847-56.

Ages.	Years of Service.									
	Under 1 Year.	1—	2—	3—	4—	Under 5 Years.	5—	10—	15—	20 and upwards.
10-20	4.77	5.29	1.94	2.00	2.14	4.27	3.60	—	—	—
20-25	8.22	7.53	5.84	5.31	5.97	7.01	4.94	8.57	—	—
25-30	8.10	6.72	6.90	5.54	7.51	6.85	7.17	8.41	6.00	—
30-35	6.15	16.67	10.00	8.33	7.19	8.63	5.53	6.68	10.19	8.57
35-40	—	—	—	6.00	20.00	5.00	5.28	7.19	5.82	8.05
40-45	—	—	—	—	—	—	3.75	6.99	6.83	8.55
45-50	—	—	—	—	—	—	—	—	2.50	7.22
50-55	—	—	—	—	—	—	—	—	—	6.86
55 and upwards	—	—	—	—	—	—	—	—	—	4.36

No. 17.—NON-EFFECTIVES.

MORTALITY at different AGES and at different PERIODS of SERVICE amongst the NON-COMMISSIONED OFFICERS and MEN of the EUROPEAN PENSIONERS, INVALIDS, and VETERANS, in the Ten Years, 1847-56.

Ages.	Years of Service.									
	5—	10—	15—	20—	25—	30—	35—	40—	45—	50 and upwards.
20-25	7.50	—	—	—	—	—	—	—	—	—
25-30	1.76	—	—	—	—	—	—	—	—	—
30-35	5.29	11.05	2.50	—	—	—	—	—	—	—
35-40	—	9.38	7.10	6.82	—	—	—	—	—	—
40-45	—	15.00	15.54	6.32	8.08	2.31	30.00	—	—	—
45-50	—	—	8.33	7.02	4.71	2.90	7.50	5.00	—	—
50-55	—	—	—	3.53	8.79	4.55	4.00	5.29	—	—
55-60	—	—	—	—	10.91	6.15	3.38	8.40	20.00	—
60-65	—	—	—	—	10.00	17.14	7.50	.79	8.18	12.86
65-70	—	—	—	—	—	20.00	10.00	9.23	21.43	5.29
70-75	—	—	—	—	—	10.00	6.00	—	15.00	9.23
75 and upwards	—	—	—	—	—	—	—	30.00	—	5.22

No. 17 a.—EFFECTIVES.

AVERAGE ANNUAL MORTALITY per Cent. at Different PERIODS of SERVICE, amongst the NON-COMMISSIONED OFFICERS and MEN of the EFFECTIVES of the EUROPEAN FORCES of the late EAST INDIA COMPANY, during the Ten Years 1847-56, in the PRESIDENCY of BENGAL, showing the AGE on entering INDIA.

Period of Service.	Age on entering India.						
	10-20	15-25	20-30	25-35	30-40	35-45	40-50
0-5	4.27	7.01	6.85	8.63	5.00	—	—
5-10	4.82	7.17	5.53	5.28	3.75	—	—
10-15	8.45	6.68	7.19	6.99	—	—	—
15-20	9.26	5.82	6.83	2.50	—	—	—
20 and upwards	8.13	8.55	7.22	6.86	4.86	—	—

No. 18.—EFFECTIVES.

TABLE showing the PROPORTION per Cent. LEAVING the CORPS ANNUALLY in the Ten Years 1847-56, amongst the NON-COMMISSIONED OFFICERS and MEN of the BENGAL ARTILLERY, and the 1ST and 2ND BENGAL EUROPEAN REGIMENTS.

Period of Service.	Proportion per cent. leaving the Corps annually.		
	From all Causes.	By Death.	Pensioned, Invalided, Discharged, transferred to Town Major's List, &c.
Years.			
0-5	9.85	6.87	2.98
5-10	12.13	6.40	5.73
10-15	16.81	6.91	9.90
15-20	16.02	6.22	9.80
20 and upwards	27.01	7.69	19.32

No. 19.—TOWN MAJOR'S LIST.

TABLE showing the PROPORTION per Cent. LEAVING the CORPS ANNUALLY in the Ten Years 1847-56, amongst the NON-COMMISSIONED OFFICERS and MEN of the TOWN MAJOR'S LIST.

Period of Service.	Proportion per cent. leaving the Corps annually.		
	From all Causes.	By Death.	Pensioned, Invalided, Discharged, transferred to Town Major's List, &c.
0-5	17.43	10.55	6.88
5-10	13.54	5.51	8.03
10-15	12.91	4.96	7.93
15-20	12.90	5.70	7.20
20 and upwards	29.74	7.79	21.95

No. 20.—NON-EFFECTIVES.

TABLE showing the PROPORTION per Cent. LEAVING the CORPS ANNUALLY in the Ten Years 1847-56, amongst the NON-COMMISSIONED OFFICERS and MEN of the EUROPEAN PENSIONERS, INVALIDS, and VETERANS.

Period of Service.	Proportion per cent. leaving the Corps annually.		
	From all Causes.	By Death.	Pensioned, Invalided, Discharged, transferred to Town Major's List, &c.
Years.			
0-5	30.00	—	30.00
5-10	16.10	3.66	12.44
10-15	20.45	10.91	9.54
15-20	16.81	8.95	7.86
20-25	19.09	6.17	12.92
25-30	7.34	6.14	1.20
30-35	6.30	5.38	.92
35-40	5.14	4.93	.91
40-45	8.00	5.14	2.86
45-50	13.93	12.86	1.07
50 and upwards	7.84	6.92	.92

No. 21.—CASUALTIES OF EFFECTIVES.

(BENGAL ARTILLERY, 1ST and 2ND BENGAL EUROPEANS, in the Ten Years 1847-56.)

TABLE showing the PROPORTION per Cent. of NON-COMMISSIONED OFFICERS and MEN LEAVING the CORPS ANNUALLY from various Causes.

Casualties.	Period of Service, Years.				
	0—	5—	10—	15—	20 and upwards.
Leaving the corps from various causes.	2.98	5.73	9.90	9.80	19.32
Pensioned - - - - -	.01	.01	.03	.37	9.19
Invalided to Europe - - - - -	.99	1.54	2.39	2.33	2.99
Invalided to Chunar - - - - -	.05	.24	1.09	4.84	5.24
Sent to Lunatic Asylum - - - - -	.08	.08	.09	.03	—
Discharged by purchase - - - - -	.41	.58	.55	—	—
Discharged (time expired or otherwise). - - - - -	.28	.51	1.69	.46	.27
Promoted - - - - -	.04	.19	.27	.12	.54
Transferred to Town Major's list. - - - - -	.52	1.91	2.44	1.56	1.09
Transferred to other corps - - - - -	.33	.58	1.16	.03	—
Deserted - - - - -	.30	.08	.16	.03	—
Missing - - - - -	.01	—	—	—	—
Other causes - - - - -	.01	.01	.03	.03	—

No. 22.—CASUALTIES, TOWN MAJOR'S LIST.

TABLE showing the PROPORTION per Cent. of NON-COMMISSIONED OFFICERS and MEN LEAVING the TOWN MAJOR'S LIST ANNUALLY, from various Causes, in the Ten Years 1847-56.

Casualties.	Period of Service, Years.				
	0—	5—	10—	15—	20 and upwards.
Leaving the corps from various causes.	6.88	8.03	7.95	7.20	21.95
Pensioned - - - - -	—	.06	.11	.23	9.12
Invalided to Europe - - - - -	.78	.63	.38	.23	.11
Invalided to Chunar - - - - -	—	—	—	.16	—
Sent to Lunatic Asylum - - - - -	—	—	.11	—	—
Discharged by purchase - - - - -	.87	1.49	.49	.08	—
Discharged (time expired or otherwise). - - - - -	.44	.46	.82	.16	.32
Promoted - - - - -	—	.11	.82	1.88	9.54
Transferred to Town Major's list. - - - - -	—	—	—	—	—
Transferred to other corps - - - - -	3.31	4.82	4.73	4.38	2.44
Deserted - - - - -	—	—	—	—	—
Missing - - - - -	—	—	—	—	.21
Other causes - - - - -	1.48	.46	.49	.08	.21

No. 23.—CASUALTIES OF NON-EFFECTIVES.

(EUROPEAN PENSIONERS, INVALIDS, and VETERANS.)

TABLE showing the PROPORTION per Cent. of NON-COMMISSIONED OFFICERS and MEN LEAVING the CORPS ANNUALLY, from various Causes, in the Ten Years 1847-56.

Casualties.	Period of Service, Years.										
	Under 5 Years.	5—	10—	15—	20—	25—	30—	35—	40—	45—	50 and upwards.
Leaving the corps from various causes - - - - -	30.00	12.44	9.54	7.86	12.92	1.20	.92	.21	2.86	1.07	.92
Pensioned - - - - -	—	—	—	.16	1.86	.24	.31	.21	.29	—	—
Invalided to Europe - - - - -	—	—	—	.16	.17	—	—	—	—	—	—
Invalided to Chunar - - - - -	—	—	—	—	—	—	—	—	—	—	—
Sent to Lunatic Asylum - - - - -	—	—	.68	—	—	—	—	—	—	—	—
Discharged by purchase - - - - -	—	—	—	—	—	—	—	—	—	—	—
Discharged (time expired or otherwise) - - - - -	30.00	7.32	8.18	6.75	10.39	.84	.46	—	2.57	1.07	.92
Promoted - - - - -	—	.73	—	.16	.25	—	—	—	—	—	—
Transferred to Town Major's list - - - - -	—	—	—	—	—	—	—	—	—	—	—
Transferred to other corps - - - - -	—	4.39	.68	.63	.25	—	.15	—	—	—	—
Deserted - - - - -	—	—	—	—	—	—	—	—	—	—	—
Missing - - - - -	—	—	—	—	—	.12	—	—	—	—	—
Other causes - - - - -	—	—	—	—	—	—	—	—	—	—	—

No. 24.—BENGAL ARTILLERY.

ANNUAL RATE of MORTALITY per Cent. of the NON-COMMISSIONED OFFICERS and MEN of the BENGAL ARTILLERY in each of the Ten Years 1847-56.

Years ending August 31.	Mean Annual Strength.	Deaths in the Year.	Annual Rate of Mortality per cent.
1846-7	2,725	139	5.101
1847-8	2,994	143	4.776
1848-9	3,220	249	7.733
1849-50	3,226	167	5.177
1850-1	3,240	157	4.846
1851-2	3,256	136	4.177
1852-3	3,343	183	5.474
1853-4	3,377	155	4.590
1854-5	3,332	130	3.902
1855-6	3,210	315	9.813
Average of the 10 years	3,192.3	177.4	5.557

No. 25.—BENGAL ARTILLERY.

AVERAGE ANNUAL RATE of MORTALITY amongst the NON-COMMISSIONED OFFICERS and MEN of the BENGAL ARTILLERY, in the Ten Years 1847-56, at different AGES.

Ages.	Mean Annual Strength in 3 Years.	Deaths in the 10 Years 1847-56.	Average Annual Rate of Mortality per cent.
Total -	3,193.6	1,774	5.555
10-15	9.0	2	2.222
15	7.6	1	1.304
16	3.7	1	2.727
17	2.7	1	3.750
18	6.7	1	1.500
19	16.0	5	3.125
10-20	45.7	11	2.409
20-25	913.7	492	5.385
25-30	1,176.7	650	5.524
30-35	630.3	342	5.426
35-40	319.0	204	6.395
40-45	98.7	70	7.095
45-50	8.3	5	6.000
50-55	1.0	—	—
55 and upwards	.2	—	—

No. 26.—BENGAL ARTILLERY.

AVERAGE ANNUAL RATE of MORTALITY per Cent. amongst the NON-COMMISSIONED OFFICERS and MEN of the BENGAL ARTILLERY, in the Ten Years 1847-56, at different PERIODS of SERVICE.

Period of Service.	Mean Strength in 3 Years.	Deaths in the 10 Years, 1847-56.	Average Annual Rate of Mortality per cent.
Total -	3,193.6	1,774	5.555
0-1 years -	436.7	277	6.344
1-2 „ -	214.3	177	8.258
2-3 „ -	357.0	154	4.314
3-4 „ -	390.3	148	3.792
4-5 „ -	231.0	137	5.931
0-5 years -	1,629.3	893	5.475
5-10 „ -	945.0	498	5.270
10-15 „ -	400.3	236	5.895
15-20 „ -	171.0	114	6.667
20 and upwards	48.0	33	6.875

No. 27.—BENGAL ARTILLERY.—STRENGTH.

ABSTRACT of AGE and PERIOD of SERVICE in INDIA of NON-COMMISSIONED OFFICERS and MEN of the BENGAL ARTILLERY, for the Three Years 1848, 1851, and 1856.

Age.	Period of Service.				
	Years.				
	Under 5 Years.	5—	10—	15—	20 and upwards.
10—	27	—	—	—	—
15—	103	7	—	—	—
20—	2,660	76	5	—	—
25—	1,961	1,544	20	5	—
30—	129	1,082	666	13	1
35—	8	120	459	359	11
40—	—	6	51	123	116
45—	—	—	—	13	12
50 and upwards	—	—	—	—	4

It will be seen from this Table that 2,660 men, of the age of 20 and under 25, had served under 5 years in India. Now, take one of those men of the age 20 precisely, then he would represent the youngest man of the number, and it is impossible that he could have entered India earlier than the age 15, otherwise he must have served more than 5 years in India. By the nature of the case, no one of the 2,660 can be above 25 years of age; and it is here shown that the youngest life must have been at least 15 years of age on entering, consequently all the 2,660 must have entered India between the ages of 15 and 25. (See other Form, Table No. 30.)

No. 28.—BENGAL ARTILLERY.—DEATHS.

ABSTRACT of AGE and PERIOD of SERVICE in INDIA of NON-COMMISSIONED OFFICERS and MEN of the BENGAL ARTILLERY, for the Ten Years 1847-56.

Age.	Period of Service.				
	Years.				
	Under 5 Years.	5—	10—	15—	20 and upwards.
Years.					
10—	2	—	—	—	—
15—	8	1	—	—	—
20—	485	6	1	—	—
25—	366	280	3	1	—
30—	31	191	117	2	1
35—	1	18	103	79	3
40—	—	1	12	31	26
45—	—	1	—	1	3

No. 29.—BENGAL ARTILLERY.

AVERAGE ANNUAL MORTALITY per Cent. amongst the NON-COMMISSIONED OFFICERS and MEN of the BENGAL ARTILLERY, in the Ten Years 1847-56, at different AGES and at different PERIODS of SERVICE.

Age.	Period of Service.				
	Years.				
	Under 5 Years.	5—	10—	15—	20 and upwards.
Years.					
10—	2'222	—	—	—	—
15—	2'330	4'286	—	—	—
20—	5'470	2'368	6'000	—	—
25—	5'599	5'440	4'500	6'000	—
30—	7'209	5'296	5'270	4'615	30'000
35—	3'750	4'500	6'732	6'602	3'182
40—	—	5'000	7'059	7'561	6'724
45—	—	—	—	2'308	7'500

No. 30.—BENGAL ARTILLERY.—STRENGTH.

AGE and PERIOD of SERVICE in INDIA of the NON-COMMISSIONED OFFICERS and MEN in the BENGAL ARTILLERY, in the Three Years 1848, 1851, and 1856, showing the AGE on entering INDIA.

Period of Service.	Age on entering India, Years.				
	10-20	15-25	20-30	25-35	30-40
Years.					
0-5	130	2,660	1,961	129	8
5-10	83	1,544	1,082	120	6
10-15	25	666	459	51	—
15-20	18	359	123	13	—
20 and upwards	12	116	12	3	1

No. 31.—BENGAL ARTILLERY.—DEATHS.

AGE and PERIOD of SERVICE in INDIA, of the NON-COMMISSIONED OFFICERS and MEN in the BENGAL ARTILLERY, in the Ten Years 1847-56, showing the AGE on entering INDIA.

Period of Service.	Age on entering India, Years.				
	10-20	15-25	20-30	25-35	30-40
Years.					
0-5	10	485	366	31	1
5-10	7	280	191	18	1
10-15	4	117	103	12	—
15-20	3	79	31	1	—
20 and upwards	4	26	3	—	—

No. 32.—BENGAL ARTILLERY.

AVERAGE ANNUAL MORTALITY per Cent. amongst the NON-COMMISSIONED OFFICERS and MEN in the BENGAL ARTILLERY, in the Ten Years 1847-56, at different PERIODS of SERVICE, showing the AGE on entering INDIA.

Period of Service.	Age on entering India, Years.				
	10-20	15-25	20-30	25-35	30-40
0-5 years -	2'308	5'470	5'599	7'209	3'750
5-10 „ -	2'530	5'440	5'296	4'500	5'000
10-15 „ -	4'800	5'270	6'732	7'059	—
15-20 „ -	5'000	6'602	7'561	2'308	—
20 and upwards.	10'000	6'724	7'500	—	—

No. 33.—BENGAL ARTILLERY.

TABLE showing amongst the NON-COMMISSIONED OFFICERS and MEN of the BENGAL ARTILLERY, the PROPORTION per Cent. LEAVING the CORPS ANNUALLY (1) by DEATH, (2) from other CAUSES, in the Ten Years 1847-56.

Period of Service.	Proportion per cent. leaving the Corps annually.		
	From all Causes.	By Death.	Pensioned, invalided, discharged, transferred to Town Major's List &c.
Years.			
0—	8'445	5'475	2'970
5—	11'651	5'270	6'381
10—	16'987	5'895	11'092
15—	22'746	6'667	16'079
20 and upwards	60'416	6'875	53'541

No. 34.—BENGAL ARTILLERY.—CASUALTIES.

TABLE showing the PROPORTION per Cent. of NON-COMMISSIONED OFFICERS and MEN of the BENGAL ARTILLERY LEAVING the CORPS ANNUALLY, from various CAUSES, in the Ten Years 1847-56.

Casualties.	Period of Service, Years.				
	0—	5—	10—	15—	20 and upwards.
Leaving the corps from various causes.	2·970	6·381	11·092	16·079	53·541
Pensioned - - -	·012	·021	·050	·760	25·208
Invalided to Europe - -	·804	1·450	2·623	2·982	8·333
Invalided to Chunar - -	·031	·233	1·524	8·538	14·583
Sent to Lunatic asylum - -	·086	·074	·125	·058	—
Discharged by purchase - -	·552	·688	·550	—	—
Discharged (time expired or otherwise).	·295	·529	1·749	·585	·625
Promoted - - -	·006	—	·050	·058	1·667
Transferred to Town Maj. list	·853	3·312	4·296	2·982	3·125
Transferred to other corps - -	·043	·032	—	—	—
Deserted - - -	·282	·042	·125	·058	—
Missing - - -	—	—	—	—	—
Other causes - - -	·006	—	—	·058	—

The table may be read thus :—Out of every 100 non-commissioned officers and men of the Bengal artillery 11·092 left the corps annually after having completed 10 and under 15 years' service, viz. :—·050 were pensioned, 2·623 were invalided to Europe, 1·524 were invalided to Chunar, 1·749 were discharged otherwise than by purchase, 4·296 were transferred to town major's list, and so on.

No. 35.—1ST BENGAL FUSILIERS.

ANNUAL RATE of MORTALITY per Cent. of the NON-COMMISSIONED OFFICERS and MEN of the 1ST BENGAL FUSILIERS, in each of the Ten Years 1847-56.

Years ending August 31.	Mean Strength.	Deaths in the Year.	Annual Rate of Mortality per cent.
1846-7	737	38	5·156
1847-8	846	114	13·483
1848-9	847	80	9·445
1849-50	917	65	7·088
1850-1	936	173	18·483
1851-2	904	44	4·870
1852-3	919	134	14·581
1853-4	805	89	11·063
1854-5	758	57	7·525
1855-6	846	29	3·430
Average of the } 10 years.	851·5	82·3	9·668

No. 36.—1ST BENGAL FUSILIERS.

AVERAGE ANNUAL RATE of MORTALITY amongst the NON-COMMISSIONED OFFICERS and MEN of the 1ST BENGAL FUSILIERS, in the Ten Years 1847-56, at different AGES.

Ages.	Mean Annual Strength in 3 Years.	Deaths in the 10 Years 1847-56.	Average Annual Rate of Mortality per cent.
Total -	863·3	823	9·533
10-15	3·0	—	—
15	3·0	—	—
16	1·0	1	10·000
17	2·7	2	7·500
18	3·3	5	15·000
19	40·3	19	4·711
10-20	53·3	27	5·063
20-25	374·0	401	10·722
25-30	292·7	248	8·474
30-35	106·3	110	10·345
35-40	31·0	32	10·323
40-45	5·3	4	7·500
45-50	·7	1	15·000
50-55	—	—	—
55 and upwards	—	—	—

No. 37.—1ST BENGAL FUSILIERS.

AVERAGE ANNUAL RATE of MORTALITY per Cent amongst the NON-COMMISSIONED OFFICERS and MEN of the 1ST BENGAL FUSILIERS, in the Ten Years 1847-56 at different PERIODS of SERVICE.

Period of Service.	Mean Annual Strength in 3 Years.	Deaths in the 10 Years 1847-56.	Average Annual Rate of Mortality per cent.
Total -	863·3	823	9·533
0-1 year	176·4	151	8·563
1-2 "	133·3	121	9·075
2-3 "	36·3	97	26·697
3-4 "	68·3	106	15·512
4-5 "	113·3	54	4·765
0-5 years	527·6	529	10·025
5-10 "	258·7	201	7·771
10-15 "	50·7	78	15·395
15-20 "	22·0	11	5·000
20 and upwards	4·3	4	9·231

No. 38.—2ND BENGAL FUSILIERS.

ANNUAL RATE of MORTALITY per Cent. of the NON-COMMISSIONED OFFICERS and MEN of the 2ND BENGAL FUSILIERS, in each of the Ten Years 1847-56.

Years ending August 31st.	Mean Strength	Deaths in each Year.	Annual Rate of Mortality per cent.
1846-7	714	41	5·742
1847-8	730·5	32	4·381
1848-9	820·5	145	17·672
1849-50	947	62	6·547
1850-1	1,032·5	32	3·099
1851-2	1,004	15	1·494
1852-3	994	55	5·533
1853-4	890·5	115	12·914
1854-5	754·5	206	27·303
1855-6	780	45	5·769
Average of the } 10 years	866·75	74·8	8·630

No. 39.—2ND BENGAL FUSILIERS.

AVERAGE ANNUAL RATE of MORTALITY amongst the NON-COMMISSIONED OFFICERS and MEN of the 2ND BENGAL FUSILIERS, in the Ten Years 1847-56, at different AGES.

Ages.	Mean Annual Strength in 3 Years.	Deaths in the 10 Years 1847-56.	Average Annual Rate of Mortality per cent.
Total -	865·00	748	8·647
10-15	·75	1	13·333
15	2·25	—	—
16	2·25	—	—
17	2·25	—	—
18	3·00	4	13·333
19	7·75	7	9·032
10-20	18·25	12	6·575
20-25	282·75	197	6·967
25-30	337·25	326	9·666
30-35	183·25	158	8·622
35-40	40·00	50	12·500
40-45	3·50	5	14·286
45-50	—	—	—
50-55	—	—	—
55 and upwards	—	—	—

No. 40.—2ND BENGAL FUSILIERS.

AVERAGE ANNUAL RATE OF MORTALITY per Cent. amongst the NON-COMMISSIONED OFFICERS and MEN of the 2ND BENGAL FUSILIERS, in the 10 Years 1847-56, at different PERIODS of SERVICE.

Period of Service.	Mean Annual Strength in 3 Years.	Deaths in the 10 Years 1847-56.	Average Annual Rate of Mortality per cent.
Total - -	865.00	748	8.647
0-1 year	118.75	126	10.611
1-2 "	122.25	80	6.544
2-3 "	64.50	35	5.426
3-4 "	50.50	28	5.545
4-5 "	40.50	63	15.556
0-5 years	396.50	332	8.373
5-10 "	358.75	281	7.833
10-15 "	68.00	115	13.068
15-20 "	21.50	18	8.372
20 & upwards	.25	2	80.000

No. 41.—3RD BENGAL EUROPEANS.

ANNUAL RATE OF MORTALITY per Cent. of the NON-COMMISSIONED OFFICERS and MEN of the 3RD BENGAL EUROPEANS, in each of the Years 1854 to 1856.

Years ending August 31.	Strength.	Deaths in each Year.	Annual Rate of Mortality per cent.
1846-7	—	—	—
1847-8	—	—	—
1848-9	—	—	—
1849-50	—	—	—
1850-1	—	—	—
1851-2	—	—	—
1852-3	—	—	—
1853-4	757	45	5.945
1854-5	904	35	3.872
1855-6	941	128	13.603
Average of the 3 years	867	69	7.994

No. 42.—3RD BENGAL EUROPEANS.

AVERAGE ANNUAL MORTALITY per Cent. of the NON-COMMISSIONED OFFICERS and MEN of the 3RD BENGAL EUROPEANS, in the Three Years 1854, 1855, and 1856, at different AGES.

Age.	Strength in the 3 Years 1854-5-6.	Deaths in the 3 Years 1854-5-6.	Average Annual Rate of Mortality per cent.
Total - -	2,602	208	7.99
10-15	3	—	—
15	3	—	—
16	5	—	—
17	—	—	—
18	5	7	?
19	209	7	3.35
10-20	225	14	6.22
20-25	1,637	142	8.67
25-30	515	39	7.57
30-35	143	9	6.29
35-40	74	4	5.41
40-45	8	—	—
45-50	—	—	—
50-55	—	—	—
55 and upwards	—	—	—

No. 43.—3RD BENGAL EUROPEANS.

AVERAGE ANNUAL MORTALITY per Cent. of the NON-COMMISSIONED OFFICERS and MEN of the 3RD BENGAL EUROPEANS, in the Three Years, 1854, 1855, and 1856, at different PERIODS of SERVICE.

Period of Service.	Strength in the 3 Years 1854-5-6.	Deaths in the 3 Years 1854-5-6.	Average Annual Rate of Mortality per cent.
Total - -	2,602	208	7.99
0-1 year	846	77	9.10
1-2 "	746	48	6.43
2-3 "	579	60	10.36
3-4 "	33	—	—
4-5 "	29	4	13.79
0-5 years	2,233	189	8.46
5-10 "	208	8	3.85
10-15 "	102	6	5.88
15-20 "	59	5	8.47
20 and upwards	—	—	—

No. 44.—TOWN MAJOR'S LIST.

ANNUAL RATE OF MORTALITY per Cent. of the NON-COMMISSIONED OFFICERS and MEN on the TOWN MAJOR'S LIST, in each of the Ten Years 1847-56.

Years ending August 31.	Mean Strength.	Deaths in the Year.	Annual Rate of Mortality per cent.
1846-7	607	43	7.084
1847-8	619	42	6.785
1848-9	638	57	8.934
1849-50	642	45	7.009
1850-1	679	45	6.627
1851-2	716	41	5.726
1852-3	724	60	8.287
1853-4	725	49	6.759
1854-5	719	38	5.285
1855-6	732	35	4.781
Average of the 10 years	680.1	45.5	6.690

No. 45.—TOWN MAJOR'S LIST.

AVERAGE ANNUAL RATE OF MORTALITY per Cent. of the NON-COMMISSIONED OFFICERS and MEN on the TOWN MAJOR'S LIST, in the Ten Years 1847-56, at different AGES.

Ages.	Mean Annual Strength in 3 Years.	Deaths in the 10 Years 1847-56.	Average Annual Rate of Mortality per cent.
Total - -	695.3	455	6.544
10-15	1.0	—	—
15	1.3	—	—
16	1.3	—	—
17	1.4	—	—
18	3.0	4	13.333
19	1.7	1	6.000
10-20	9.7	5	5.172
20-25	79.3	84	10.588
25-30	140.3	105	7.482
30-35	189.0	106	5.608
35-40	161.3	71	4.401
40-45	69.3	56	8.077
45-50	17.7	10	5.660
50-55	10.7	10	9.375
55 and upwards	18.0	8	4.444

No. 46.—TOWN MAJOR'S LIST.

AVERAGE ANNUAL RATE of MORTALITY per Cent. of the NON-COMMISSIONED OFFICERS and MEN on the TOWN MAJOR'S LIST, in the Ten Years 1847-56, at different PERIODS of SERVICE.

Period of Service.	Mean Annual Strength in 3 Years.	Deaths in the 10 Years 1847-56.	Average Annual Rate of Mortality per cent.
Total -	695.3	455	6.544
0-1 years -	21.0	64	30.476
1-2 " -	21.7	12	5.538
2-3 " -	24.6	18	7.297
3-4 " -	23.7	12	5.070
4-5 " -	23.7	15	6.338
0-5 years -	114.7	121	10.552
5-10 " -	174.3	96	5.507
10-15 " -	184.0	91	4.946
15-20 " -	128.0	73	5.703
20 and upwards	94.3	74	7.845

No. 47.—EUROPEAN PENSIONERS.

ANNUAL RATE of MORTALITY per Cent. of the NON-COMMISSIONED OFFICERS and MEN of the EUROPEAN PENSIONERS in each of the Ten Years 1847-56.

Years ending August 31.	Mean Strength.	Deaths in the Year.	Annual Rate of Mortality per cent.
1846-7	140	10	7.143
1847-8	133	12	9.023
1848-9	140	8	5.714
1849-50	161	8	4.969
1850-1	166	6	3.614
1851-2	164	11	6.707
1852-3	167	14	8.383
1853-4	171	11	6.433
1854-5	173	8	4.624
1855-6	175	10	5.714
Average of the } 10 years	159	9.8	6.164

No. 48.—EUROPEAN PENSIONERS.

AVERAGE ANNUAL RATE of MORTALITY per Cent. of the NON-COMMISSIONED OFFICERS and MEN of the EUROPEAN PENSIONERS in the Ten Years 1847-56, at different AGES.

Ages.	Mean Annual Strength in 3 Years.	Deaths in the 10 Years 1847-56.	Average Annual Rate of Mortality per cent.
Total -	157.7	98	6.216
20—	—	—	—
25—	.7	1	15.000
30—	1.7	2	12.000
35—	3.3	2	6.000
40—	17.3	11	6.346
45—	40.7	19	4.672
50—	36.0	19	5.278
55—	28.7	14	4.884
60—	11.0	10	9.091
65—	9.0	12	13.333
70—	5.3	7	13.125
75 and upwards	4.0	1	2.500

No. 49.—EUROPEAN PENSIONERS.

AVERAGE ANNUAL RATE of MORTALITY per Cent. of the NON-COMMISSIONED OFFICERS and MEN of the EUROPEAN PENSIONERS, in the Ten Years 1847-56, at different PERIODS of SERVICE.

Period of Service.	Mean Annual Strength in 3 Years.	Deaths in the 10 Years 1847-56.	Average Annual Rate of Mortality per cent.
Total -	157.7	98	6.216
5—	1.3	3	22.500
10—	1.6	—	—
15—	2.7	1	3.750
20—	27.0	12	4.444
25—	42.0	23	6.667
30—	31.7	16	5.053
35—	23.3	13	5.571
40—	11.7	8	6.837
45—	4.7	7	15.000
50 and upwards	11.7	10	8.571

No. 50.—EUROPEAN INVALIDS.

ANNUAL RATE of MORTALITY per Cent. of the NON-COMMISSIONED OFFICERS and MEN of the EUROPEAN INVALIDS, in each of the Ten Years 1847-56.

Years ending August 31.	Mean Strength.	Deaths in each Year.	Annual Rate of Mortality per cent.
1846-7	252	12	4.762
1847-8	253	20	7.905
1848-9	247	11	4.453
1849-50	234	11	4.701
1850-1	224	16	7.143
1851-2	216	9	4.167
1852-3	217	24	11.060
1853-4	215	10	4.651
1854-5	221	16	7.240
1855-6	233	32	13.734
Average of the } 10 years	231.2	16.1	6.964

No. 51.—EUROPEAN INVALIDS.

AVERAGE ANNUAL RATE of MORTALITY per Cent. of the NON-COMMISSIONED OFFICERS and MEN of the EUROPEAN INVALIDS, in the Ten Years 1847-56, at different AGES.

Ages.	Mean Annual Strength in 3 Years.	Deaths in the 10 Years, 1847-56.	Average Annual Rate of Mortality per cent.
Total -	236.7	161	6.803
20—	1.3	1	7.500
25—	5.7	—	—
30—	16.7	9	5.400
35—	41.3	30	7.258
40—	81.3	71	8.730
45—	51.3	30	5.844
50—	25.0	12	4.800
55—	8.7	5	5.769
60—	4.0	2	5.000
65—	1.0	1	10.000
70—	.4	—	—
75 and upwards	—	—	—

No. 52.—EUROPEAN INVALIDS.

AVERAGE ANNUAL RATE of MORTALITY per Cent. of the NON-COMMISSIONED OFFICERS and MEN of the EUROPEAN INVALIDS in the Ten Years 1847-56, at different PERIODS of SERVICE.

Period of Service.	Mean Annual Strength in 3 Years.	Deaths in the 10 Years 1847-56.	Average Annual Rate of Mortality per cent.
Total	236·7	161	6·803
5—	12·3	2	1·622
10—	12·3	16	12·973
15—	60·3	55	9·116
20—	85·7	56	6·537
25—	31·7	17	5·368
30—	17·3	7	4·038
35—	8·0	4	7·924
40—	6·0	2	3·333
45—	2·0	2	10·000
50 and upwards	1·1	—	—

No. 53.—EUROPEAN VETERANS.

ANNUAL RATE of MORTALITY per Cent. of the NON-COMMISSIONED OFFICERS and MEN of the EUROPEAN VETERANS in each of the Ten Years 1847-56.

Years ending August 31.	Mean Strength.	Deaths in each Year.	Annual Rate of Mortality per cent.
1846-7	104	7	6·731
1847-8	95	6	6·316
1848-9	88	4	4·545
1849-50	82	6	7·317
1850-1	76	3	3·947
1851-2	71	4	5·634
1852-3	68	7	10·294
1853-4	62	3	4·839
1854-5	49	3	6·122
1855-6	38	3	7·895
Average of the 10 years	73·3	4·6	6·276

No. 54.—EUROPEAN VETERANS.

AVERAGE ANNUAL RATE of MORTALITY per Cent. of the NON-COMMISSIONED OFFICERS and MEN of the EUROPEAN VETERANS in the Ten Years, 1847-56, at different AGES.

Ages.	Mean Annual Strength in 3 Years.	Deaths in the 10 Years 1847-56.	Average Annual Rate of Mortality per cent.
Total	76·7	46	6·000
20—	—	—	—
25—	—	—	—
30—	—	—	—
35—	1·3	1	7·500
40—	5·3	3	5·625
45—	8·0	6	7·500
50—	17·4	11	6·364
55—	16·8	11	6·600
60—	12·3	4	3·243
65—	7·3	4	5·455
70—	4·0	1	2·500
75 and upwards.	4·3	5	11·538

No. 55.—EUROPEAN VETERANS.

AVERAGE ANNUAL RATE of MORTALITY per Cent. of the NON-COMMISSIONED OFFICERS and MEN of the EUROPEAN VETERANS in the Ten Years 1847-56, at different PERIODS of SERVICE.

Period of Service.	Mean Annual Strength in 3 Years.	Deaths in the 10 Years 1847-56.	Average Annual Rate of Mortality per cent.
Total	76·7	46	6·000
5—	—	—	—
10—	·7	—	—
15—	·7	1	15·000
20—	5·7	5	8·824
25—	9·3	6	6·429
30—	16·0	12	7·500
35—	15·3	6	3·913
40—	17·3	8	4·615
45—	2·7	3	11·250
50 and upwards.	9·0	5	5·556

MADRAS.

No. 1.

TABLE showing the STRENGTH and DEATHS, in each of the Years 1846 to 1856, of the NON-COMMISSIONED OFFICERS and MEN of the EUROPEAN FORCES of the late EAST INDIA COMPANY, in the PRESIDENCY of MADRAS.

Years.	Madras Artillery.		1st Madras Fusiliers.		2nd European Light Infantry.		3rd Madras Europeans.		Europeans attached to Sappers and Miners.		Effective Supernumeraries.		European Veterans.		European Pensioners.		Total.	
	Strength on 1st January.	Deaths during the Year.	Strength on 1st January.	Deaths during the Year.	Strength on 1st January.	Deaths during the Year.	Strength on 1st January.	Deaths during the Year.	Strength on 1st January.	Deaths during the Year.	Strength on 1st January.	Deaths during the Year.	Strength on 1st January.	Deaths during the Year.	Strength on 1st January.	Deaths during the Year.	Strength on 1st January.	Deaths during the Year.
1846	1,828	89	799	17	862	21	—	—	49	2	281	14	229	8	440	43	4,488	194
1847	1,678	79	904	15	823	31	—	—	50	2	279	7	223	15	443	16	4,400	165
1848	1,883	49	1,058	20	1,056	28	—	—	60	1	277	5	213	17	465	22	5,012	142
1849	2,049	64	1,104	34	1,104	45	—	—	66	2	279	13	213	8	473	39	5,288	205
1850	1,881	78	1,038	23	998	25	—	—	57	1	280	12	229	9	456	19	4,939	167
1851	2,103	68	1,008	24	888	69	—	—	61	3	286	4	241	11	449	35	5,036	214
1852	2,264	106	1,026	66	1,041	20	—	—	61	5	291	13	249	21	442	28	5,374	259
1853	2,176	133	1,008	87	1,060	30	—	—	58	3	289	10	250	14	414	44	5,255	321
1854	2,242	97	931	69	977	32	281	79	59	2	290	7	234	18	382	29	5,396	333
1855	2,233	66	814	46	880	24	912	22	64	2	308	12	246	13	367	22	5,824	207
1856	2,063	57	752	25	941	28	897	15	75	5	317	8	264	8	360	28	5,669	174
Total	22,400	886	10,442	426	10,630	353	2,090	116	660	28	3,177	105	2,591	142	4,691	325	56,681	2,381

No. 2.

TABLE showing the MORTALITY per Cent., in each of the Years 1847 to 1856, amongst the NON-COMMISSIONED OFFICERS and MEN of the EUROPEAN FORCES of the late EAST INDIA COMPANY in the PRESIDENCY of MADRAS.

Years, ending 31st December.	Madras Artillery.		1st Madras Fusiliers.		2nd European Light Infantry.		3rd Madras Europeans.		Europeans attached to Sappers and Miners.		Effective Supernumeraries.		European Veterans.		European Pensioners.	
	Mortality per cent.	Station of Head-Quarters at the beginning and end of each Year.	Mortality per cent.	Station of Head-Quarters at the beginning and end of each Year.	Mortality per cent.	Station of Head-Quarters at the beginning and end of each Year.	Mortality per cent.	Station of Head-Quarters at the beginning and end of each Year.	Mortality per cent.	Station of Head-Quarters at the beginning and end of each Year.	Mortality per cent.	Station of Head-Quarters at the beginning and end of each Year.	Mortality per cent.	Station of Head-Quarters at the beginning and end of each Year.	Mortality per cent.	Station of Head-Quarters at the beginning and end of each Year.
1847	4.44	Saint Thomas's Mount.	1.53	{ Bellary Bellary }	3.30	{ Trichinopoly Trichinopoly }	—	—	3.64	{ Mercara Mercara }	2.52	{ ? ? }	6.88	{ ? ? }	3.52	Fort Saint George.
1848	2.49		1.85	{ Bellary Bellary }	2.59	{ Trichinopoly Trichinopoly }	—	—	1.59	{ Mercara Mercara }	1.80	{ ? ? }	7.98	{ ? ? }	4.69	
1849	3.26		3.17	{ Bellary ? }	4.28	{ Trichinopoly Secunderabad }	—	—	3.25	{ Mercara Mercara }	4.65	{ ? ? }	3.62	{ ? ? }	8.40	
1850	3.92		2.25	{ ? Bellary }	2.65	{ Secunderabad Secunderabad }	—	—	1.69	{ Mercara Mercara }	4.24	{ ? ? }	3.83	{ ? ? }	4.20	
1851	3.11		2.36	{ Bellary Pegue }	7.15	{ Secunderabad Secunderabad }	—	—	4.92	{ Mercara Prome }	1.39	{ ? ? }	4.49	{ Vizagapatam ? }	7.86	
1852	4.77		6.49	{ Pegue Tonghoo }	1.90	{ Secunderabad Secunderabad }	—	—	3.40	{ Prome Mercara }	4.48	{ ? ? }	3.42	{ ? ? }	6.54	
1853	6.02		3.97	{ Tonghoo Tonghoo }	2.95	{ Secunderabad Secunderabad }	—	—	5.13	{ Mercara Mercara }	3.45	{ Fort St. George Fort St. George }	5.79	{ ? ? }	11.06	
1854	4.34		7.91	{ Tonghoo Fort St. George }	3.45	{ Secunderabad Fort St. George }	13.24	{ Secunderabad Secunderabad }	3.25	{ Mercara ? }	2.34	{ Fort St. George Fort St. George }	7.50	{ Vizagapatam ? }	7.74	
1855	3.07		5.87	{ Fort St. George Fort St. George }	2.64	{ Fort St. George Tonghoo }	2.43	{ Secunderabad Secunderabad }	2.88	{ ? Dowlishweram }	3.84	{ Fort St. George ? }	5.10	{ ? ? }	6.05	
1856	2.85		3.29	{ Fort St. George Fort St. George }	2.97	{ Tonghoo Tonghoo }	1.71	{ Secunderabad Secunderabad }	6.71	{ Dowlishweram ? }	2.52	{ ? ? }	2.81	{ ? ? }	7.66	
verage Annual Mortality in the 10 Years	3.85	—	4.27	—	3.38	—	4.88	—	4.17	—	3.12	—	5.58	—	6.69	—

No. 3.—STRENGTH OF EFFECTIVES.*

TABLE showing the AGE and PERIOD of SERVICE in INDIA of NON-COMMISSIONED OFFICERS and MEN of the MADRAS ARTILLERY, 1ST FUSILIERS, 2ND EUROPEAN LIGHT INFANTRY, EUROPEANS attached to SAPPERS and MINERS, and EFFECTIVE SUPERNUMERARIES, on 1st January 1847, 1852, and 1856.

Age.	Total.	Period of Service.									
		Years.									
		Under 1 Year.	1	2	3	4	Under 5 Years.	5—	10—	15—	20 and upwards.
Total.	12,565	824	847	446	778	1,186	4,081	3,917	2,772	1,359	436
10-15	72	50	17	2	3	—	72	—	—	—	—
15	31	12	16	1	1	—	30	1	—	—	—
16	32	14	8	1	5	2	30	2	—	—	—
17	27	6	4	1	5	1	17	10	—	—	—
18	24	5	3	4	5	6	23	1	—	—	—
19	109	86	5	1	5	6	103	6	—	—	—
10-20	295	173	53	10	24	15	275	20	—	—	—
20—	2,224	539	583	276	309	227	1,934	276	14	—	—
25—	4,199	102	198	145	419	848	1,712	2,316	165	4	2
30—	3,171	10	13	15	21	91	150	1,170	1,736	110	5
35—	1,792	—	—	—	5	5	10	182	748	871	31
40—	674	—	—	—	—	—	—	3	101	332	238
45—	138	—	—	—	—	—	—	—	8	30	100
50—	43	—	—	—	—	—	—	—	—	7	36
55 and upwards	29	—	—	—	—	—	—	—	—	5	24

* Throughout the following tables relating to Madras, the EFFECTIVES comprise the Madras Artillery, 1st and 2nd Madras Europeans, the Europeans attached to the Sappers and Miners, and the Effective Supernumeraries (the 3rd Madras Europeans are excluded, unless otherwise stated, inasmuch as the regiment was not formed until 1854); the NON-EFFECTIVES comprise the European Pensioners and Veterans.

No. 4.—DEATHS OF EFFECTIVES.

TABLE showing the AGE and PERIOD of SERVICE in INDIA of NON-COMMISSIONED OFFICERS and MEN of the MADRAS ARTILLERY, 1ST FUSILIERS, 2ND EUROPEAN LIGHT INFANTRY, EUROPEANS attached to SAPPERS and MINERS, and EFFECTIVE SUPERNUMERARIES, during the Ten Years 1847-56.

Age.	Total.	Period of Service, Years.									
		Under 1 Year.	1	2	3	4	Under 5 Years.	5—	10—	15—	20 and upwards.
		Total.	1,655	203	115	109	75	81	583	460	399	150	63
10-15	3	1	1	1	—	—	3	—	—	—	—
15	1	—	1	—	—	—	1	—	—	—	—
16	—	—	—	—	—	—	—	—	—	—	—
17	1	—	—	—	—	1	1	—	—	—	—
18	4	1	—	1	—	—	2	2	—	—	—
19	6	5	—	—	1	—	6	—	—	—	—
10-20	15	7	2	2	1	1	13	2	—	—	—
20-25	355	164	74	59	36	11	344	11	—	—	—
25-30	466	30	36	46	37	61	210	239	17	—	—
30-35	439	2	2	2	1	6	13	174	236	16	—
35-40	243	—	1	—	—	2	3	33	119	81	7
40-45	102	—	—	—	—	—	—	1	24	47	30
45-50	24	—	—	—	—	—	—	—	1	6	17
50-55	6	—	—	—	—	—	—	—	1	—	5
55 and upwards	5	—	—	—	—	—	—	—	1	—	4

No. 5.—STRENGTH OF NON-EFFECTIVES.

TABLE showing the AGE and PERIOD of SERVICE in INDIA of NON-COMMISSIONED OFFICERS and MEN of the EUROPEAN VETERANS and EUROPEAN PENSIONERS, on the 1st January 1847, 1852, and 1856.

Age.	Total.	Period of Service, Years.											
		Under 5 Years.	5—	10—	15—	20—	25—	30—	35—	40—	45—	50—	55 and upwards.
		Total	1,981	4	9	32	333	494	496	288	170	77	52	11	15
20—	4	2	2	—	—	—	—	—	—	—	—	—	—
25—	10	1	7	1	1	—	—	—	—	—	—	—	—
30—	32	—	—	11	18	1	2	—	—	—	—	—	—
35—	215	1	—	15	187	7	4	1	—	—	—	—	—
40—	484	—	—	4	97	313	61	6	3	—	—	—	—
45—	529	—	—	1	28	138	297	64	1	—	—	—	—
50—	290	—	—	—	1	17	78	148	41	5	—	—	—
55—	151	—	—	—	—	9	20	33	63	21	5	—	—
60—	113	—	—	—	1	8	20	10	30	28	16	—	—
65—	78	—	—	—	—	1	10	18	19	11	16	3	—
70—	44	—	—	—	—	—	3	6	8	8	12	5	2
75 and upwards	31	—	—	—	—	—	1	2	5	4	8	3	13

No. 8.—NON-EFFECTIVES.

NUMBER OF DEATHS, DISCHARGES, and OTHER CASUALTIES amongst the NON-COMMISSIONED OFFICERS and MEN of the EUROPEAN VETERANS and EUROPEAN PENSIONERS, for the Ten Years 1847-56, at different PERIODS of SERVICE.

	Period of Service.												
	Total	Under 5 Years.	5—	10—	15—	20—	25—	30—	35—	40—	45—	50—	55 and upwards.
DEATHS	416	1	1	6	46	118	108	64	28	24	10	4	6
LEAVING THE CORPS	432	12	22	9	66	256	51	13	3	—	—	—	—
Pensioned	133	—	—	—	7	96	22	6	2	—	—	—	—
Invalided to Europe	261	12	22	7	54	141	21	4	—	—	—	—	—
Chunar, or other parts of India													
Sent to lunatic asylum	2	—	—	—	1	—	—	1	—	—	—	—	—
Discharged by purchase	2	—	—	—	—	—	—	—	1	—	—	—	—
Promoted	—	—	—	—	—	—	—	—	—	—	—	—	—
Transferred to Town Major's list	—	—	—	—	—	—	—	—	—	—	—	—	—
" to other corps	34	—	—	2	4	19	7	2	—	—	—	—	—
Deserted	—	—	—	—	—	—	—	—	—	—	—	—	—
Missing	—	—	—	—	—	—	—	—	—	—	—	—	—
Other causes	—	—	—	—	—	—	—	—	—	—	—	—	—
JOINING THE CORPS	—	—	—	—	—	—	—	—	—	—	—	—	—
Remanded from Town Major's list	—	—	—	—	—	—	—	—	—	—	—	—	—
From other corps	—	—	—	—	—	—	—	—	—	—	—	—	—
Enlisted in India	—	—	—	—	—	—	—	—	—	—	—	—	—
" in Europe	—	—	—	—	—	—	—	—	—	—	—	—	—
Rejoined from desertion	—	—	—	—	—	—	—	—	—	—	—	—	—
Entertained	—	—	—	—	—	—	—	—	—	—	—	—	—
Casualty not specified	—	—	—	—	—	—	—	—	—	—	—	—	—

No. 9.

TABLE showing the MEAN STRENGTH, DEATHS, and ANNUAL RATE of MORTALITY per Cent., in the Ten Years 1847-56, amongst the NON-COMMISSIONED OFFICERS and MEN of the EUROPEAN FORCES of the late EAST INDIA COMPANY in MADRAS.

Years ending Dec. 31st.	Mean Strength.*			Deaths in each Year.			Annual Rate of Mortality per cent.		
	Total.	Effectives.†	Non-Effectives.	Total.	Effectives.	Non-Effectives.	Total.	Effectives.	Non-Effectives.
1847	4,706	4,034	672	165	134	31	3.51	3.32	4.61
1848	5,150	4,468	682	142	103	39	2.76	2.31	5.72
1849	5,113.5	4,428	685.5	205	158	47	4.01	3.57	6.86
1850	4,987.5	4,300	687.5	167	139	28	3.35	3.23	4.07
1851	5,205	4,514.5	690.5	214	168	46	4.11	3.72	6.66
1852	5,314.5	4,637	677.5	259	210	49	4.87	4.53	7.23
1853	5,325.5	4,685.5	640	321	263	58	6.03	5.61	9.06
1854	5,610	4,995.5	614.5	333	286	47	5.94	5.73	7.65
1855	5,746.5	5,128	618.5	207	172	35	3.60	3.35	5.66
1856	5,622	4,972	650	174	138	36	3.09	2.78	5.54
Average of the 10 years	5,278.05	4,616.25	661.8	218.7	177.1	41.6	4.14	3.84	6.29

* To get the Mean Strength, add the Strength at the beginning of the year to the Strength at the end of the year, and divide by 2, thus:—Strength of Effectives on 1st January 1847 - - - 3,734
" " 1st January 1848 - - - 4,334

2)8,068

4,034 = Mean Strength in the year 1847.

The deaths occurred in the interval between the two enumerations, and are recorded in the Casualty Roll for 1847.

† The Effectives in this Table comprise the Madras Artillery, the 1st, 2nd, and 3rd Madras Europeans, the Europeans attached to the Sappers and Miners, and the Effective Supernumeraries. The Non-Effectives consist of the European Veterans and European Pensioners.

No. 10.

TABLE showing the STRENGTH, DEATHS, and AVERAGE ANNUAL RATE of MORTALITY per Cent., in the Ten Years, 1847-56, amongst the NON-COMMISSIONED OFFICERS and MEN of the EUROPEAN FORCES of the late EAST INDIA COMPANY in MADRAS, at different AGES.

Ages.	Strength.			Deaths.			Average Annual Rate of Mortality per cent.		
	Total.	Effectives.	Non-Effectives.	Total.	Effectives.	Non-Effectives.	Total.	Effectives.	Non-Effectives.
Total -	14,546	12,565	1,981	2,071	1,655	416	4.27	3.95	6.30
10-15	72	72	—	3	3	—	1.25	1.25	—
15	31	31	—	1	1	—	.97	.97	—
16	32	32	—	—	—	—	—	—	—
17	27	27	—	1	1	—	1.11	1.11	—
18	24	24	—	4	4	—	5.00	5.00	—
19	109	109	—	6	6	—	1.65	1.65	—
10-20	295	295	—	15	15	—	1.53	1.53	—
20-25	2,228	2,224	4	356	355	1	4.79	4.79	7.50
25-30	4,209	4,199	10	468	466	2	3.34	3.33	6.00
30-35	3,203	3,171	32	441	439	2	4.13	4.15	1.88
35-40	2,007	1,792	215	281	243	38	4.20	4.07	5.30
40-45	1,158	674	484	208	102	106	5.39	4.54	6.57
45-50	667	188	529	135	24	111	6.07	5.22	6.29
50-55	333	43	290	63	6	57	5.68	4.19	5.90
55 & upwards	446	29	417	104	5	99	7.00	5.17	7.12

No. 11.—EFFECTIVES.

AVERAGE ANNUAL RATE of MORTALITY per Cent., in the Ten Years 1847 to 1856, amongst the NON-COMMISSIONED OFFICERS and MEN of the EFFECTIVES of the EUROPEAN FORCES of the late EAST INDIA COMPANY in MADRAS, at different PERIODS of SERVICE.

Period of Service.	Mean Annual Strength in 3 Years.	Deaths in the 10 Years 1847-56.	Average Annual Rate of Mortality per cent.
Total -	4,188	1,655	3.95
0- 1 years	275	203	7.39
1- 2 "	282	115	4.07
2- 3 "	149	109	7.33
3- 4 "	259	75	2.89
4- 5 "	395	81	2.05
0- 5 "	1,360	583	4.29
5-10 "	1,306	460	3.52
10-15 "	924	399	4.32
15-20 "	453	150	3.31
20 and upwards	145	63	4.33

No. 12.—NON-EFFECTIVES.

AVERAGE ANNUAL RATE of MORTALITY per Cent., in the Ten Years 1847-56, amongst the NON-COMMISSIONED OFFICERS and MEN of the NON-EFFECTIVES of the EUROPEAN FORCES of the late EAST INDIA COMPANY in MADRAS, at different PERIODS of SERVICE.

Period of Service.	Mean Annual Strength in 3 Years.	Deaths in the 10 Years 1847-56.	Average Annual Rate of Mortality per cent.
Total -	661	416	6.30
0- 1 years	1	1	7.50
5-10 "	3	1	3.33
10-15 "	11	6	5.63
15-20 "	111	46	4.14
20-25 "	165	118	7.17
25-30 "	165	108	6.53
30-35 "	96	64	6.67
35-40 "	57	28	4.94
40-45 "	26	24	9.35
45-50 "	17	10	5.77
50-55 "	4	4	10.91
55 & upwards	5	6	12.00

No. 13.—EFFECTIVES.

AVERAGE ANNUAL RATE of MORTALITY per Cent., in the Ten Years 1847-56, amongst the NON-COMMISSIONED OFFICERS and MEN of the EFFECTIVES of the EUROPEAN FORCES of the late EAST INDIA COMPANY in MADRAS, at different AGES.

Ages.	Mean Annual Strength in 3 Years.	Deaths in the 10 Years 1847-56.	Average Annual Rate of Mortality per cent.
Total -	4,188	1,655	3.95
10-15	24	3	1.25
15	10	1	.97
16	11	—	—
17	9	1	1.11
18	8	4	5.00
19	36	6	1.65
10-20	98	15	1.53
20-25	741	355	4.79
25-30	1,400	466	3.33
30-35	1,057	439	4.15
35-40	597	243	4.07
40-45	225	102	4.54
45-50	46	24	5.22
50-55	14	6	4.19
55 and upwards	10	5	5.17

No. 14.—NON-EFFECTIVES.

AVERAGE ANNUAL RATE of MORTALITY per Cent., in the Ten Years 1847-56, amongst the NON-COMMISSIONED OFFICERS and MEN of the NON-EFFECTIVES of the EUROPEAN FORCES of the late EAST INDIA COMPANY in MADRAS, at different AGES.

Ages.	Mean Annual Strength in 3 Years.	Deaths in the 10 Years, 1847-56.	Average Annual Rate of Mortality per cent.
Total -	661	416	6.30
20-	1	1	7.50
25-	3	2	6.00
30-	11	2	1.88
35-	72	38	5.30
40-	161	106	6.57
45-	177	111	6.29
50-	97	57	5.90
55-	50	29	5.76
60-	38	20	5.31
65-	26	25	9.62
70-	15	12	8.18
75 and upwards	10	13	12.58

No. 15.—EFFECTIVES.

AVERAGE ANNUAL MORTALITY per Cent., at different AGES and at different PERIODS of SERVICE, amongst the NON-COMMISSIONED OFFICERS and MEN of the EFFECTIVES of the EUROPEAN FORCES of the late EAST INDIA COMPANY in MADRAS, during the Ten Years 1847-56.

Agea.	Years of Service.									
	Under 1 Year.	1	2	3	4	Under 5 Years.	5—	10—	15—	20 and upwards.
10-20	1.21	1.13	6.00	1.25	2.00	1.42	3.00	—	—	—
20-25	9.13	3.81	6.41	3.50	1.45	5.34	1.20	—	—	—
25-30	8.82	5.45	9.52	2.65	2.16	3.68	3.10	3.09	—	—
30-35	6.00	4.62	4.00	1.43	1.98	2.60	4.46	4.08	4.36	—
35-40	—	—	—	—	12.00	9.00	7.50	4.77	2.79	6.77
40-45	—	—	—	—	—	—	10.00	7.13	4.25	3.78
45-50	—	—	—	—	—	—	—	3.75	6.00	5.10
50-55	—	—	—	—	—	—	—	—	—	4.17
55 and upwards	—	—	—	—	—	—	—	—	—	5.00

No. 16.—NON-EFFECTIVES.

AVERAGE ANNUAL MORTALITY per Cent., at different AGES and at different PERIODS of SERVICE, amongst the NON-COMMISSIONED OFFICERS and MEN of the NON-EFFECTIVES of the EUROPEAN FORCES of the late EAST INDIA COMPANY in MADRAS, during the Ten Years 1847-56.

Ages.	Years of Service.											
	Under 5 Years.	5—	10—	15—	20—	25—	30—	35—	40—	45—	50—	55 and upwards.
20-25	15.00	—	—	—	—	—	—	—	—	—	—	—
25-30	—	4.29	—	30.00	—	—	—	—	—	—	—	—
30-35	—	—	5.45	—	—	—	—	—	—	—	—	—
35-40	—	—	6.00	4.33	30.00	7.50	—	—	—	—	—	—
40-45	—	—	7.50	4.02	7.28	7.38	5.00	—	—	—	—	—
45-50	—	—	—	5.36	5.22	6.46	7.03	30.00	—	—	—	—
50-55	—	—	—	—	15.88	7.31	4.66	4.39	—	—	—	—
55-60	—	—	—	—	—	1.50	11.82	4.29	8.57	—	—	—
60-65	—	—	—	—	3.75	4.50	6.00	2.00	8.57	3.75	—	—
65-70	—	—	—	—	30.00	15.00	6.67	7.89	8.18	9.38	10.00	—
70-75	—	—	—	—	—	—	20.00	11.25	15.00	2.50	—	—
75 and upwards	—	—	—	—	—	—	30.00	12.00	7.50	20.00	10.00	11.54

No. 17.—EFFECTIVES

AVERAGE ANNUAL MORTALITY per Cent., at different PERIODS of SERVICE, amongst the NON-COMMISSIONED OFFICERS and MEN of the EFFECTIVES of the EUROPEAN FORCES of the late EAST INDIA COMPANY in MADRAS, during the Ten Years 1847-56, showing the AGE on entering INDIA.

Period of Service.	Age on entering India.						
	10-20	15-25	20-30	25-35	30-40	35-45	40-50
0-5	1.42	5.34	3.68	2.60	9.00	—	—
5-10	1.32	3.10	4.46	7.50	10.00	—	—
10-15	3.09	4.08	4.77	7.13	3.75	—	—
15-20	4.36	2.79	4.25	6.00	—	—	—
20 and upwards	6.77	3.78	5.10	4.17	5.00	—	—

No. 18.—EFFECTIVES.

TABLE showing the PROPORTION per Cent. LEAVING the CORPS ANNUALLY, in the Ten Years, 1847-56, from— (1) ALL CAUSES, (2) DEATH, and (3) OTHER CAUSES, amongst the NON-COMMISSIONED OFFICERS and MEN of the EFFECTIVES of the EUROPEAN FORCES of the late EAST INDIA COMPANY in MADRAS, at different PERIODS of SERVICE.

Period of Service.	Proportion per cent. leaving the Corps annually.		
	From all Causes.	By Death.	Pensioned, invalided, discharged, transferred to other Corps, &c.
0-5 years	8.49	4.29	4.20
5-10 "	6.42	3.52	2.90
10-15 "	9.34	4.32	5.12
15-20 "	12.18	3.31	8.87
20 and upwards	31.10	4.33	26.77

No. 19.—NON-EFFECTIVES.

TABLE showing the PROPORTION per Cent. LEAVING the CORPS ANNUALLY, in the Ten Years, 1847-56, from— (1) ALL CAUSES, (2) DEATH, and (3) OTHER CAUSES, amongst the NON-COMMISSIONED OFFICERS and MEN of the NON-EFFECTIVES of the EUROPEAN FORCES of the late EAST INDIA COMPANY in MADRAS, at different PERIODS of SERVICE.

Period of Service.	Proportion per cent. leaving the Corps annually.		
	From all Causes.	By Death.	Pensioned, invalided, discharged, transferred to other Corps, &c.
0-5	80.65	7.50	73.15
5-10	76.66	3.33	73.33
10-15	14.07	5.63	8.44
15-20	10.09	4.14	5.95
20-25	22.72	7.17	15.55
25-30	9.61	6.53	3.08
30-35	8.02	6.67	1.35
35-40	5.47	4.94	.53
40-45	9.35	9.35	—
45-50	5.77	5.77	—
50-55	10.91	10.91	—
55 and upwards	12.00	12.00	—

No. 20.—EFFECTIVES.

TABLE showing the PROPORTION per Cent. LEAVING the CORPS ANNUALLY, from various CAUSES, in the Ten Years, 1847-56, amongst the NON-COMMISSIONED OFFICERS and MEN of the EFFECTIVES of the EUROPEAN FORCES of the late EAST INDIA COMPANY in MADRAS.

Casualties.	Period of Service, Years.				
	0—	5—	10—	15—	20 and upwards.
Leaving the corps from various causes.	4.20	2.90	5.12	8.87	26.77
Pensioned - - - -	.12	.15	.47	1.21	17.00
Invalided to Europe - -	.03	.05	.81	3.71	3.99
Invalided (India) - - -	—	—	—	—	—
Sent to lunatic asylum - -	.03	.07	.02	.02	—
Discharged by purchase - -	.32	.30	.08	.04	—
Discharged (time expired or otherwise).	1.12	1.20	1.47	1.26	.14
Promoted - - - -	.01	.02	.04	.51	3.78
Transferred to Town Major's list.	—	—	—	—	—
Transferred to other corps -	2.13	.99	2.19	2.12	1.86
Deserted - - - -	.43	.12	.04	—	—
Missing - - - -	.01	—	—	—	—
Other causes - - - -	—	—	—	—	—

No. 21.—NON-EFFECTIVES.

TABLE showing the PROPORTION per Cent. LEAVING the CORPS from various CAUSES ANNUALLY, in the Ten Years 1847-56, amongst the NON-COMMISSIONED OFFICERS and MEN of the NON-EFFECTIVES of the EUROPEAN FORCES of the late EAST INDIA COMPANY in MADRAS.

Casualties.	Period of Service, Years.								
	Total.	Under 5.	5—	10—	15—	20—	25—	30—	35—
Leaving the corps from various causes - - - -	6.54	73.15	73.33	8.44	5.95	15.55	3.08	1.35	.53
Pensioned - - - -	2.01	—	—	—	.63	5.83	1.33	.62	.35
Invalided to Europe - - - -	3.96	73.15	73.33	6.56	4.87	8.57	1.27	.42	—
Invalided (India) - - - -	—	—	—	—	—	—	—	—	—
Sent to lunatic asylum - - - -	.03	—	—	—	.09	—	—	.10	—
Discharged by purchase - - - -	—	—	—	—	—	—	—	—	—
Discharged (time expired or otherwise) - - - -	.03	—	—	—	—	—	.06	—	.18
Promoted - - - -	—	—	—	—	—	—	—	—	—
Transferred to Town Major's list - - - -	—	—	—	—	—	—	—	—	—
Transferred to other corps - - - -	.51	—	—	1.88	.36	1.15	.42	.21	—
Deserted - - - -	—	—	—	—	—	—	—	—	—
Missing - - - -	—	—	—	—	—	—	—	—	—
Other causes - - - -	—	—	—	—	—	—	—	—	—

No. 22.—MADRAS ARTILLERY.

TABLE showing the MEAN STRENGTH, DEATHS, and ANNUAL RATE of MORTALITY per Cent. of the NON-COMMISSIONED OFFICERS and MEN of the MADRAS ARTILLERY, in the Ten Years 1847-56.

Years ending December 31.	Mean Annual Strength.	Deaths in each Year.	Annual of Mortality per cent.
1847	1,780.5	79	4.44
1848	1,966	49	2.49
1849	1,965	64	3.26
1850	1,992	78	3.92
1851	2,183.5	68	3.11
1852	2,220	106	4.77
1853	2,209	133	6.02
1854	2,237.5	97	4.34
1855	2,148	66	3.07
1856	2,001	57	2.85
Average of the 10 years	2,070.25	79.7	3.85

No. 23.—MADRAS ARTILLERY.

AVERAGE ANNUAL RATE of MORTALITY per Cent. amongst the NON-COMMISSIONED OFFICERS and MEN of the MADRAS ARTILLERY, at different AGES, in the Ten Years 1847-56.

Ages.	Mean Annual Strength in 3 Years.	Deaths in the 10 Years 1847-56.	Average Annual Rate of Mortality per cent.
Total - - - -	2,001.7	797	3.98
10-15	13.0	3	2.31
15	7.4	—	—
16	7.0	—	—
17	7.3	1	1.36
18	5.8	3	5.68
19	7.7	1	1.30
10-20	47.7	8	1.68
20-25	425.0	215	5.06
25-30	679.3	228	3.36
30-35	455.0	170	3.74
35-40	276.3	115	4.16
40-45	104.7	50	4.78
45-50	11.0	9	8.18
50-55	2.0	1	5.00
55 and upwards	0.7	1	15.00

No. 24.—MADRAS ARTILLERY.

AVERAGE ANNUAL RATE of MORTALITY per Cent. amongst the NON-COMMISSIONED OFFICERS and MEN of the MADRAS ARTILLERY, at different PERIODS of SERVICE, in the Ten Years 1847-56.

Period of Service.	Mean Annual Strength in 3 Years.	Deaths in the 10 Years, 1847-56.	Average Annual Rate of Mortality per cent.
Total -	2,002	797	3.98
0-1 year	113	119	10.56
1-2	240	76	3.18
2-3	106	75	7.05
3-4	167	44	2.63
4-5	207	44	2.12
0-5 years	893	358	4.30
5-10	560	189	3.38
10-15	352	137	3.89
15-20	204	89	4.36
20 and upwards	53	24	4.56

No. 25.—1ST MADRAS EUROPEANS.

TABLE showing the MEAN STRENGTH, DEATHS, and ANNUAL RATE of MORTALITY per Cent. of the NON-COMMISSIONED OFFICERS and MEN of the 1ST MADRAS EUROPEANS, in the Ten Years 1847-56.

Years ending December 31.	Mean Annual Strength.	Deaths in each Year.	Annual Rate of Mortality per cent.
1847	981	15	1.53
1848	1,081	20	1.85
1849	1,071	34	3.17
1850	1,023	23	2.25
1851	1,017	24	2.36
1852	1,017	66	6.49
1853	969.5	87	8.97
1854	872.5	69	7.91
1855	783	46	5.87
1856	760	25	3.29
Average of the 10 years	957.50	409	4.27

No. 26.—1ST MADRAS EUROPEANS.

AVERAGE ANNUAL RATE of MORTALITY per Cent. amongst the NON-COMMISSIONED OFFICERS and MEN of the 1ST MADRAS EUROPEANS, at different AGES, in the Ten Years 1847-56.

Ages.	Mean Annual Strength in 3 Years.	Deaths in the 10 Years 1847-56.	Average Annual Rate of Mortality per cent.
Total -	894	409	4.57
10-15	5.7	—	—
15	.7	1	15.00
16	1.3	—	—
17	1.3	—	—
18	2	1	5.00
19	21	1	.48
10-20	32	3	.94
20-25	150.3	48	3.19
25-30	296	131	4.43
30-35	251.7	138	5.48
35-40	128.7	67	5.21
40-45	31	21	6.77
45-50	3	1	3.33
50-55	1.3	—	—
55 and upwards	—	—	—

No. 27.—1ST MADRAS EUROPEANS.

AVERAGE ANNUAL RATE of MORTALITY per Cent. amongst the NON-COMMISSIONED OFFICERS and MEN of the 1ST MADRAS EUROPEANS, at different PERIODS of SERVICE, in the Ten Years 1847-56.

Period of Service.	Mean Annual Strength in 3 Years.	Deaths in the 10 Years 1847-56.	Average Annual Rate of Mortality per cent.
Total -	894	409	4.57
0-1 years	74.7	31	4.15
1-2 "	12	14	11.67
2-3 "	33.3	19	5.70
3-4 "	45.3	13	2.87
4-5 "	78	12	1.54
0-5 years	243.3	89	3.66
5-10 "	340.3	164	4.82
10-15 "	229	128	5.59
15-20 "	73.3	25	3.41
20 and upwards	8	3	3.75

No. 28.—2ND MADRAS EUROPEANS.

TABLE showing the MEAN STRENGTH, DEATHS, and ANNUAL RATE of MORTALITY per Cent. of the NON-COMMISSIONED OFFICERS and MEN of the 2ND MADRAS EUROPEANS, in the Ten Years 1847-56.

Years ending December 31.	Mean Annual Strength.	Deaths in each Year.	Annual Rate of Mortality per cent.
1847	939.5	31	3.30
1848	1,080	28	2.59
1849	1,051	45	4.28
1850	943	25	2.65
1851	964.5	69	7.15
1852	1,050.5	20	1.90
1853	1,018.5	30	2.95
1854	928.5	32	3.45
1855	910.5	24	2.64
1856	941.5	28	2.97
Average of the 10 years	962.75	332	3.38

No. 29.—2ND MADRAS EUROPEANS.

AVERAGE ANNUAL RATE of MORTALITY per Cent. amongst the NON-COMMISSIONED OFFICERS and MEN of the 2ND MADRAS EUROPEANS, at different AGES, in the Ten Years 1847-56.

Ages.	Mean Annual Strength in 3 Years.	Deaths in the 10 Years 1847-56.	Average Annual Rate of Mortality per cent.
Total -	935	332	3.55
10-15	5.8	—	—
15	2.3	—	—
16	2.3	—	—
17	.4	—	—
18	.7	—	—
19	7.7	4	5.22
10-20	18.7	4	2.14
20-25	149.3	85	5.69
25-30	380	94	2.47
30-35	272.7	103	3.78
35-40	98.3	39	3.97
40-45	15.3	6	3.91
45-50	.7	1	15.00
50-55	—	—	—
55 and upwards	—	—	—

No. 30.—2ND MADRAS EUROPEANS.

AVERAGE ANNUAL RATE of MORTALITY per Cent. amongst the NON-COMMISSIONED OFFICERS and MEN of the 2ND MADRAS EUROPEANS, at different PERIODS of SERVICE, in the Ten Years 1847-56.

Period of Service.	Mean Annual Strength in 3 Years.	Deaths in the 10 Years 1847-56.	Average Annual Rate of Mortality per cent.
Total	935	332	3.55
0-1 years	83	49	5.90
1-2 "	19.7	22	11.19
2-3 "	1.3	14	?
3-4 "	38	17	4.47
4-5 "	101	23	2.18
0-5 years	243	124	5.10
5-10 "	359.3	87	2.42
10-15 "	256.7	105	4.09
15-20 "	75.7	16	2.11
20-25 "	.3	—	—

No. 31.—3RD MADRAS EUROPEANS.

TABLE showing the MEAN STRENGTH, DEATHS, and ANNUAL RATE of MORTALITY per Cent. of the NON-COMMISSIONED OFFICERS and MEN of the 3RD MADRAS EUROPEANS, in the Three Years 1854-56.

Years ending Dec. 31st.	Mean Annual Strength.	Deaths in each Year.	Annual Rate of Mortality per cent.
1847	—	—	—
1848	—	—	—
1849	—	—	—
1850	—	—	—
1851	—	—	—
1852	—	—	—
1853	—	—	—
1854	596.5	79	13.24
1855	904.5	22	2.43
1856	878	15	1.71
Average of the 3 years	793	38.7	4.88

No. 32.—3RD MADRAS EUROPEANS.

AVERAGE ANNUAL RATE of MORTALITY per Cent. amongst the NON-COMMISSIONED OFFICERS and MEN of the 3RD MADRAS EUROPEANS, at different AGES, in the Three Years 1854-56.

Ages.	Mean Annual Strength in 3 Years.	Deaths in the 3 Years 1854-56.	Average Annual Rate of Mortality per cent.
Total	696.7	101	4.83
10-15	13.0	1	2.56
15	4.6	—	—
16	3.0	—	—
17	2.7	—	—
18	1.7	5	?
19	61.7	12	6.49
10-20	86.7	18	6.92
20-25	472.0	59	4.17
25-30	80.3	24	9.96
30-35	47.0	—	—
35-40	10.7	—	—
40-45	—	—	—
45-50	—	—	—
50-55	—	—	—
55 and upwards	—	—	—

No. 33.—3RD MADRAS EUROPEANS.

AVERAGE ANNUAL RATE of MORTALITY per Cent. amongst the NON-COMMISSIONED OFFICERS and MEN of the 3RD MADRAS EUROPEANS, at different PERIODS of SERVICE, in the Three Years 1854-56.

Period of Service.	Mean Annual Strength in the 3 Years.	Deaths in the 3 Years 1854-56.	Annual Rate of Mortality per cent.
Total	697	101	4.83
0-1 year	292	84	9.60
1-2 "	277	17	2.05
2-3 "	70	—	—
3-4 "	—	—	—
4-5 "	2	—	—
0-5 year	641	101	5.25
5-10 "	14	—	—
10-15 "	34	—	—
15-20 "	8	—	—
20 and upwards	—	—	—

No. 34.—MADRAS EUROPEANS ATTACHED TO SAPPERS AND MINERS.

TABLE showing the MEAN STRENGTH, DEATHS, and ANNUAL RATE of MORTALITY per Cent. of the NON-COMMISSIONED OFFICERS and MEN of the MADRAS EUROPEANS attached to SAPPERS and MINERS, in the Ten Years 1847-56.

Years ending December 31st.	Mean Annual Strength.	Deaths in each Year.	Annual Rate of Mortality per cent.
1847	55	2	3.64
1848	63	1	1.59
1849	61.5	2	3.25
1850	59	1	1.69
1851	61	3	4.92
1852	59.5	5	8.40
1853	58.5	3	5.13
1854	61.5	2	3.25
1855	69.5	2	2.88
1856	74.5	5	6.71
Average of the 10 years	62.3	2.6	4.17

No. 35.—MADRAS EUROPEANS ATTACHED TO SAPPERS AND MINERS.

AVERAGE ANNUAL RATE of MORTALITY per Cent. amongst the NON-COMMISSIONED OFFICERS and MEN of the MADRAS EUROPEANS attached to SAPPERS and MINERS, in the Ten Years 1847-56, at different AGES.

Ages.	Mean Annual Strength in 3 Years.	Deaths in the 10 Years 1847-56.	Average Annual Rate of Mortality per cent.
Total	62.0	26	4.19
10-15	—	—	—
15	—	—	—
16	—	—	—
17	—	—	—
18	—	—	—
19	—	—	—
10-20	—	—	—
20-25	14.3	6	4.19
25-30	25.0	10	4.00
30-35	15.7	6	3.83
35-40	6.3	4	6.82
40-45	4	—	—
45-50	3	—	—
50-55	—	—	—
55 and upwards	—	—	—

No. 36.—MADRAS EUROPEANS ATTACHED TO SAPPERS AND MINERS.

AVERAGE ANNUAL RATE of MORTALITY per Cent. amongst the NON-COMMISSIONED OFFICERS and MEN of the MADRAS EUROPEANS attached to SAPPERS and MINERS, in the Ten Years 1847-56, at different PERIODS of SERVICE.

Period of Service.	Mean Annual Strength in 3 Years.	Deaths in the 10 Years 1847-56.	Average Annual Rate of Mortality per cent.
Total	62'0	26	4'19
Year.			
0-1	4'3	4	9'23
1-2	11'3	3	2'65
2-3	5'1	—	—
3-4	6'0	1	1'67
4-5	7'0	3	4'50
0-5	33'7	11	3'27
5-10	18'7	12	6'43
10-15	8'3	3	3'60
15-20	1'0	—	—
20 and upwards	3	—	—

No. 37.—MADRAS EFFECTIVE SUPERNUMERARIES.

TABLE showing the MEAN STRENGTH, DEATHS, and ANNUAL RATE of MORTALITY per Cent. of the NON-COMMISSIONED OFFICERS and MEN of the MADRAS EFFECTIVE SUPERNUMERARIES, in the Ten Years 1847-56.

Years ending December 31st.	Mean Annual Strength.	Deaths in each Year.	Annual Rate of Mortality per cent.
1847	278	7	2'52
1848	278	5	1'80
1849	279'5	13	4'65
1850	283	12	4'24
1851	288'5	4	1'39
1852	290	13	4'48
1853	289'5	10	3'45
1854	299	7	2'34
1855	312'5	12	3'84
1856	317	8	2'52
Average of the 10 years	291'5	9'1	3'12

No. 38.—MADRAS EFFECTIVE SUPERNUMERARIES.

AVERAGE ANNUAL RATE of MORTALITY per Cent. amongst the NON-COMMISSIONED OFFICERS and MEN of the MADRAS EFFECTIVE SUPERNUMERARIES, at different AGES, in the Ten Years 1847-56.

Ages.	Mean Annual Strength in 3 Years.	Deaths in the 10 Years 1847-56.	Average Annual Rate of Mortality per cent.
Total	295'7	91	3'08
Years.			
10-15	—	—	—
15	—	—	—
16	—	—	—
17	—	—	—
18	—	—	—
19	—	—	—
10-20	—	—	—
20-25	2'3	1	4'29
25-30	19'3	3	1'55
30-35	62'0	22	3'55
35-40	87'7	18	2'05
40-45	73'3	25	3'41
45-50	31'0	13	4'19
50-55	11'0	5	4'55
55 and upwards	9'0	4	4'44

No. 39.—MADRAS EFFECTIVE SUPERNUMERARIES.

AVERAGE ANNUAL RATE of MORTALITY per Cent. amongst the NON-COMMISSIONED OFFICERS and MEN of the MADRAS EFFECTIVE SUPERNUMERARIES, at different PERIODS of SERVICE, in the Ten Years 1847-56.

Period of Service.	Mean Annual Strength in 3 Years.	Deaths in the 10 Years 1847-56.	Average Annual Rate of Mortality per cent.
Total	295'7	91	3'08
Years.			
0-1	—	—	—
1-2	—	—	—
2-3	2'3	1	4'29
3-4	2'7	—	—
4-5	2'3	—	—
0-5	7'3	1	1'36
5-10	27'7	8	2'89
10-15	78'0	26	3'33
15-20	98'7	20	2'03
20 and upwards	84'0	36	4'29

No. 40.—MADRAS EUROPEAN PENSIONERS.

TABLE showing the MEAN STRENGTH, DEATHS, and ANNUAL RATE of MORTALITY per Cent. of the NON-COMMISSIONED OFFICERS and MEN of the MADRAS EUROPEAN PENSIONERS, in the Ten Years 1847-56.

Years ending December 31st.	Mean Annual Strength.	Deaths in each Year.	Annual Rate of Mortality per cent.
1847	454	16	3'52
1848	469	22	4'69
1849	464'5	39	8'40
1850	452'5	19	4'20
1851	445'5	35	7'86
1852	428	28	6'54
1853	398	44	11'06
1854	374'5	29	7'74
1855	363'5	22	6'05
1856	365'5	28	7'66
Average of the 10 years	421'5	28'2	6'69

No. 41.—MADRAS EUROPEAN PENSIONERS.

AVERAGE ANNUAL RATE of MORTALITY per Cent. amongst the NON-COMMISSIONED OFFICERS and MEN of the MADRAS EUROPEAN PENSIONERS, at different AGES, in the Ten Years 1847-56.

Ages.	Mean Annual Strength in 3 Years.	Deaths in the 10 Years 1847-56.	Average Annual Rate of Mortality per cent.
Total	415'0	282	6'80
20—	1'0	1	10'00
25—	1'7	1	6'00
30—	4'3	2	4'69
35—	24'0	14	5'83
40—	82'7	62	7'50
45—	107'0	75	7'01
50—	71'7	37	5'16
55—	40'3	24	5'95
60—	34'0	18	5'29
65—	24'0	24	10'00
70—	14'3	12	8'37
75 and upwards	10'0	12	12'00

No. 42.—EUROPEAN PENSIONERS.

AVERAGE ANNUAL RATE of MORTALITY per Cent. amongst the NON-COMMISSIONED OFFICERS and MEN of the MADRAS EUROPEAN PENSIONERS, at different PERIODS of SERVICE, in the Ten Years 1847-56.

Period of Service.	Mean Annual Strength in 3 Years.	Deaths in the 10 Years, 1847-56.	Average Annual Rate of Mortality per cent.
Total - -	415.0	282	6.80
0-5 years.	1.0	1	10.00
5-10 "	1.7	1	6.00
10-15 "	5.3	4	7.50
15-20 "	32.3	14	4.33
20-25 "	93.7	69	7.37
25-30 "	112.3	79	7.03
30-35 "	74.8	48	6.46
35-40 "	48.0	26	5.43
40-45 "	22.7	23	10.15
45-50 "	16.0	10	6.25
50-55 "	3.0	3	10.00
55 and upwards	4.7	4	8.57

No. 43.—EUROPEAN VETERANS.

TABLE showing the MEAN STRENGTH, DEATHS, and ANNUAL RATE of MORTALITY per Cent. of the NON-COMMISSIONED OFFICERS and MEN of the MADRAS EUROPEAN VETERANS, in the Ten Years 1847-56.

Years ending December 31st.	Mean Annual Strength.	Deaths in each Year.	Annual Rate of Mortality per cent.
1847	218	15	6.88
1848	213	17	7.98
1849	221	8	3.62
1850	235	9	3.83
1851	245	11	4.49
1852	249.5	21	8.42
1853	242	14	5.79
1854	240	18	7.50
1855	255	13	5.10
1856	284.5	8	2.81
Average of the 10 years }	240.3	13.4	5.58

No. 44.—EUROPEAN VETERANS.

AVERAGE ANNUAL RATE of MORTALITY per Cent. amongst the NON-COMMISSIONED OFFICERS and MEN of the MADRAS EUROPEAN VETERANS, at different AGES, in the Ten Years 1847-56.

Ages.	Mean Annual Strength in 3 Years.	Deaths in the 10 Years 1847-56.	Average Annual Rate of Mortality per cent.
Total - -	245.3	134	5.46
20—	.3	—	—
25—	1.7	1	6.00
30—	6.3	—	—
35—	47.7	24	5.03
40—	78.7	44	5.59
45—	69.3	36	5.19
50—	25.0	20	8.00
55—	10.0	5	5.00
60—	3.7	2	5.45
65—	2.0	1	5.00
70—	.3	—	—
75 and upwards	.3	1	30.00

No. 45.—EUROPEAN VETERANS.

AVERAGE ANNUAL RATE of MORTALITY per Cent. amongst the NON-COMMISSIONED OFFICERS and MEN of the MADRAS EUROPEAN VETERANS, at different PERIODS of SERVICE, in the Ten Years 1847-56.

Period of Service.	Mean Annual Strength in 3 Years.	Deaths in the 10 Years 1847-56.	Average Annual Mortality per cent.
Total - -	245.3	134	5.46
0-5 years	.3	—	—
5-10 "	1.3	—	—
10-15 "	5.3	2	3.75
15-20 "	78.7	32	4.07
20-25 "	71.0	49	6.90
25-30 "	53.0	29	5.47
30-35 "	21.7	16	7.38
35-40 "	8.7	2	2.31
40-45 "	3.0	1	3.33
45-50 "	1.3	—	—
50-55 "	.7	1	15.00
55 and upwards	.3	2	60.00

BOMBAY.

No. 1.

TABLE showing the STRENGTH and DEATHS in each of the Years 1845 to 1849,* and 1851 to 1856, of the NON-COMMISSIONED OFFICERS and MEN of the EUROPEAN FORCES of the late EAST INDIA COMPANY in the PRESIDENCY of BOMBAY.

Years ending 30th Sept.	Bombay Artillery.		1st Bombay Europeans.		2nd Bombay Europeans.		3rd Bombay Europeans.		Town Major's Non-Effective List.		Total.	
	Strength on 30th Sept.	Deaths during the Year ending 30th Sept.	Strength on 30th Sept.	Deaths during the Year ending 30th Sept.	Strength on 30th Sept.	Deaths during the Year ending 30th Sept.	Strength on 30th Sept.	Deaths during the Year ending 30th Sept.	Strength on 30th Sept.	Deaths during the Year ending 30th Sept.	Strength on 30th Sept.	Deaths during the Year ending 30th Sept.
1845	1,132	61	731	21	754	45	—	—	337	20	2,954	147
1846	1,138	103	669	113	777	33	—	—	368	25	2,952	274
1847	1,335	44	931	21	701	52	—	—	372	15	3,339	132
1848	1,327	81	875	34	1,039	20	—	—	363	8	3,604	93
1849	1,360	97	974	62	905	21	—	—	379	23	3,618	203
1850*	*	*	*	*	*	*	*	*	*	*	*	*
1851	1,461	54	1,053	25	1,048	34	—	—	353	11	3,915	124
1852	1,503	41	1,052	20	986	38	—	—	360	20	3,901	119
1853	1,527	39	972	21	915	30	—	—	366	6	3,780	96
1854	1,507	75	798	34	769	20	551	14	378	23	4,003	166
1855	1,471	66	861	20	915	26	847	8	383	13	4,477	133
1856	1,451	44	975	17	905	26	819	10	419	16	4,569	113
Total -	15,212	655	9,891	388	9,714	345	2,217	32	4,078	180	41,112	1,600

* At the time this Table was made, the Muster and Casualty Rolls for the year ending September 30th, 1850, could not be found.

No. 2.

TABLE showing the MORTALITY per Cent. in each of the Years 1846 to 1849,* and 1851 to 1856, of the NON-COMMISSIONED OFFICERS and MEN of the EUROPEAN FORCES of the late EAST INDIA COMPANY in the PRESIDENCY of BOMBAY.

Years.	Bombay Artillery.		1st Bombay Europeans.		2nd Bombay Europeans.		3rd Bombay Europeans.		Town Major's Non-Effective List.		Total.
	Mortality per cent.	Station of Head-Quarters at the beginning and end of each Year.	Mortality per cent.	Station of Head-Quarters at the beginning and end of each Year.	Mortality per cent.	Station of Head-Quarters at the beginning and end of each Year.	Mortality per cent.	Station of Head-Quarters at the beginning and end of each Year.	Mortality per cent.	Station of Head-Quarters at the beginning and end of each Year.	
1846	9.07	Poonah, Ahmednuggur, and Bombay.	16.14	{ Kurrachee	4.31	{ Belgaum	—	—	7.09	Bombay.	9.28
1847	8.56		{ Kurrachee	7.04	{ Belgaum	—	—	4.05	4.20		
1848	2.33		{ Kurrachee	2.30	{ Aden	—	—	2.18	2.68		
1849	7.22		{ Kurrachee	2.16	{ Aden	—	—	6.20	5.62		
1850*	*		{ Peshawur	*	{ Aden	*	*	*	*		
1851	3.83		{ ?	3.48	{ ?	—	—	3.01	3.29		
1852	2.77		{ Poona	3.74	{ Belgaum	—	—	5.61	3.05		
1853	2.57		{ Poona	3.16	{ Belgaum	—	—	1.65	2.50		
1854	4.94		{ Aden	2.38	{ Kurrachee	2.54	Poonah.	6.18	4.27		
1855	4.43		{ Kurrachee	2.41	{ Hyderabad	.94		3.42	3.14		
1856	8.01	{ Kurrachee	1.85	{ Hyderabad	1.22	3.99		2.50			
Average Annual Mortality per cent.	4.27	—	4.06	—	3.38	—	1.44	—	4.32	—	3.89

* At the time this Table was made the Muster and Casualty Rolls for the year ending September 30th, 1850, could not be found.

No. 6.—DEATHS OF EFFECTIVES.

TABLE showing the AGE and PERIOD of SERVICE of the NON-COMMISSIONED OFFICERS and MEN of the BOMBAY ARTILLERY and the 1ST and 2ND BOMBAY EUROPEANS, for the Ten Years 1846-49 and 1851-56.

Age.	Total.	Period of Service.													
		Months.					Years.								
		0—	3—	6—	9—	Total under 1 Year.	1	2	3	4	Total under 5 Years.	5—	10—	15—	20 and upwards.
Total	1,261	16	25	60	16	117	118	105	101	96	537	432	212	63	17
10-15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
17	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
18	3	—	1	—	—	1	—	—	1	—	2	—	—	—	—
19	9	—	2	4	2	8	—	—	—	—	8	1	—	—	—
10-20	13	—	3	4	2	9	—	—	1	—	10	3	—	—	—
20-25	363	14	17	39	10	60	82	69	45	27	303	80	—	—	—
25-30	442	2	4	15	4	25	35	33	50	61	204	218	20	—	—
30-35	303	—	1	2	—	3	1	3	4	8	19	135	145	4	—
35-40	112	—	—	—	—	—	—	—	—	—	—	16	45	46	5
40-45	27	—	—	—	—	—	—	—	1	—	1	—	2	13	11
45-50	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1
50-55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
55 and upwards	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

No. 7.—STRENGTH OF NON-EFFECTIVES.

TABLE showing the AGE and PERIOD of SERVICE of NON-COMMISSIONED OFFICERS and MEN on the TOWN MAJOR'S NON-EFFECTIVE LIST, for the Three Years 1847, 1852, and 1856.

Age.	Total.	Period of Service.													
		Months.					Years.								
		0—	3—	6—	9—	Total under 1 Year.	1	2	3	4	Total under 5 Years.	5—	10—	15—	20 and upwards.
Total	1,151	1	2	4	6	13	47	78	61	50	249	309	195	193	205
10-15	2	—	—	—	—	—	—	2	—	—	2	—	—	—	—
15	5	—	—	—	—	—	4	1	—	—	5	—	—	—	—
16	9	—	—	—	—	—	2	5	—	—	9	—	—	—	—
17	4	—	—	—	—	—	1	2	1	—	4	—	—	—	—
18	7	—	—	—	—	—	—	3	2	—	7	—	—	—	—
19	5	—	—	—	—	—	—	1	2	—	5	—	—	—	—
10-20	32	—	—	—	5	5	6	14	5	2	32	—	—	—	—
20-25	90	1	—	1	1	3	29	20	11	6	69	21	—	—	—
25-30	256	—	1	3	—	4	11	33	32	30	110	136	9	1	—
30-35	283	—	—	—	—	—	1	10	11	8	30	131	101	20	1
35-40	208	—	1	—	—	1	—	1	—	3	5	20	69	112	2
40-45	151	—	—	—	—	—	—	—	2	1	3	1	14	53	80
45-50	90	—	—	—	—	—	—	—	—	—	—	—	2	6	82
50-55	35	—	—	—	—	—	—	—	—	—	—	—	—	1	34
55 and upwards	6	—	—	—	—	—	—	—	—	—	—	—	—	—	6

No. 8.—DEATHS OF NON-EFFECTIVES.

TABLE showing the AGE and PERIOD of SERVICE in INDIA of NON-COMMISSIONED OFFICERS and MEN on the TOWN MAJOR'S NON-EFFECTIVE LIST, for the Ten Years 1846-49 and 1851-56.

Age.	Total.	Period of Service.													
		Months.					Years.								
		0—	3—	6—	9—	Total under 1 Year.	1	2	3	4	Total under 5 Years.	5—	10—	15—	20 and upwards.
Total	160	1	—	4	1	6	8	2	5	10	31	37	27	33	32
10-15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10-20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
20-25	14	1	—	3	—	4	4	1	1	2	12	2	—	—	—
25-30	34	—	—	—	—	1	4	1	4	7	17	15	2	—	—
30-35	38	—	—	1	—	1	—	—	—	1	2	19	14	3	—
35-40	37	—	—	—	—	—	—	—	—	—	—	1	10	24	2
40-45	18	—	—	—	—	—	—	—	—	—	—	—	1	5	12
45-55	13	—	—	—	—	—	—	—	—	—	—	—	—	1	12
50-55	5	—	—	—	—	—	—	—	—	—	—	—	—	—	5
55 and upwards	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1

No. 11.—CASUALTIES.—NON-EFFECTIVES.

NUMBER OF DEATHS, DISCHARGES, and other CASUALTIES amongst the NON-COMMISSIONED OFFICERS and MEN of the TOWN MAJOR'S LIST, for the Ten Years 1846-49 and 1851-56.

	Total.	Months.				Total under 1 Year.	1	2	3	4	Total under 5 Years.	5—	10—	15—	20 and upwards.
		0—	3—	6—	9—										
DEATHS - - - - -	160	1	—	4	1	6	8	2	5	10	31	37	27	33	32
LEAVING THE CORPS - - - - -	355	2	5	4	3	14	14	20	15	17	80	99	61	32	83
Pensioned. - - - - -	76	—	—	—	—	—	—	1	—	—	1	—	3	10	62
Invalided to Europe - - - - -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
" Chunar, or other parts of India	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sent to lunatic asylum. - - - - -	12	—	—	—	—	—	1	2	2	3	8	2	1	1	—
Discharged by purchase - - - - -	1	—	—	—	—	—	—	—	—	—	—	1	—	—	—
" (time expired or otherwise) - - - - -	75	—	—	3	1	4	6	8	6	3	27	27	17	1	3
Promoted - - - - -	8	—	—	—	—	—	—	—	—	—	—	—	—	1	7
Transferred to Town Major's list	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
" to other corps - - - - -	179	2	5	1	2	10	6	9	7	11	43	66	40	19	11
Deserted - - - - -	4	—	—	—	—	—	1	—	—	—	1	3	—	—	—
Missing - - - - -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other causes - - - - -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
JOINING THE CORPS - - - - -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Remanded from Town Major's list	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
From other corps - - - - -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Enlisted in India - - - - -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
" in Europe - - - - -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Rejoined from desertion - - - - -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Entertained - - - - -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Casualty not specified - - - - -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

No. 12.

TABLE showing the MEAN STRENGTH, DEATHS, and ANNUAL RATE of MORTALITY per Cent., in the Ten Years 1846-49 and 1851-56, amongst the NON-COMMISSIONED OFFICERS and MEN of the EUROPEAN FORCES of the late EAST INDIA COMPANY in BOMBAY.

Years ending 30th Sept.	Mean Strength.			Deaths in each Year.			Annual Rate of Mortality per cent.		
	Total.	Effectives.*	Non-Effectives.	Total.	Effectives.	Non-Effectives.	Total.	Effectives.	Non-Effectives.
1846	2,953	2,600.5	352.5	274	249	25	9.28	9.58	7.09
1847	3,145.5	2,775.5	370	132	117	15	4.20	4.22	4.05
1848	3,471.5	3,104.0	367.5	93	85	8	2.68	2.74	2.18
1849	3,611	3,240	371	203	180	23	5.62	5.56	6.20
1850	*	*	*	*	*	*	*	*	*
1851	3,766.5	3,400.5	366	124	113	11	3.29	3.32	3.01
1852	3,908	3,551.5	356.5	119	99	20	3.05	2.79	5.61
1853	3,840.5	3,477.5	363	96	90	6	2.50	2.59	1.65
1854	3,891.5	3,519.5	372	166	143	23	4.27	4.06	6.18
1855	4,240	3,859.5	380.5	133	120	13	3.14	3.11	3.42
1856	4,523	4,122	401	113	97	16	2.50	2.35	3.99
Average of the 10 years	3,735.05	3,365.05	370.0	145.3	129.3	16	3.89	3.84	4.32

* Includes 3rd Bombay Europeans.

No. 16.—EFFECTIVES.

AVERAGE ANNUAL MORTALITY per Cent., at different AGES and at different PERIODS of SERVICE, amongst the Non-COMMISSIONED OFFICERS and MEN of the EFFECTIVES of the EUROPEAN FORCES of the late EAST INDIA COMPANY in BOMBAY, during the Ten Years 1846-49 and 1851-56.

Ages.	Years of Service.									
	Under 1 Year.	1	2	3	4	Under 5 Years.	5—	10—	15—	20 and upwards.
10-20	1.86	—	—	7.50	—	1.33	?	—	—	—
20-25	3.15	3.33	3.74	8.39	3.68	3.73	6.23	—	—	—
25-30	3.66	4.43	3.67	5.42	4.22	4.30	2.88	4.58	—	—
30-35	15.00	1.20	6.43	10.00	4.71	5.28	4.19	4.81	.68	—
35-40	—	—	—	—	—	—	6.86	—	—	37.50
40-45	—	—	—	—	—	30.00	—	3.33	4.48	8.05
45-50	—	—	—	—	—	—	—	—	—	7.50
50-55	—	—	—	—	—	—	—	—	—	—
55 and upwards	—	—	—	—	—	—	—	—	—	—

No. 17.—NON-EFFECTIVES.

AVERAGE ANNUAL MORTALITY per Cent., at different AGES and at different PERIODS of SERVICE, amongst the Non-COMMISSIONED OFFICERS and MEN of the NON-EFFECTIVES of the EUROPEAN FORCES of the late EAST INDIA COMPANY in BOMBAY, during the Ten Years 1846-49 and 1851-56.

Ages.	Years of Service.									
	Under 1 Year.	1	2	3	4	Under 5 Years.	5—	10—	15—	20 and upwards.
10-20	—	—	—	—	—	—	—	—	—	—
20-25	40.00	4.14	1.50	2.73	10.00	5.22	2.86	—	—	—
25-30	7.50	10.91	.91	3.75	7.00	4.64	3.31	6.67	—	—
30-35	—	—	—	—	3.75	2.00	4.35	4.16	4.50	—
35-40	—	—	—	—	—	—	1.50	4.35	6.43	30.30
40-45	—	—	—	—	—	—	—	2.14	2.83	4.50
45-50	—	—	—	—	—	—	—	—	5.00	4.39
50-55	—	—	—	—	—	—	—	—	—	4.41
55 and upwards	—	—	—	—	—	—	—	—	—	5.00

No. 18.—EFFECTIVES.

AVERAGE ANNUAL MORTALITY per Cent., at different PERIODS of SERVICE, amongst the Non-COMMISSIONED OFFICERS and MEN of the EFFECTIVES of the EUROPEAN FORCES of the late EAST INDIA COMPANY in BOMBAY, during the Ten Years 1846-49 and 1851-56, showing the AGE on entering INDIA.

Period of Service.	Age on entering India.						
	10-20	15-25	20-30	25-35	30-40	35-45	40-50
0-5 years.	1.33	3.73	4.30	5.28	—	30.00	—
5-10 "	6.52	2.88	4.19	6.86	—	—	—
10-15 "	4.58	4.81	3.90	3.33	—	—	—
15-20 "	.68	4.29	4.48	—	—	—	—
20 and upwards	37.50	8.05	7.50	—	—	—	—

No. 19.—EFFECTIVES AND NON-EFFECTIVES.

TABLE showing the PROPORTION per Cent. LEAVING the CORPS ANNUALLY in the Ten Years 1846-49 and 1851-56, from (1) ALL CAUSES, (2) DEATH, and (3) OTHER CAUSES, amongst the Non-COMMISSIONED OFFICERS and MEN of the EFFECTIVES and NON-EFFECTIVES of the EUROPEAN FORCES of the late EAST INDIA COMPANY in BOMBAY, at different PERIODS of SERVICE.

Period of Service.	Proportion per cent. leaving the Corps annually.		
	From all Causes.	By Death.	Pensioned, invalided, discharged, transferred to other Corps, &c.
0-5 years	9.93	3.83	6.10
5-10 "	8.95	3.60	5.35
10-15 "	14.16	4.48	9.68
15-20 "	11.05	3.67	7.38
20 and upwards	31.29	5.76	25.53

No. 20.—EFFECTIVES.

TABLE showing the PROPORTION per Cent. LEAVING the CORPS ANNUALLY in the Ten Years 1846-49 and 1851-56, from (1) ALL CAUSES, (2) DEATH, and (3) OTHER CAUSES, amongst the Non-COMMISSIONED OFFICERS and MEN of the EFFECTIVES of the EUROPEAN FORCES of the late EAST INDIA COMPANY in BOMBAY at different PERIODS of SERVICE.

Period of Service.	Proportion per cent. leaving the Corps annually.		
	From all Causes.	By Death.	Pensioned, invalided, discharged, transferred to other Corps, &c.
0-5 years	9.73	3.84	5.89
5-10 "	8.59	3.60	4.99
10-15 "	14.25	4.53	9.72
15-20 "	11.35	3.19	8.16
20 and upwards	90.60	10.20	80.40

No. 21.—NON-EFFECTIVES.

TABLE showing the PROPORTION per Cent. LEAVING the CORPS ANNUALLY in the Ten Years 1846-49 and 1851-56, from (1) ALL CAUSES, (2) DEATH, and (3) OTHER CAUSES, amongst the Non-COMMISSIONED OFFICERS and MEN of the NON-EFFECTIVES of the EUROPEAN FORCES of the late EAST INDIA COMPANY in BOMBAY, at different PERIODS of SERVICE.

Period of Service.	Proportion per cent. leaving the Corps annually.		
	From all Causes.	By Death.	Pensioned, invalided, discharged, transferred to other Corps, &c.
0-5 years	13.37	3.73	9.64
5-10 "	13.20	3.59	9.61
10-15 "	13.53	4.15	9.38
15-20 "	10.10	5.13	4.97
20 and upwards	16.83	4.68	12.15

No. 22.—EFFECTIVES AND NON-EFFECTIVES.

TABLE showing the PROPORTION per Cent. LEAVING the CORPS ANNUALLY, from various CAUSES, in the Ten Years 1846-49 and 1851-56, amongst the NON-COMMISSIONED OFFICERS and MEN of the EFFECTIVES and NON-EFFECTIVES of the EUROPEAN FORCES of the late EAST INDIA COMPANY in BOMBAY, at different PERIODS of SERVICE.

Casualties.	Total.	Period of Service, Years.				
		Under 5 Years.	5—	10—	15—	20 and upwards.
Leaving the corps from various causes	6.90	6.10	5.35	9.68	7.38	25.53
Pensioned	1.20	.17	.24	1.65	3.97	22.71
Invalided to Europe	.75	.61	.54	1.99	.31	—
Invalided (India)						
Sent to lunatic asylum	.08	.10	.05	.09	.08	—
Discharged by purchase	.31	.34	.25	.56	.04	—
Discharged (time expired or otherwise)	1.50	1.27	1.44	2.81	.76	.47
Promoted	.02	—	.01	—	.04	.82
Transferred to Town Major's list	.31	.27	.29	.28	.73	—
Transferred to other corps	2.53	3.10	2.28	2.21	1.45	1.53
Deserted	.20	.24	.25	.09	—	—
Missing	—	—	—	—	—	—
Other causes	—	—	—	—	—	—

No. 23.—EFFECTIVES.

TABLE showing the PROPORTION per Cent. LEAVING the CORPS ANNUALLY, from various CAUSES, in the Ten Years 1846-49 and 1851-56, amongst the NON-COMMISSIONED OFFICERS and MEN of the EFFECTIVES of the EUROPEAN FORCES of the late EAST INDIA COMPANY in BOMBAY at different PERIODS of SERVICE.

Casualties.	Total.	Period of Service, Years.				
		Under 5 Years.	5—	10—	15—	20 and upwards.
Leaving the corps from various causes	6.62	5.89	4.99	9.72	8.16	30.40
Pensioned	1.13	.17	.26	1.82	4.77	78.60
Invalided to Europe	.84	.65	.58	2.26	.41	—
Invalided (India)						
Sent to lunatic asylum	.05	.05	.04	.09	.05	—
Discharged by purchase	.34	.36	.27	.64	.05	—
Discharged (time expired or otherwise)	1.44	1.15	1.34	2.81	.96	.60
Promoted	.01	—	.01	—	—	—
Transferred to Town Major's list	.34	.29	.32	.32	.96	—
Transferred to other corps	2.26	2.98	1.92	1.67	.96	1.20
Deserted	.21	.24	.25	.11	—	—
Missing	—	—	—	—	—	—
Other causes	—	—	—	—	—	—

No. 24.—NON-EFFECTIVES.

TABLE showing the PROPORTION per Cent. LEAVING the CORPS ANNUALLY, from various CAUSES, in the Ten Years 1846-49 and 1851-56, amongst the NON-COMMISSIONED OFFICERS and MEN of the NON-EFFECTIVES of the EUROPEAN FORCES of the late EAST INDIA COMPANY in BOMBAY, at different PERIODS of SERVICE.

Casualties.	Total.	Period of Service, Years.				
		Under 5 Years.	5—	10—	15—	20 and upwards.
Leaving the corps from various causes	9.25	9.64	9.61	9.38	4.97	12.15
Pensioned	1.98	.12	—	.46	1.55	9.08
Invalided to Europe	—	—	—	—	—	—
Invalided (India)						
Sent to lunatic asylum	.31	.96	.19	.15	.16	—
Discharged by purchase	.03	—	.10	—	—	—
Discharged (time expired or otherwise)	1.95	3.25	2.62	2.62	.16	.44
Promoted	.21	—	—	—	.16	1.02
Transferred to Town Major's list	—	—	—	—	—	—
Transferred to other corps	4.67	5.19	6.41	6.15	2.94	1.61
Deserted	.10	.12	.29	—	—	—
Missing	—	—	—	—	—	—
Other causes	—	—	—	—	—	—

No. 25.—BOMBAY ARTILLERY.

TABLE showing the MEAN STRENGTH, DEATHS, and ANNUAL RATE OF MORTALITY per Cent. of the NON-COMMISSIONED OFFICERS and MEN of the BOMBAY ARTILLERY, in the Ten Years 1846-49 and 1851-56.

Years.	Mean Annual Strength.	Deaths in each Year.	Annual Rate of Mortality per cent.
1846	1,135	103	9.07
1847	1,236.5	44	3.56
1848	1,331	31	2.33
1849	1,343.5	97	7.22
1850	*	*	*
1851	1,410.5	54	3.83
1852	1,482	41	2.77
1853	1,515	39	2.57
1854	1,517	75	4.94
1855	1,489	66	4.43
1856	1,461	44	3.01
Average of the 10 years	1,392	59.4	4.27

No. 26.—BOMBAY ARTILLERY.

AVERAGE ANNUAL RATE of MORTALITY per Cent. amongst the NON-COMMISSIONED OFFICERS and MEN of the BOMBAY ARTILLERY, at different AGES, in the Ten Years 1846-49 and 1851-56.

Ages.	Mean Annual Strength in 3 Years.	Deaths in the 10 Years 1846-49 and 1851-56.	Average Annual Rate of Mortality per cent.
Total	1,429.7	594	4.15
10-15	1.7	—	—
15	1.3	—	—
16	2.0	—	—
17	2.3	1	4.29
18	3.3	1	3.00
19	5.7	1	1.76
10-20	16.3	3	1.84
20-25	359.7	150	4.17
25-30	560.3	231	4.12
30-35	314.3	132	4.20
35-40	138.7	65	4.69
40-45	37.7	13	3.45
45-50	2.0	—	—
50-55	.7	—	—
55 and upwards	—	—	—

No. 27.—BOMBAY ARTILLERY.

AVERAGE ANNUAL MORTALITY per Cent. amongst the NON-COMMISSIONED OFFICERS and MEN of the BOMBAY ARTILLERY, at different PERIODS of SERVICE, in the Ten Years 1846-49 and 1851-56.

Period of Service.	Mean Annual Strength in 3 Years.	Deaths in the 10 Years 1846-49 and 1851-56.	Average Annual Rate of Mortality per cent.
Total	1,429.7	594	4.15
0-1 years	173.3	56	3.23
1-2 "	126	66	5.24
2-3 "	161	62	3.85
3-4 "	110	51	4.64
4-5 "	93	45	4.84
0-5 years	663.3	280	4.22
5-10 "	486.7	192	3.95
10-15 "	184	81	4.40
15-10 "	81.7	34	4.16
20 & upwards	14	7	5.00

No. 28.—1st BOMBAY EUROPEANS.

TABLE showing the MEAN STRENGTH, DEATHS, and ANNUAL RATE of MORTALITY per Cent. of the NON-COMMISSIONED OFFICERS and MEN of the 1st BOMBAY EUROPEANS, in the Ten Years 1846-49 and 1851-56.

Years.	Mean Annual Strength.	Deaths in each Year.	Annual Rate of Mortality per cent.
1846	700	113	16.14
1847	800	21	2.63
1848	903	34	3.77
1849	924.5	62	6.71
1850	*	*	*
1851	1,013.5	25	2.47
1852	1,052.5	20	1.90
1853	1,012	21	2.08
1854	885	34	3.84
1855	829.5	20	2.41
1856	918	17	1.85
Average of the 10 years	903.8	36.7	4.06

No. 29.—1st BOMBAY EUROPEANS.

AVERAGE ANNUAL RATE of MORTALITY per Cent. amongst the NON-COMMISSIONED OFFICERS and MEN of the 1st BOMBAY EUROPEANS, at different AGES, in the Ten Years 1846-49 and 1851-56.

Ages.	Mean Annual Strength in 3 Years.	Deaths in the 10 Years 1846-49 and 1851-56.	Average Annual Rate of Mortality per cent.
Total	986	367	3.72
10-15	—	—	—
15	—	—	—
16	—	—	—
17	—	—	—
18	.6	—	—
19	39.7	5	1.26
10-20	40.3	5	1.24
20-25	309.7	140	4.52
25-30	362.7	102	2.81
30-35	201	84	4.18
35-40	64	24	3.75
40-45	7.7	11	14.35
45-50	.6	1	15.00
50-55	—	—	—
55 & upwards	—	—	—

No. 30.—1st BOMBAY EUROPEANS.

AVERAGE ANNUAL MORTALITY per Cent. amongst the NON-COMMISSIONED OFFICERS and MEN of the 1st BOMBAY EUROPEANS, at different PERIODS of SERVICE, in the Ten Years 1846-49 and 1851-56.

Period of Service.	Mean Annual Strength in 3 Years.	Deaths in the 10 Years 1846-49 and 1851-56.	Average Annual Rate of Mortality per cent.
Total	986	367	3.72
0-1 year	176.8	42	2.38
1-2 "	92.3	30	3.25
2-3 "	42.3	23	5.43
3-4 "	6	88	?
4-5 "	80.3	26	3.24
0-5	397.7	159	4.00
5-10	374.7	121	3.23
10-15	142.3	59	4.15
15-20	69	18	2.61
20 & upwards	2.3	10	4.29

No. 31.—2ND BOMBAY EUROPEANS.

TABLE showing the MEAN STRENGTH, DEATHS, and ANNUAL RATE of MORTALITY per Cent. of the NON-COMMISSIONED OFFICERS and MEN of the 2ND BOMBAY EUROPEANS, in the Ten Years 1846-49 and 1851-56.

Years.	Mean Annual Strength.	Deaths in each Year.	Annual Rate of Mortality per cent.
1846	765.5	83	4.31
1847	739	52	7.04
1848	870	20	2.30
1849	972	21	2.16
1850	*	*	*
1851	976.5	34	3.48
1852	1,017.	38	3.74
1853	950.5	30	3.16
1854	842	20	2.38
1855	842	26	3.09
1856	910	26	2.86
Average of the 10 years	888.45	30	3.38

No. 32.—2ND BOMBAY EUROPEANS.

AVERAGE ANNUAL RATE of MORTALITY per Cent. amongst the NON-COMMISSIONED OFFICERS and MEN of the 2ND BOMBAY EUROPEANS, at different AGES, in the Ten Years 1846-49 and 1851-56.

Ages.	Mean Annual Strength in 3 Years.	Deaths in the 10 Years 1846-49 and 1851-56.	Average Annual Rate of Mortality per cent.
Total -	864	300	3.47
10-15	—	—	—
15	—	—	—
16	—	—	—
17	—	—	—
18	4	2	60.00
19	18.3	3	1.64
10-20	18.7	5	2.68
20-25	239.3	73	3.05
25-30	351.3	109	3.10
30-35	203	87	4.29
35-40	46.7	23	4.93
40-45	4.7	3	6.43
45-50	3	—	—
50-55	—	—	—
55 and upwards	—	—	—

No. 33.—2ND BOMBAY EUROPEANS.

AVERAGE ANNUAL RATE of MORTALITY per Cent. amongst the NON-COMMISSIONED OFFICERS and MEN of the 2ND BOMBAY EUROPEANS, at different PERIODS of SERVICE, in the Ten Years 1846-49 and 1851-56.

Period of Service.	Mean Annual Strength in 3 Years.	Deaths in the 10 Years 1846-49, and 1851-56.	Average Annual Rate of Mortality per cent.
Total -	864	300	3.47
0-1 year	23	19	8.26
1-2 "	135	22	1.63
2-3 "	77.3	20	2.59
3-4 "	35.7	12	3.36
4-5 "	67	25	3.73
0-5 years	838	98	2.90
5-10 "	337.3	119	3.53
10-15 "	141.7	72	5.08
15-20 "	46.7	11	2.36
20 and upwards	3	—	—

No. 34.—3RD BOMBAY EUROPEANS.

TABLE showing the STRENGTH, DEATHS, and ANNUAL RATE of MORTALITY per Cent. of the NON-COMMISSIONED OFFICERS and MEN of the 3RD BOMBAY EUROPEANS, in the Three Years 1854, 1855, 1856.

Years ending September 30th.	Annual Strength.	Deaths in each Year.	Annual Rate of Mortality per cent.
1846	—	—	—
1847	—	—	—
1848	—	—	—
1849	—	—	—
1850	—	—	—
1851	—	—	—
1852	—	—	—
1853	—	—	—
1854	551	14	2.54
1855	847	8	.94
1856	819	10	1.22
Average of the 3 years	739	10.7	1.44

No. 35.—3RD BOMBAY EUROPEANS.

AVERAGE ANNUAL RATE of MORTALITY per Cent. amongst the NON-COMMISSIONED OFFICERS and MEN of the 3RD BOMBAY EUROPEANS, at different AGES, in the Three Years 1854, 1855, 1856.

Ages.	Mean Annual Strength in 3 Years.	Deaths in the 3 Years 1854-5-6.	Average Annual Rate of Mortality per cent.
Total -	739	32	1.44
10-15	2	—	—
15	—	—	—
16	6	—	—
17	—	—	—
18	—	—	—
19	48.3	2	1.38
10-20	51	2	1.31
20-25	441.6	9	.68
25-30	178	15	2.81
30-35	49.7	4	2.68
35-40	13.7	2	4.88
40-45	5	—	—
45-50	—	—	—
50-55	—	—	—
55 and upwards	—	—	—

No. 36.—3RD BOMBAY EUROPEANS.

AVERAGE ANNUAL MORTALITY per Cent. amongst the NON-COMMISSIONED OFFICERS and MEN of the 3RD BOMBAY EUROPEANS, at different PERIODS of SERVICE, in the Three Years 1854, 1855, 1856.

Period of Service.	Mean Annual Strength in 3 Years.	Deaths in the 3 Years 1854-5-6.	Average Annual Rate of Mortality per cent.
Total -	739	32	1.44
0-1 year	239.3	13	1.81
1-2 "	239.3	5	.70
2-3 "	133.7	2	.50
3-4 "	6.7	—	—
4-5 "	11.3	1	2.94
0-5 years	630.3	21	1.11
5-10 "	70.0	7	3.33
10-15 "	26.0	2	2.56
15-20 "	12.7	2	5.26
20 and upwards	—	—	—

No. 37.—TOWN MAJOR'S LIST.

TABLE showing the MEAN STRENGTH, DEATHS, and ANNUAL RATE of MORTALITY per Cent. of the NON-COMMISSIONED OFFICERS and MEN of the TOWN MAJOR'S NON-EFFECTIVE LIST, in the Ten Years 1846-49 and 1851-56.

Years.	Mean Annual Strength.	Deaths in each Year.	Annual Rate of Mortality per cent.
1846	852.5	25	7.09
1847	870	15	4.05
1848	867.5	8	2.18
1849	871	23	6.20
1850	*	*	*
1851	866	11	3.01
1852	856.5	20	5.61
1853	863	6	1.65
1854	872	23	6.18
1855	880.5	13	3.42
1856	401	16	3.99
Average of the 10 years	870.0	16	4.32

No. 38.—TOWN MAJOR'S LIST.

AVERAGE ANNUAL RATE of MORTALITY per Cent. amongst the NON-COMMISSIONED OFFICERS and MEN of the TOWN MAJOR'S NON-EFFECTIVE LIST, at different AGES, in the Ten Years 1846-49 and 1851-56.

Ages.	Mean Annual Strength in 3 Years.	Deaths in the 10 Years 1846-49 and 1851-56.	Average Annual Rate of Mortality per cent.
Total -	383.7	160	4.17
10-15	7	—	—
15	1.7	—	—
16	3	—	—
17	1.3	—	—
18	2.3	—	—
19	1.7	—	—
10-20	10.7	—	—
20-25	30	14	4.67
25-30	85.3	34	3.98
30-35	94.4	38	4.03
35-40	69.3	37	5.34
40-45	50.3	18	3.58
45-50	30	13	4.33
50-55	11.7	5	4.29
55 and upwards	2	1	5.00

No. 39.—TOWN MAJOR'S LIST.

AVERAGE ANNUAL MORTALITY per Cent. amongst the NON-COMMISSIONED OFFICERS and MEN of the TOWN MAJOR'S NON-EFFECTIVE LIST, at different PERIODS of SERVICE, in the Ten Years 1846-49 and 1851-56.

Period of Service.	Mean Annual Strength in 3 Years.	Deaths in the 10 Years 1846-49 and 1851-56.	Average Annual Rate of Mortality per cent.
Total -	383.7	160	4.17
0-1 years	4.3	6	13.85
1-2 "	15.7	8	5.11
2-3 "	26	2	.77
3-4 "	20.3	5	2.46
4-5 "	16.7	10	6.00
0-5 years	83	31	3.73
5-10 "	103	37	3.59
10-15 "	65	27	4.15
15-20 "	64.3	33	5.13
20 and upwards	68.4	32	4.68

BENGAL—ENGLAND.—DISEASES.

TABLE I.—Showing the DEATHS and ANNUAL RATE of MORTALITY to 1,000,000 STRENGTH, in the Sixteen Years 1830-45, amongst the NON-COMMISSIONED OFFICERS and MEN of the whole of the EUROPEAN FORCES in the PRESIDENCY of BENGAL; and the DEATHS and ANNUAL RATE of MORTALITY to 1,000,000 MALES living of the AGE 15-45 in ENGLAND, in the Seven Years 1848-54.

Strength of the European Forces (*Queen's and Company's*) in Bengal in the 16 Years 1830-45 - 213,192
 Male Population in England and Wales aged 15-45, estimated to the middle of 1851 - 4,012,273

Class.	DISEASES, &c.	Bengal.	England.	Bengal.	England.	Class.	DISEASES, &c.	Bengal.	England.	Bengal.	England.
		Deaths amongst the European Forces in the 16 Years 1830-45.	Male Deaths in the 7 Years 1848-54, of the Age 15-45.	Average Annual Mortality amongst the European Forces to 1,000,000 Strength (1830-45).	Average Annual Mortality to 1,000,000 Males living of the Age 15-45 (1848-54).			Deaths amongst the European Forces in the 16 Years 1830-45.	Male Deaths in the 7 Years 1848-54, of the Age 15-45.	Average Annual Mortality amongst the European Forces to 1,000,000 Strength (1830-45).	Average Annual Mortality to 1,000,000 Males living, of the Age 15-45 (1848-54).
	ALL CAUSES - -	14,271	283,167	66,940	10,082		ORDER 2.				
	SPECIFIED CAUSES	13,142	278,042	-	-		Pericarditis - - -	1	927	5	34
	CLASSES.						Aneurism - - -	1	691	5	25
I.	ZYMOVIC DISEASES	11,358	63,999	57,863	2,320		Varix - - -	-	-	-	-
II.	CONSTITUTIONAL	509	115,901	2,593	4,206		Heart disease, &c. -	-	9,542	-	346
III.	LOCAL - - -	1,120	68,935	5,705	2,500		ORDER 3.				
IV.	DEVELOPMENTAL	3	1,369	15	50		Laryngitis - - -	-	498	-	18
V.	VIOLENCE - - -	152	27,746	774	1,006		Bronchitis - - -	-	5,531	-	201
	ORDERS.						Pleurisy - - -	1	1,407	5	51
I.	ORDER 1.— <i>Miasmatic Diseases.</i>						Pneumonia - - -	208	9,133	1,060	331
	Small-pox - - -	55	3,097	230	112		Asthma - - -	23	1,821	117	66
	Measles - - -	-	159	-	6		Lung disease, &c. -	-	2,909	-	105
	Scarlatina - - -	-	1,677	-	61		ORDER 4.				
	Quinsy - - -	-	287	-	10		Gastritis - - -	1	460	5	17
	Croup - - -	-	38	-	1		Enteritis - - -	66	2,807	336	102
	Catarrh and Influenza	71	749	363	27		Peritonitis - - -	5	1,348	25	49
	Whooping cough - -	-	17	-	1		Ascites - - -	1	506	5	18
	Eye disease - - -	17	-	87	-		Ulceration of intestines	-	836	-	30
	Fever (C. C.) - - -	-	-	-	-		Hernia - - -	-	457	-	17
	Typhoid - - -	1,228	24,905	6,255	904		Ileus and colic - - -	18	719	92	23
	Ephemeral - - -	-	-	-	-		Intussusception - -	-	247	-	9
	Erysipelas - - -	-	1,874	-	68		Stricture of intestine	-	109	-	4
	Carbuncle - - -	-	141	-	5		Fistula - - -	-	165	-	6
	Dysentery - - -	3,034	1,385	15,453	51		Stomach disease, &c. -	2	936	10	34
	Hepatitis and liver disease.	895	6,332	4,559	193		Pancreas disease, &c. -	-	14	-	1
	Diarrhoea - - -	894	2,361	4,554	86		Jandice - - -	13	508	66	18
	Cholera - - -	2,590	15,063	13,191	546		Spleen disease, &c. -	45	71	229	3
	Ague - - -	575	195	2,929	7		ORDER 5.				
	Remittent fever - -	1,599	214	8,145	8		Nephritis - - -	-	233	-	10
	Rheumatism - - -	108	2,405	540	87		Ischuria - - -	-	80	-	3
	Ditto, with heart diseases.	-	-	-	-		Nephria - - -	-	1,060	-	38
	ORDER 2.— <i>Ethiotic Diseases.</i>						Diabetes - - -	-	900	-	33
	Syphilis, &c. - - -	64	602	326	22		Stone - - -	-	127	-	7
	Stricture of urethra -	-	327	-	12		Cystitis - - -	-	186	-	7
	Hydrophobia - - -	-	34	-	1		Kidney disease, &c. -	10	1,442	51	52
	ORDER 3.— <i>Dietic Dis.</i>						ORDER 6.				
	Privation - - -	-	89	-	3		Orchitis - - -	-	-	-	-
	Purpura and Scurvy -	6	294	31	11		Hydrocele - - -	-	-	-	-
	Alcoholism. { a. Delirium tremens	224	1,991	1,141	72		Urethra disease, &c. -	-	33	-	1
	{ b. Intemperance -	-	724	-	26		ORDER 7.				
	ORDER 4.— <i>Parasitic Diseases.</i>						Arthritis - - -	-	113	-	4
	Thrush - - -	-	10	-	4		Joint disease, &c. -	4	1,724	20	63
	Psora - - -	-	-	-	-		ORDER 8.				
	Porrigo, &c. - - -	-	-	-	-		Phlegmon - - -	24	255	123	9
							Abscess - - -	-	-	-	-
							Ulcer - - -	53	107	270	4
							Ditto, after contusion	-	-	-	-
							Skin disease, &c. -	6	49	31	2
II.	ORDER 1.— <i>Diathetic Diseases.</i>					IV.	ORDER 1.				
	Gout - - -	-	116	-	4		Cyanosis - - -	-	37	-	1
	Dropsy - - -	89	4,196	463	163		Spina bifida - - -	-	5	-	1
	Cancer - - -	3	1,860	15	67		Other malformations	-	21	-	1
	Noma - - -	-	8	-	3		ORDER 4.				
	Mortification - - -	2	367	10	13		Atrophy and debility	3	1,306	15	43
	ORDER 2.— <i>Tubercular Diseases.</i>					V.	ORDER 1.				
	Scrofula - - -	-	4,300	-	156		Neglect - - -	-	2	-	1
	Tubercles mesenterica	-	681	-	25		Cold - - -	-	107	-	4
	Phthisis - - -	415	103,941	2,115	3,709		Poison - - -	-	553	-	20
	Hydrocephalus - - -	-	532	-	19		Burns, &c. - - -	6	1,621	31	59
							Sun stroke - - -	-	-	20	-
III.	ORDER 1.						Hanging and suffocation.	4	1,763	-	64
	Cephalitis - - -	22	3,339	112	121		Drowning - - -	-	6,108	-	221
	Apoplexy - - -	570	4,666	2,905	170		Fractures and contusions.	21	13,942	107	506
	Sudden deaths - - -	-	2,546	-	92		Wounds - - -	43	1,736	219	63
	Paralysis - - -	9	2,912	46	106		Concussio cerebri -	3	-	15	-
	Insanity - - -	15	670	76	24		Other violence - - -	75	1,911	323	69
	Chorea - - -	-	40	-	1						
	Epilepsy - - -	19	3,098	97	112						
	Convulsions - - -	-	238	-	8						
	Otitis - - -	-	-	-	-						
	Brain disease, &c. -	3	3,430	15	124						
							Cause not specified or ill-defined.	1,129	5,125	-	-

NOTE.—In calculating the mortality, a correction has been made for the diseases not specified by distributing them proportionally over the deaths from the various specified causes.

PRESIDENCY OF BENGAL.—DISEASES.

TABLE 2.—Showing the NUMBER of DEATHS by different DISEASES, and the AVERAGE ANNUAL MORTALITY to 1,000,000 STRENGTH, in the Sixteen Years 1830-45.

Strength in the 16 years, 1830-45 - - - - - 213,192
Do. 8 years, 1830-37 - - - - - 95,105
Do. 8 years, 1838-45 - - - - - 118,087

Class.	DISEASES, &c.	8 Years 1830-37.		8 Years 1838-45.		16 Years 1830-45.	
		Deaths.	Deaths annually to 1,000,000 Strength.	Deaths.	Deaths annually to 1,000,000 Strength.	Deaths.	Deaths annually to 1,000,000 Strength.
	ALL CAUSES - -	4,846	50,954	9,425	79,514	14,271	66,940
	SPECIFIED CAUSES	4,337	—	8,805	—	13,142	—
	CLASSES.						
I.	ZYMOTIC DISEASES	3,713	43,623	7,645	69,300	11,358	57,853
II.	CONSTITUTIONAL	243	2,843	267	2,420	509	2,593
III.	LOCAL - - -	313	3,677	607	7,315	1,120	5,705
IV.	DEVELOPMENTAL	—	—	3	27	3	15
V.	VIOLENCE - -	69	811	83	752	152	774
	ORDERS.						
I.	ORDER 1.—Miasmatic Diseases.						
	Small-pox - - -	23	270	32	290	55	230
	Measles - - -	—	—	—	—	—	—
	Scarlatina - - -	—	—	—	—	—	—
	Quinsy - - -	—	—	—	—	—	—
	Croup - - -	—	—	—	—	—	—
	Catarrh and influenza	—	—	71	644	71	369
	Whooping cough - -	—	—	—	—	—	—
	Eye diseases - - -	9	106	8	73	17	87
	Fever (C. C.) - - -	—	—	—	—	—	—
	Typhus - - -	474	5,569	754	6,835	1,228	6,255
	Typhoid - - -	—	—	—	—	—	—
	Ephemeral - - -	—	—	—	—	—	—
	Erysipelas - - -	—	—	—	—	—	—
	Carbuncle - - -	—	—	—	—	—	—
	Dysentery - - -	998	11,726	2,036	18,456	3,034	15,453
	Hepatitis and liver disease.	406	4,770	489	4,433	895	4,539
	Diarrhoea - - -	221	2,596	673	6,100	894	4,554
	Cholera - - -	628	7,378	1,962	17,785	2,590	13,191
	Ague - - -	110	1,292	465	4,215	575	2,929
	Remittent fever - - -	693	8,177	903	8,185	1,599	8,145
	Rheumatism - - -	61	717	45	408	106	540
	Ditto, with heart diseases.	—	—	—	—	—	—
	ORDER 2.—Euthetic Diseases.						
	Syphilis, &c. - - -	33	388	31	281	64	326
	Stricture of urethra -	—	—	—	—	—	—
	Hydrophobia - - -	—	—	—	—	—	—
	ORDER 3.—Dietic Diseases.						
	Privation - - -	—	—	—	—	—	—
	Purpura and scurvy - -	—	—	6	54	6	31
	Alcoholism. { a. Delirium tremens.	54	634	170	1,541	224	1,141
	{ b. Intemperance.	—	—	—	—	—	—
	ORDER 4.—Parasitic Diseases.						
	Thrush - - -	—	—	—	—	—	—
	Psora - - -	—	—	—	—	—	—
	Porrijo, &c. - - -	—	—	—	—	—	—
II.	ORDER 1.—Diathetic Diseases.						
	Gout - - -	—	—	—	—	—	—
	Dropsy - - -	29	342	60	544	69	463
	Cancer - - -	—	—	3	27	3	15
	Noma - - -	—	—	—	—	—	—
	Mortification - - -	—	—	2	18	2	10
	ORDER 2.—Tubercular Diseases.						
	Scrophula - - -	—	—	—	—	—	—
	Tabes mesenterica - -	—	—	—	—	—	—
	Phtisis - - -	213	2,501	202	1,831	415	2,115
	Hydrocephalus - - -	—	—	—	—	—	—
III.	ORDER 1.						
	Cephalitis - - -	1	12	21	190	22	112
	Apoplexy - - -	157	1,845	413	3,745	570	2,905
	Sudden deaths - - -	—	—	—	—	—	—
	Paralysis - - -	—	—	9	82	9	46
	Insanity - - -	3	35	13	109	15	76
	Chorea - - -	—	—	—	—	—	—
	Epilepsy - - -	—	—	19	172	19	97
	Convulsions - - -	—	—	—	—	—	—
	Otitis - - -	—	—	—	—	—	—
	Brain disease, &c. - -	—	—	3	27	3	15
	ORDER 2.						
	Pericarditis - - -	—	—	1	9	1	5
	Aneurism - - -	—	—	1	9	1	5
	Varix - - -	—	—	—	—	—	—
	Heart disease, &c. - -	—	—	—	—	—	—
	ORDER 3.						
	Laryngitis - - -	—	—	—	—	—	—
	Bronchitis - - -	—	—	—	—	—	—
	Pleurisy - - -	—	—	1	9	1	5
	Pneumonia - - -	60	705	143	1,342	208	1,000
	Asthma - - -	7	82	10	145	23	117
	Lung disease, &c. - -	—	—	—	—	—	—
	ORDER 4.						
	Gastritis - - -	—	—	1	9	1	5
	Enteritis - - -	23	270	43	390	66	336
	Peritonitis - - -	1	12	4	36	5	25
	Ascites - - -	—	—	1	9	1	5
	Ulceration of intestines.	—	—	—	—	—	—
	Hernia - - -	—	—	—	—	—	—
	Ileus and colic - - -	—	—	18	163	18	92
	Intussusception - - -	—	—	—	—	—	—
	Stricture of intestine	—	—	—	—	—	—
	Fistula - - -	—	—	—	—	—	—
	Stomach disease, &c. -	—	—	2	18	2	10
	Pancreas disease, &c. -	—	—	—	—	—	—
	Jaundice - - -	3	35	10	91	13	66
	Spleen disease, &c. - -	15	176	30	272	45	229
	ORDER 5.						
	Nephritis - - -	—	—	—	—	—	—
	Ischuria - - -	—	—	—	—	—	—
	Nephria - - -	—	—	—	—	—	—
	Diabetes - - -	—	—	—	—	—	—
	Stone - - -	—	—	—	—	—	—
	Cystitis - - -	—	—	—	—	—	—
	Kidney disease, &c. - -	4	47	6	54	10	51
	ORDER 6.						
	Orchitis - - -	—	—	—	—	—	—
	Hydrocele - - -	—	—	—	—	—	—
	Urethra disease, &c. - -	—	—	—	—	—	—
	ORDER 7.						
	Arthritis - - -	—	—	—	—	—	—
	Joint disease, &c. - -	—	—	4	36	4	20
	ORDER 8.						
	Phegmon - - -	1	12	23	208	24	122
	Abscess - - -	—	—	—	—	—	—
	Ulcer - - -	35	411	18	163	53	270
	Ditto, after contusion	—	—	—	—	—	—
	Skin disease, &c. - - -	3	35	3	27	6	31
IV.	ORDER 1.						
	Cyanosis - - -	—	—	—	—	—	—
	Spina bifida - - -	—	—	—	—	—	—
	Other malformations -	—	—	—	—	—	—
	ORDER 4.						
	Atrophy and Debility	—	—	3	27	3	15
V.	ORDER 1.						
	Neglect - - -	—	—	—	—	—	—
	Cold - - -	—	—	—	—	—	—
	Poison - - -	—	—	—	—	—	—
	Burns, &c. - - -	—	—	6	54	6	31
	Sun-stroke - - -	—	—	4	36	4	20
	Hanging and suffocation.	—	—	—	—	—	—
	Drowning - - -	—	—	—	—	—	—
	Fractures and contusions.	6	70	15	136	21	107
	Wounds - - -	—	—	43	390	43	219
	Concussio cerebri - - -	—	—	3	27	3	15
	Other violence - - -	63	741	12	109	75	382
	Cause not specified or ill-defined.	509	—	620	—	1,129	—

NOTE.—In calculating the mortality a correction has been made for the causes not specified, by distributing them proportionally over the various specified causes of death. The facts are from the medical returns, which do not include deaths in action, or other deaths which fail to come under the notice of the medical officers.

PRESIDENCY OF BOMBAY.—DISEASES.

TABLE 3.—Showing the DEATHS and ANNUAL RATE OF MORTALITY TO 1,000,000 STRENGTH, in the Sixteen Years, 1830-45, by different DISEASES amongst the NON-COMMISSIONED OFFICERS and MEN of the whole of the EUROPEAN FORCES in the PRESIDENCY of BOMBAY.

Strength in the 16 years, 1830-45 - - - - - 103,702
 Do. 8 years, 1830-37 - - - - - 45,851
 Do. 8 years, 1838-45 - - - - - 57,851

Class.	DISEASES, &c.	8 Years 1830-37.		8 Years 1838-45.		16 Years 1830-45.	
		Deaths.	Annual Rate of Mortality to 1,000,000 Strength.	Deaths.	Annual Rate of Mortality to 1,000,000 Strength.	Deaths.	Annual Rate of Mortality to 1,000,000 Strength.
	ALL CAUSES - - -	1,406	32,627	4,598	79,480	6,004	58,764
	SPECIFIED CAUSES	1,290	-	4,425	-	5,715	-
	CLASSES.						
I.	ZYMOTIC DISEASES	1,110	28,074	3,934	70,661	5,044	51,865
II.	CONSTITUTIONAL	118	2,984	87	1,563	205	2,108
III.	LOCAL - - - -	53	1,341	331	5,945	384	3,948
IV.	DEVELOPMENTAL	-	-	4	72	4	41
V.	VIOLENCE - - -	9	223	69	1,239	78	802
	ORDERS.						
I.	ORDER 1.— <i>Miasmatic Diseases.</i>						
	Small pox - - -	7	177	11	198	18	185
	Measles - - - -	-	-	-	-	-	-
	Scarlatina - - -	-	-	-	-	-	-
	Quinsy - - - -	-	-	1	18	1	10
	Group - - - - -	-	-	-	-	-	-
	Catarrh and Influenza (see Pneumonia).	-	-	-	-	-	-
	Whooping cough -	-	-	-	-	-	-
	Ophthalmia (Eye Dis.)	1	25	1	18	2	21
	Fever (C. C.) - - -	-	-	-	-	-	-
	Typhus - - - - -	330	8,347	50	898	380	3,907
	Typhoid - - - -	-	-	-	-	-	-
	Ephemeral - - - -	-	-	-	-	-	-
	Erysipelas - - -	-	-	-	-	-	-
	Carbuncle - - - -	-	-	-	-	-	-
	Dysentery - - - -	332	8,397	1,410	25,325	1,742	17,912
	Hepatitis and liver disease.	144	3,612	303	5,442	447	4,596
	Diarrhoea - - - -	68	1,720	169	3,036	237	2,437
	Cholera - - - - -	140	3,541	783	14,064	923	9,491
	Acute - - - - -	10	253	240	4,311	250	2,571
	Remittent fever -	45	1,138	816	14,656	881	8,853
	Rheumatism - - -	21	531	31	557	52	535
	Do., with heart diseases	-	-	-	-	-	-
	ORDER 2.— <i>Ethiotic Diseases.</i>						
	Syphilis, &c. - - -	3	76	12	216	15	154
	Stricture of urethra -	3	76	11	198	14	144
	Hydrophobia - - -	-	-	-	-	-	-
	ORDER 3.— <i>Dietic Diseases.</i>						
	Privation - - - -	-	-	-	-	-	-
	Purpura and scurvy -	-	-	16	287	16	165
	Alcohol - - - - -	5	126	79	1,419	84	864
	<i>a.</i> Delirium tremens.	-	-	-	-	-	-
	<i>b.</i> Intemperance.	-	-	1	18	1	10
	ORDER 4.— <i>Parasitic Diseases.</i>						
	Thrush - - - - -	-	-	-	-	-	-
	Foera - - - - -	-	-	-	-	-	-
	Dracunculus - - -	1	25	-	-	1	10
II.	ORDER 1.— <i>Diathetic Diseases.</i>						
	Gout - - - - -	-	-	-	-	-	-
	Dropsy - - - - -	5	126	29	521	34	350
	Cancer - - - - -	-	-	-	-	-	-
	Noma - - - - -	-	-	-	-	-	-
	Mortification - - -	-	-	-	-	-	-
	ORDER 2.— <i>Tubercular Diseases.</i>						
	Scrophula - - - -	-	-	-	-	-	-
	Tabes mesenterica -	-	-	-	-	-	-
	Phthisis - - - - -	118	2,868	58	1,042	171	1,758
	Hydrocephalus - - -	-	-	-	-	-	-
III.	ORDER 1.						
	Cephalitis - - - -	-	-	13	234	13	134
	Apoplexy - - - - -	36	911	147	2,639	183	1,881
	Sudden deaths - - -	-	-	-	-	-	-
	Paralysis - - - - -	-	-	-	-	-	-
	Insanity - - - - -	-	-	6	108	6	62
	Chorea - - - - -	-	-	-	-	-	-
	Epilepsy - - - - -	-	-	-	-	-	-
	Convulsions - - - -	-	-	-	-	-	-
	Otitis - - - - -	-	-	-	-	-	-
	Brain disease, &c. -	-	-	1	18	1	10
	ORDER 2.						
	Pericarditis - - -	-	-	-	-	-	-
	Aneurism - - - - -	-	-	-	-	-	-
	Varix - - - - -	-	-	-	-	-	-
	Heart disease, &c. -	-	-	-	-	-	-
	ORDER 3.						
	Laryngitis - - - -	-	-	-	-	-	-
	Bronchitis - - - -	-	-	-	-	-	-
	Pleurisy - - - - -	-	-	-	-	-	-
	Pneumonia - - - -	7	177	95	1,705	102	1,048
	Asthma - - - - -	-	-	9	162	9	93
	Lung disease, &c. -	-	-	-	-	-	-
	ORDER 4.						
	Gastritis - - - - -	-	-	-	-	-	-
	Enteritis - - - - -	-	-	-	-	-	-
	Peritonitis - - - -	3	76	30	539	33	339
	Ascites - - - - -	-	-	-	-	-	-
	Ulceration of intestines	-	-	-	-	-	-
	Hernia - - - - -	-	-	-	-	-	-
	Ileus and colic - - -	-	-	-	-	-	-
	Intussusception - - -	-	-	-	-	-	-
	Stricture of intestine -	-	-	-	-	-	-
	Fistula - - - - -	-	-	-	-	-	-
	Stomach disease, &c. -	-	-	2	36	2	21
	Pancreas disease, &c. -	-	-	-	-	-	-
	Jaundice (see Liverdis.)	-	-	-	-	-	-
	Spleen disease, &c. -	-	-	7	126	7	72
	ORDER 5.						
	Nephritis - - - - -	-	-	-	-	-	-
	Ischuria - - - - -	-	-	-	-	-	-
	Nephria - - - - -	-	-	-	-	-	-
	Diabetes - - - - -	-	-	-	-	-	-
	Stone - - - - -	-	-	-	-	-	-
	Cystitis - - - - -	-	-	-	-	-	-
	Kidney disease, &c. -	-	-	6	108	6	62
	ORDER 6.						
	Orchitis - - - - -	-	-	-	-	-	-
	Hydrocele - - - - -	-	-	-	-	-	-
	Urethra disease, &c. -	-	-	-	-	-	-
	ORDER 7.						
	Arthritis - - - - -	-	-	-	-	-	-
	Joint disease, &c. -	-	-	-	-	-	-
	ORDER 8.						
	Phlegmon - - - - -	-	-	8	144	8	82
	Abscess - - - - -	-	-	-	-	-	-
	Ulcer - - - - -	5	126	2	36	7	72
	Do., after contusion -	-	-	-	-	-	-
	Skin disease, &c. - -	2	51	5	90	7	72
IV.	ORDER 1.						
	Cyanosis - - - - -	4	-	-	-	-	-
	Spina bifida - - - -	-	-	-	-	-	-
	Other malformations -	-	-	-	-	-	-
	ORDER 4.						
	Atrophy and debility -	-	-	4	72	4	41
V.	ORDER 1.						
	Neglect - - - - -	-	-	-	-	-	-
	Cold - - - - -	-	-	-	-	-	-
	Poison - - - - -	-	-	-	-	-	-
	Burns, &c. - - - - -	-	-	-	-	-	-
	Sunstroke (see Apoplexy)	-	-	-	-	-	-
	Hanging and suffoca-	-	-	-	-	-	-
	tion - - - - -	-	-	-	-	-	-
	Drowning - - - - -	-	-	-	-	-	-
	Fractures and con-	2	51	6	108	8	82
	tusions - - - - -	-	-	-	-	-	-
	Wounds - - - - -	7	177	62	1,113	69	710
	Concussio cerebri - -	-	-	1	18	1	10
	Other violence - - -	-	-	-	-	-	-
	Cause not specified or ill-defined.	208	-	173	-	379	-

NOTE.—In calculating the mortality a correction has been made for the causes not specified, by distributing them proportionally over the various specified causes of death. The facts are from the medical returns, which do not include deaths in action, or other deaths which fall to come under the notice of the medical officers.

PRESIDENCY OF BENGAL.—DISEASES.

TABLE 4.—Showing the NUMBER of DEATHS among the NON-COMMISSIONED OFFICERS and MEN of the whole of the EUROPEAN FORCES in the PRESIDENCY of BENGAL by different DISEASES, for each of the 8 Years 1830-37.

Strength in 1830, 12,589; 1831, 12,590; 1832, 12,377; 1833, 11,081; 1834, 11,598; 1835, 11,364; 1836, 11,598; 1837, 11,908.

Class.	DISEASES, &c.	1830.	1831.	1832.	1833.	1834.	1835.	1836.	1837.	Class.	DISEASES, &c.	1830.	1831.	1832.	1833.	1834.	1835.	1836.	1837.
	ALL CAUSES	660	682	601	780	692	443	480	508		ORDER 2.								
	SPECIFIED CAUSES	571	605	534	710	633	410	417	457		Pericarditis								
	CLASSES.										Aneurism								
I.	ZYMOTIC DISEASES	518	542	478	589	524	332	346	380		Varix								
II.	CONSTITUTIONAL	27	34	41	28	32	29	30	21		Heart disease, &c.								
III.	LOCAL	17	19	17	71	65	43	32	49		ORDER 3.								
IV.	DEVELOPMENTAL										Laryngitis								
V.	VIOLENCE	9	10	4	12	12	6	9	7		Bronchitis								
	ORDERS.										Pleurisy								
I.	ORDER 1.—Miasmatic Diseases.										Pneumonia			3	11	17	11	9	9
	Small-pox		5		2	7		1	8		Asthma				3		2	1	1
	Measles										Lung disease, &c.								
	Scarlatina										ORDER 4.								
	Quinsy										Gastritis				5	5	3	4	3
	Croup										Enteritis								
	Catarrh and influenza										Peritonitis					1			3
	Whooping cough										Ascites								
	Eye Diseases	8	1	1					3		Ulceration of intestines.								
	Fever (C. C.)										Hernia								
	Typhus			135	199	70	27	28	15		Ileus and colic								
	Typhoid										Intussusception								
	Ephemeral										Stricture of intestine								
	Erysipelas										Fistula								
	Carbuncle										Stomach disease, &c.								
	Dysentery	132	138	174	115	146	98	104	91		Pancreas disease, &c.								
	Hepatitis and liver disease.	50	53	48	63	53	59	45	36		Jaundice			1	1	1	7	6	
	Diarrhoea	8	23	39	38	37	15	27	34		Spleen disease, &c.								
	Cholera	87	84	37	131	80	48	48	113		ORDER 5.								
	Ague			10	20	39	12	13	16		Nephritis								
	Remittent fever	230	215	12	15	72	54	53	45		Ischuria								
	Rheumatism	5	16	8	8	7	8	5	4		Nephria								
	Ditto, with heart diseases.										Diabetes								
	ORDER 2.—Euthetic Diseases.										Stone								
	Syphilis, &c.	3	7	5	1	4	6	5	2		Cystitis								
	Stricture of urethra										Kidney disease, &c.				1			2	1
	Hydrophobia										ORDER 6.								
	ORDER 3.—Dietic Diseases.										Orchitis								
	Privation										Hydrocele								
	Purpura and scurvy										Urethra disease, &c.								
	a. Delirium tremens			3	7	9	4	17	14		ORDER 7.								
	b. Intemperance.										Arthritis								
	ORDER 4.—Parasitic Diseases.										Joint disease, &c.								
	Thrush										ORDER 8.								
	Psora										Phlegmon								1
	Porrigo, &c.										Abscess								
	II. ORDER 1.—Diathetic Diseases.										Ulcer	7	6	3	7	3	5	1	3
	Gout			1	6	7	4	6	5		Do. after contusion								
	Dropsy										Skin disease, &c.					2			1
	Cancer										IV. ORDER 1.								
	Noma										Cyanosis								
	Mortification										Spina bifida								
	ORDER 2.—Tubercular Diseases.										Other malformations								
	Scrophula										ORDER 4.								
	Tubercles mesenterica										Atrophy and debility								
	Phthisis	27	34	40	23	25	25	24	16		V. ORDER 1.								
	Hydrocephalus										Neglect								
III.	ORDER 1.										Cold								
	Cephalitis								1		Poison								
	Apoplexy	10	13	5	41	30	13	15	30		Burns, &c.								
	Sudden deaths										Sun stroke (see Apoplexy)								
	Paralysis										Hanging and suffocation.								
	Insanity				1	1		1			Drowning								
	Chorea										Fractures and contusions.							1	3
	Epilepsy										Wounds.								
	Convulsions										Concussio cerebri								
	Otitis										Other violence	9	10	4	12	12	5	6	5
	Brain disease, &c.										Cause not specified or ill-defined.	89	77	67	70	89	33	63	51

NOTE.—In calculating the mortality a correction has been made for the causes not specified, by distributing them proportionally over the various specified causes of death. The facts are from the medical returns, which do not include deaths in action, or other deaths which fall to come under the notice of the medical officers.

PRESIDENCY OF BENGAL.—DISEASES.

TABLE 5.—RETURN showing the NUMBER of DEATHS among the NON-COMMISSIONED OFFICERS and MEN of the whole of the EUROPEAN FORCES in the PRESIDENCY OF BENGAL by different DISEASES for each of the 8 Years 1838-45.

Strength in 1838, 11,221; 1839, 10,852; 1840, 13,506; 1841, 14,964; 1842, 17,695; 1843, 17,986; 1844, 16,548; 1845, 15,315.

Class	DISEASES, &c.	1838.	1839.	1840.	1841.	1842.	1843.	1844.	1845.	Class	DISEASES, &c.	1838.	1839.	1840.	1841.	1842.	1843.	1844.	1845.
	ALL CAUSES	634	598	1,140	1,137	1,803	1,804	834	1,678		ORDER 2.								
	SPECIFIED CAUSES	588	554	1,063	1,025	1,661	1,506	789	1,619		Pericarditis			1					
	CLASSES.										Aneurism				1				
I.	ZYMOTIC DISEASES	494	451	907	908	1,477	1,360	628	1,420		Varix								
II.	CONSTITUTIONAL	26	30	60	34	19	23	26	44		Heart disease, &c.								
III.	LOCAL	62	71	90	79	139	110	111	145		ORDER 3.								
IV.	DEVELOPMENTAL					3					Laryngitis								
V.	VIOLENCE	6	2	6	4	23	8	24	10		Bronchitis								
	ORDERS.										Pleurisy				1				
I.	ORDER 1.—Miasmatic Diseases.										Pneumonia	12	18	47	19	15	10	16	11
	Small-pox	1	2		2	19	6	2			Asthma		4	3	1			2	
	Measles										Lung disease, &c.								
	Scarlatina										ORDER 4.								
	Quinsy										Gastritis						1		
	Croup										Enteritis	4	7	6	1	5	7	9	4
	Catarrh and influenza				8	8	15	8	32		Peritonitis								
	Whooping cough										Ascites								1
	Eye diseases				1		3	3	1		Ulceration of intestines								
	Fever (C. C.)										Hernia								
	Typhus	24	17	27	115	167	192	78	134		Ileus and colic				4	8	2		4
	Typhoid										Itussusception								
	Ephemeral										Stricture of intestine								
	Erysipelas										Fistula				1				1
	Carbuncle										Stomach disease, &c.								
	Dysentery	109	137	334	298	353	418	156	226		Pancreas disease, &c.								
	Hepatitis and liver disease.	38	34	62	90	43	85	64	78		Jaundice				1	1	2	1	5
	Diarrhoea	34	111	124	69	127	152	21	35		Spleen disease, &c.	2	5		5	7	1	5	5
	Cholera	156	31	110	158	440	201	125	741		ORDER 5.								
	Ague	23	29	124	37	165	89	29	24		Nephritis								
	Remittent fever	62	58	107	93	176	167	113	107		Ischuria								
	Rheumatism	6	7	6	10	2	5	5	4		Nephria								
	Ditto, with heart diseases.										Diabetes								
	ORDER 2.—Ethnetic Diseases.										Stone								
	Syphilis, &c.	2	6	5	1	4	5	4	4		Cystitis								
	Stricture of urethra										Kidney disease, &c.	1	1	2		1		1	
	Hydrophobia										ORDER 6.								
	ORDER 3.—Dietic Diseases.										Orchitis								
	Privation										Hydrocele								
	Purpura and Scurvy					2	1		3		Urethra disease, &c.								
	Alcoholism { a. Delirium tremens.	14	19	18	26	21	21	20	31		ORDER 7.								
	b. Intemperance.										Arthritis				1	1		1	1
	ORDER 4.—Parasitic Diseases.										Joint disease, &c.								
	Thrush										ORDER 8.								
	Psora										Phlegmon	1	2	1	6	1	6	2	4
	Porrigo, &c.										Abscess	1	9	3		4		1	
	II. ORDER 1.—Diathetic Diseases.										Ulcer	1							
	Gout										Ditto, after contusion			1					
	Dropsy	7	9	23	3	2	3	6	9		Skin disease, &c.	1							
	Cancer					2			1		IV. ORDER 1.								
	Noma										Cyanosis								
	Mortification				1						Spina bifida								
	ORDER 2.—Tubercular Diseases.										Other malformations								
	Scrophula										ORDER 4.								
	Tuberc. mesenterica										Atrophy and debility					3			
	Phthisis	19	21	38	30	15	28	20	33		V. ORDER 1.								
	Hydrocephalus										Neglect								
III.	ORDER 1.										Cold								
	Cephalitis	9	1		1		16	1			Poison								
	Apoplexy	37	22	25	29	76	69	68	99		Burns, &c.								
	Sudden deaths				2	2		1	4		Sun stroke (see Apoplexy)							4	5
	Paralysis		1	2	1	4	2		2		Hæmorrhage and suffocation.								
	Insanity					2	10		4		Drowning								
	Epilepsy										Fractures and contusions.	2	1	4		2	2	1	3
	Convulsions										Wound				2	20	1	15	5
	Otitis										Concussio cerebri				1	1	1	2	1
	Brain disease, &c.				2		1				Other violence	4	1	2	1	1	1	1	1
											Cause not specified or ill-defined.	46	42	77	112	141	98	45	59

NOTE.—In calculating the mortality a correction has been made for the causes not specified, by distributing them proportionally over the various specified causes of death. The facts are from the medical returns, which do not include deaths in action, or other deaths which fall to come under the notice of the medical officers.

PRESIDENCY OF BOMBAY.—DISEASES.

TABLE 6.—Showing the STRENGTH of the whole of the EUROPEAN FORCES in the PRESIDENCY of BOMBAY during each of the Years 1830-45 inclusive, and also the DEATHS from different DISEASES in the same Years.

		Years.															
		1830.	1831.	1832.	1833.	1834.	1835.	1836.	1837.	1838.	1839.	1840.	1841.	1842.	1843.	1844.	1845.
Strength -		5,964	6,005	6,130	5,832	5,571	5,341	5,589	5,399	5,240	5,381	5,176	7,433	8,366	8,631	8,900	8,608
Class.	DISEASES, &c.	Years.															
		1830.	1831.	1832.	1833.	1834.	1835.	1836.	1837.	1838.	1839.	1840.	1841.	1842.	1843.	1844.	1845.
	ALL CAUSES - - - -	211	136	132	193	206	190	168	260	181	533	371	477	856	714	777	634
	SPECIFIED CAUSES - - -	184	117	113	166	179	158	137	236	168	519	337	461	818	691	731	680
	CLASSES.																
I.	ZYMOTIC DISEASES - - -	166	93	98	144	154	138	113	204	140	438	299	409	764	595	673	616
II.	CONSTITUTIONAL - - - -	13	17	11	20	18	11	18	10	5	7	6	18	13	12	10	16
III.	LOCAL - - - - -	5	4	3	2	6	9	5	19	20	50	50	30	34	69	42	36
IV.	DEVELOPMENTAL - - - -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
V.	VIOLENCE - - - - -	-	3	1	-	1	-	1	3	3	24	2	4	7	15	6	8
	ORDERS.																
I.	ORDER 1.—Miasmatic Diseases.																
	Small-pox - - - - -	2	-	1	1	2	1	-	-	1	1	-	-	2	-	7	-
	Measles - - - - -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Scarlatina - - - - -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
	Quincy - - - - -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Croup - - - - -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Catarrh and influenza -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Whooping cough - - - -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Ophthalmia (Eye disease)	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-
	Fever (C. C.) - - - - -																
	Typhus - - - - -	35	21	16	43	69	77	49	-	-	-	4	33	8	3	2	-
	Typhoid - - - - -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Ephemeral - - - - -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Erysipelas - - - - -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Carbuncle - - - - -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dysentery - - - - -	69	39	27	23	23	36	43	72	33	157	85	175	119	198	246	307
	Hepatitis and liver disease	26	13	12	19	17	11	12	34	33	40	36	45	35	35	39	40
	Diarrhoea - - - - -	11	5	4	8	13	5	5	17	10	35	13	13	33	14	23	23
	Cholera - - - - -	18	12	86	46	6	5	2	15	19	101	45	6	414	21	112	65
	Ague - - - - -	-	-	-	-	-	-	-	10	11	20	27	20	35	56	30	32
	Remittent fever - - - -	-	-	-	-	-	-	-	45	21	69	73	91	72	248	192	50
	Rheumatism - - - - -	5	3	2	2	2	3	1	3	6	6	1	5	7	3	2	1
	Ditto, with heart diseases	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	ORDER 2.—Euthetic Diseases.																
	Syphilis, &c. - - - - -	-	-	-	2	-	-	1	-	2	2	1	2	1	4	1	4
	Stricture of urethra - - -	-	-	-	-	-	-	-	-	3	-	-	-	-	-	1	-
	Hydrophobia - - - - -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	ORDER 3.—Dietic Diseases.																
	Privation - - - - -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Purpura and scurvy - - -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Alcoholism { a. Delirium tremens	-	-	-	-	-	-	-	-	5	4	3	3	5	3	1	-
	{ b. Intemperance - - -	-	-	-	-	-	-	-	-	-	4	10	8	23	11	13	6
	ORDER 4.—Parasitic Diseases.																
	Thrush - - - - -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Psora - - - - -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dracunculus - - - - -	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
II.	ORDER 1.—Diathetic Diseases.																
	Gout - - - - -	-	-	-	-	-	-	-	6	4	3	2	3	2	5	6	4
	Dropsy - - - - -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Cancer - - - - -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Noma - - - - -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Mortification - - - - -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	ORDER 2.—Tubercular Diseases.																
	Scrofula - - - - -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tuberc mesenterica - - -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Phthisis - - - - -	18	17	11	20	18	11	18	5	1	4	4	15	11	7	4	12
	Hydrocephalus - - - - -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

NOTE.—In calculating the mortality a correction has been made for the causes not specified, by distributing them proportionally over the various specified causes of death. The facts are from the medical returns, which do not include deaths in action, or other deaths which fall to come under the notice of the medical officers.

PRESIDENCY OF BOMBAY.—DISEASES.

TABLE 6.—continued.

Class.	DISEASE, &c.	Years.															
		1830.	1831.	1832.	1833.	1834.	1835.	1836.	1837.	1838.	1839.	1840.	1841.	1842.	1843.	1844.	1845.
III.	ORDER 1.																
	Cephalitis	4	4	3	2	4	8	4	7	1	12	3	3	2	—	27	1
	Apoplexy	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Sudden deaths	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Paralysis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Insanity	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Chorea	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Epilepsy	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Convulsions	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Otitis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Brain disease, &c.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	
ORDER 2.	Pericarditis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Aneurism	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Varix	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Heart disease, &c.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
ORDER 3.	Laryngitis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Bronchitis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Pleurisy	—	—	—	—	—	—	—	7	6	23	11	10	13	10	8	14
	Pneumonia	—	—	—	—	—	—	—	—	2	2	2	2	—	—	—	—
	Asthma	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Lung disease, &c.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
ORDER 4.	Gastritis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Enteritis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Peritonitis	—	—	—	—	—	—	—	3	5	8	2	5	4	2	3	1
	Ascites	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Ulceration of intestines	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Hernia	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Ileus and colic	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Intussusception	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Stricture of intestine	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Fistula	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Stomach disease, &c.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Pancreas disease, &c.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Jaundice	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Spleen disease, &c.	—	—	—	—	—	—	—	—	1	1	—	—	2	1	1	1
ORDER 5.	Nephritis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Ischuria	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Nephria	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Diabetes	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Stone	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Cystitis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Kidney disease, &c.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
ORDER 6.	Orchitis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Hydrocele	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Urethra disease, &c.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
ORDER 7.	Arthritis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Joint disease, &c.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
ORDER 8.	Phlegmon	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Abscess	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Ulcer	1	—	—	—	2	1	1	—	—	—	—	—	—	—	—	—
	Diffo, after contusion	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Skin disease, &c.	—	—	—	—	—	—	—	2	—	—	2	—	2	1	—	—	
IV.	ORDER 1.																
	Cyanosis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Spina bifida	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Other malformations	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
ORDER 4.																	
Atrophy and debility	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4
V.	ORDER 1.																
	Neglect	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Cold	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Poison	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Burns, &c.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Sun stroke	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Hanging and suffocation	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Drowning	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Fractures and contusions	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Wounds	—	3	1	—	1	—	1	—	2	—	1	—	2	—	1	—
	Concussio cerebri	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Other violence	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Cause not specified, or ill defined	27	19	19	27	27	33	31	24	13	19	14	16	33	23	46	4

No. 7.—ANNUAL GENERAL RETURN OF SICK AND WOUNDED OF THE HONORABLE COMPANY'S NATIVE TROOPS, IN THE BENGAL AND NORTH-WESTERN PROVINCES FROM 1ST APRIL 1852 TO 31ST MARCH 1853.

	Classes of Diseases.																Total.
	Fevers.	Eruptive Fevers.	Diseases of the Lungs.	Diseases of the Liver.	Diseases of the Stomach and Bowels.	Epidemic Cholera.	Diseases of the Brain.	Dropsies.	Rheumatic Affections.	Veneral Affections.	Abscesses and Ulcers.	Wounds and Injuries.	Punished.	Diseases of the Eyes.	Diseases of the Skin.	Other Diseases.	
Remained sick on 1st April 1852.	1,180	87	136	14	244	2	38	8	389	308	759	310	2	45	120	206	3,848
Admitted during the year (attacks).	82,864	592	2,603	245	15,090	587	464	104	5,242	3,461	17,837	7,515	28	1,542	2,737	4,558	145,469
Total treated - - -	84,044	679	2,739	259	15,334	589	502	112	5,631	3,769	18,596	7,825	30	1,587	2,857	4,764	149,317
Discharged cured during the year.	81,018	553	2,290	217	13,861	277	395	72	4,954	3,438	17,804	7,355	28	1,507	2,719	4,181	140,669
Transferred during the year -	1,348	11	133	13	510	5	25	9	269	83	157	120	—	13	34	258	2,988
Invalided during the year - -	38	—	16	1	87	—	5	1	40	8	11	8	2	3	1	17	238
Died during the year - - -	615	62	196	17	434	295	41	27	54	17	25	47	—	—	—	107	1,939
Remaining on 31st March 1853.	1,025	53	104	11	442	12	36	8	314	223	599	295	—	62	103	201	3,483
Total treated - - -	84,044	679	2,739	259	15,334	589	502	112	5,631	3,769	18,596	7,825	30	1,587	2,857	4,764	149,317

Average monthly strength during the year - - - 123,143
 Average daily sick - - - 5,607
 Ratio per cent. of sick (attacks of sickness) to well - 121.25*
 " of deaths to disease " - 1.30
 " of deaths to strength " - 1.58
 The average sick at the beginning and end of the term to 100 of mean strength was - - - 2.97

* This means the proportion of attacks of sickness + the sick remaining to 100 of mean strength. The proportion treated to 100 strength was really 118.29; the number treated being nearly represented by the mean of the numbers admitted and discharged, including dead, during the year.

No. 8.—TABLE SHOWING THE RATIO PER CENT. TO STRENGTH OF ATTACKS, REMAINING SICK, DEATHS, INVALIDED, AND TRANSFERRED, FROM DIFFERENT CLASSES OF DISEASES OF THE LATE EAST INDIA COMPANY'S NATIVE TROOPS IN THE BENGAL AND NORTH-WESTERN PROVINCES, FROM 1ST APRIL 1852 TO 31ST MARCH 1853.

Classes of Diseases.	Ratio per cent. to Strength.				
	Attacks.	Remaining sick.*	Deaths.	Invalided.	Transferred.
All diseases - - - -	118.132	2.976	1.574	.192	2.426
Fevers - - - -	67.291	.895	.499	.031	1.095
Eruptive fevers - - - -	.481	.057	.050	—	.009
Epidemic cholera - - - -	.477	.006	.240	—	.004
Diseases of the stomach and bowels - - - -	12.254	.279	.352	.071	.414
Diseases of the liver - - - -	.199	.010	.014	.001	.011
Rheumatic affections - - - -	4.257	.285	.044	.032	.218
Veneral affections - - - -	2.811	.216	.014	.006	.067
Diseases of the eye - - - -	1.252	.043	.002	.002	.011
Diseases of the skin - - - -	2.223	.091	—	.001	.028
Abscess and ulcer - - - -	14.485	.551	.020	.009	.127
Diseases of the brain - - - -	.377	.030	.033	.004	.020
Diseases of the lungs - - - -	2.114	.097	.159	.013	.108
Dropsies - - - -	.084	.004	.022	.001	.007
Other diseases - - - -	3.701	.165	.087	.014	.210
Wounds and injuries - - - -	6.103	.246	.038	.006	.097
Punished - - - -	.023	.001	—	.001	—

* The ratios in this column are calculated from the mean of the numbers remaining sick at the beginning and at the end of the year thus:—

Remaining sick (all diseases) on 1st April 1852 - 3,848
 " " " on 31st March 1853 - 3,483
 2) 7,331
 Mean numbers remaining sick - - - 3,665.5

They are therefore only approximative results, serving to illustrate the utility of such information as might have been deduced from weekly enumerations of the sick remaining from the several diseases. The classification is defective, and this also impairs the utility of the Indian Returns.

SANITARY STATISTICS OF HER MAJESTY'S REGIMENTS SERVING IN INDIA.

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		46.	673
		47.	675
		48.	676
		49.	677
		50.	678
		51.	680
		52.	682
		53.	683
		54.	684
		55.	684
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Aden	—	713	725	—
Agra	—	657	692	—
Bengal, Presidency	590	592	589	754 and 755
Bombay	595	597	594	754 and 756
„ Station of	—	718	726	—
Belgaum	—	711	725	—
Basid Khail	—	677	697	—
Bangalore	727	733	749	—
Burmah	—	607	{ 606 }	—
Berhampore	—	676	{ 753 }	—
Calcutta. See Fort William.	—	—	696	—
Cawnpore	—	661	693	—
Chinsurah	—	665	694	—
Colaba	—	707	724	—
Cannanore	—	731	749	—
Dinapore	—	641	687	—
Darjeeling	—	645	688	—
Dum Dum	—	659	693	—
Dugshai	—	667	695	—
Deesa	—	700	722	—
En route { Bengal	619	639	686	—
„ { Bombay	—	709	724	—
„ { Madras	729	737	750	—
Fort St. George	—	735	750	—
„ William	—	635	685	—
Field Service	—	609	{ 606 }	—
Ferozepore	615	631	{ 752 }	—
Govindghur	—	675	696	—
Ghazepore	—	678	697	—
Hyderabad	—	715	725	—
Jullundur	—	643	687	—
Jackatalla	—	743	751	—
Kussowlie	—	653	691	—
Kurrachee { Bengal	626	671	695	—
„ { Bombay	—	704	723	—
Kirkee	698	—	722	—
Kamptee	—	747	752	—
Lahore	617	633	684	—
Landour	—	637	686	—
Lucknow	—	680	697	—
Madras, Presidency	601	603	600	754 and 756
„ Station. See Fort St. George.	—	—	—	—
Meerut	613	627	682	—
Murree	—	669	695	—
Mount Aboo	—	717	726	—
Peshawur { Bengal	—	651	691	—
„ { Bombay	—	720	726	—
Poona	—	702	723	—
Poonamallee	—	745	751	—
Rawul Pindi	—	649	690	—
Sealkote	623	655	692	—
Subathoo	—	673	696	—
Secunderabad	—	741	751	—
Trichinopoly	—	739	751	—
Umballa	611	629	683	—
Wuzeerabad	621	647	689	—

MEMORANDUM.

The Admissions, Discharges, and Deaths of Her Majesty's Troops in India are entered *regimentally* in the Quarterly Returns of Sick, furnished by the Principal Medical Officer in each Presidency, and it has in consequence been found in many instances impossible to allot them to the actual *stations* at which they may have occurred. Thus, the sick of a regiment are occasionally entered at the station of the head quarters, although from other evidence it would appear that some portion of the corps was on detached duty.

Regiments are often returned as occupying two or

more stations during the period, without the details of each station being kept separate; in such cases the numbers have been added to the Tables "Troops en route, &c.," as not being assignable correctly to any station.

Several clerical errors have also been found to exist in the original documents, which there are now no means of correcting.

It will, therefore, be evident that it has only been possible to present in these Tables a near approximation to the desired stational information.

SANITARY STATISTICS OF HER MAJESTY'S REGIMENTS SERVING IN INDIA.

No. 1.

B E N G A L.

PRESIDENTIAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS
AND MEN.

(A).—SUMMARY OF ALL THE STATIONS.

Stations.	Number of Years under Observa- tion.	Aggregate Strength.	Mean Number constantly Sick in Hospital.	Admissions into Hospital.	Discharged from Hospital.	Deaths in and out of Hospital.
Meerut - - -	10	11,936	101	20,674	19,989	450
Umballa - - -	"	13,099	102	20,215	19,581	533
Ferozepore - - -	"	7,941	76	16,827	16,255	446
Lahore - - -	"	9,214	91	22,631	21,770	725
Fort William - - -	"	6,077	54	11,453	11,105	577
Landour - - -	"	1,103	15	2,188	2,098	30
Troops en route, &c. - - -	"	25,426	181	41,614	41,498	1,399
Dinapore - - -	9	7,018	72	13,406	12,773	446
Jullundur - - -	"	6,472	62	12,788	12,684	230
Darjeeling - - -	"	642	6	837	798	26
Wuzersbad - - -	8	10,908	110	17,349	17,084	428
Rawul Pindi - - -	"	7,136	70	17,317	17,073	215
Peshawur - - -	"	13,393	193	50,986	49,773	843
Kussowlie - - -	"	3,521	34	5,928	5,739	135
Sealkote - - -	7	4,562	47	7,881	7,706	120
Agra - - -	"	3,790	40	7,836	7,559	160
Dum Dum - - -	"	1,528	17	2,671	2,412	120
Cawnpore - - -	"	4,973	73	12,932	12,473	455
Allahabad - - -	"	816	7	1,122	1,078	83
Chinsurah - - -	6	692	5	829	805	25
Dugshai - - -	"	4,311	58	7,620	960	165
Murree - - -	"	425	13	958	922	38
Kurrachee - - -	4	572	8	680	676	19
Subathoo - - -	3	439	14	681	642	22
Govindghur - - -	2	107	2	187	186	1
Berhampore - - -	"	146	4	140	116	9
Basid Khail - - -	1	43	25	8	10	—
Gbazepore - - -	"	404	31	722	668	19
Lucknow - - -	"	628	39	836	840	81
Totals - - -	-	147,322	1,525·25	299,316	291,273	7,800

ANNUAL AVERAGES.

	Average Annual Strength.	Number constantly Sick.	Annual Average.		
			Admissions.	Discharges.	Deaths.
Stations occupied during 10 years - - -	7,479	620	13,560	13,229	416
" " 9 " - - -	1,370	140	3,003	2,917	78
" " 8 " - - -	4,370	407	11,447	11,208	203
" " 7 " - - -	2,238	184	4,663	4,461	134
" " 6 " - - -	903	76	1,568	1,431	38
" " 4 " - - -	143	8	170	169	5
" " 3 " - - -	146	14	227	214	7
" " 2 " - - -	126	6	164	151	5
" " 1 " - - -	1,075	70·25	1,560	994	100
Average annual results for the whole Presidency of Bengal - - -	17,850	1,525·25	36,362	85,774	986

No. 2.

BENGAL.—CAVALRY.

PRESIDENTIAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength - - - - - 14,681

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Five Years, 1847 to 1851.			Five Years, 1852 to 1856.			Total for 10 Years.			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES -	11,920	11,534	342	8,088	7,951	111	20,038	19,485	453	1,364.9	30.85
	CLASSES.											
I.	ZYMOTIC DISEASES -	8,856	8,584	213	6,006	5,901	72	14,862	14,485	285	1,012.33	19.4
II.	CONSTITUTIONAL -	62	48	11	49	34	10	111	82	21	7.56	1.43
III.	LOCAL - - - -	2,135	1,999	112	1,408	1,380	29	3,543	3,379	141	241.33	9.6
V.	VIOLENCE - - - -	897	903	6	625	636	—	1,522	1,539	6	103.67	.41
	ORDERS.											
I.	ORDER 1.—Miasmatic Dis.											
	Small-pox - - - -	13	11	2	13	9	3					
	Vaccinia - - - -	17	17	—	1	1	—					
	Measles - - - -	—	—	—	1	1	—					
	Quinsy - - - -	85	86	1	97	98	—					
	Catarrh and Influenza - -	259	248	7	224	214	—					
	Ophthalmia - - - -	356	348	—	128	131	—					
	Fever (C. C.) - - - -	2,615	2,529	74	698	692	8	11,238	10,894	254	765.48	17.3
	Erysipelas - - - -	29	29	—	10	10	—					
	Dysentery - - - -	484	426	64	148	120	9					
	Diarrhea - - - -	578	552	29	378	373	5					
	Cholera - - - -	54	54	1	67	53	20					
	Ague - - - -	1,426	1,406	6	2,190	2,171	5					
	Remittent-Fever - - - -	254	233	9	208	193	9					
	Rheumatism - - - -	538	526	2	367	358	—					
	ORDER 2.—Ethereal Dis.											
	Syphilis, &c. - - - -	1,786	1,770	5	1,177	1,203	—	3,033	3,036	6	206.6	.41
	Stricture of Urethra - -	38	34	—	32	29	1					
	ORDER 3.—Dietic Dis.											
	Purpura and Scurvy - -	10	10	2	6	4	—					
	Alcoholism { a. Del. Tremens	99	87	10	47	38	9	546	509	25	37.19	1.7
	{ b. Intemperance	203	205	1	181	165	3					
	ORDER 4.—Parasitic Dis.											
	Verues - - - -	12	13	—	29	28	—	45	46	—	3.06	—
	Psora - - - -	—	—	—	4	5	—					
II.	ORDER 1.—Diathetic Dis.											
	Lumbago - - - -	17	16	—	18	16	1	41	36	3	2.79	.2
	Dropsy - - - -	4	3	1	2	1	1					
	ORDER 2.—Tubercular Dis.											
	Morbus Coxarius - - - -	1	1	—	1	—	—	70	46	18	4.77	1.23
	Scrofula - - - -	16	16	—	8	6	—					
	Phthisis - - - -	15	7	9	16	7	8					
	Hæmoptysis - - - -	9	5	1	4	4	—					

No. 2.—Bengal; Cavalry. Presidential Returns. European Troops; H. M. Regiments—continued.

Class.	Diseases.	Five Years, 1847 to 1851.			Five Years, 1852 to 1856.			Total for 10 Years.			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
III.	ORDER 1.											
	Cephalitis	58	58	1	60	63	—	322	265	56	21.93	3.81
	Odontalgia	11	11	—	1	1	—					
	Apoplexy	55	13	42	14	5	9					
	Hydrophobia	1	—	1	—	—	—					
	Paralysis	8	5	—	7	6	1					
	Insanity	14	9	—	2	2	—					
	Epilepsy	10	10	—	21	24	1					
	Otitis	35	34	—	19	19	—					
	Brain Disease, &c.	2	1	1	—	—	—					
	Dysœcœa	1	1	—	3	3	—					
	ORDER 2.											
	Pericarditis	14	14	2	4	2	2	42	40	9	2.86	.61
	Aneurism	3	1	2	2	1	1					
	Heart Disease, &c.	6	7	2	13	15	—					
	ORDER 3.											
	Epistaxis	3	3	—	2	1	—	155	142	8	10.56	.55
	Bronchitis	12	11	—	3	3	—					
	Pleurisy	45	44	3	27	26	1					
	Pneumonia	23	19	4	18	17	—					
	Asthma	16	12	—	6	6	—					
	ORDER 4.											
	Dyspepsia	125	125	1	120	106	—	1,463	1,369	66	99.65	4.49
	Gastritis	12	8	1	16	17	—					
	Enteritis	3	1	1	3	2	1					
	Peritonitis	5	4	2	—	—	—					
	Ascites	2	2	—	4	1	2					
	Hæmatemesis	—	—	—	1	1	—					
	Hernia	9	11	—	4	4	—					
	Ileus and Colic	126	114	—	50	56	—					
	Hæmorrhoids	61	58	1	30	28	—					
Fistula	10	7	1	6	6	—						
Obstipatio	57	58	—	23	23	—						
Hepatitis	378	325	44	197	191	11						
Jaundice	80	83	—	56	56	—						
Spleen Disease, &c.	40	35	1	45	47	—						
ORDER 5.												
Nephritis	10	10	—	11	8	—	43	33	1	2.93	.07	
Ischuria	12	6	—	2	2	—						
Hæmaturia	4	3	1	3	3	—						
Cystitis	—	—	—	1	1	—						
ORDER 6.												
Hydrocele	5	3	—	12	9	—	17	12	—	1.16	—	
ORDER 7.												
Hydrarthrus	1	—	—	3	2	—	20	17	—	1.34	—	
Arthritis	—	—	—	5	5	—						
Joint Disease, &c.	2	2	—	6	6	—						
Contractura	3	2	—	—	—	—	—	—	—	—	—	
ORDER 8.												
Phlegmon	616	625	1	391	388	—	1,481	1,501	1	100.88	.07	
Ulcer	194	199	—	173	177	—						
Tumor	8	7	—	5	6	—						
Skin Disease, &c.	55	58	—	89	41	—						
V.	ORDER I.—Accident or Negligence.											
	Burns or Scalds	8	7	—	7	9	—	1,331	1,350	5	90.66	34
	Contusion	556	572	—	320	323	—					
	Sub-laxation	83	84	—	86	87	—					
	Luxation	17	17	1	9	11	—					
	Fracture	43	41	2	26	28	—					
	Wounds { Gunshot	6	12	—	9	10	—					
	{ Incised	81	72	—	75	75	—					
	Amputatio	3	1	1	1	—	—					
	Otherwise	1	1	—	—	—	—					
	Found dead	—	—	1	—	—	—					
	ORDER 5.											
	Punitus	63	35	—	5	6	—	191	189	1	13.01	.07
Observatio	63	61	1	87	87	—						

BENGAL.—INFANTRY.

PRESIDENTIAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength - - - - - 132,643.

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number of DISCHARGED to DUTY; and (F.) the NUMBER of DEATHS by different DISEASES.

Class.	Diseases.	Five Years, 1847 to 1851.			Five Years, 1852 to 1856.			Total for 10 Years.			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES	116,530	113,020	3,846	159,954	156,607	3,445	276,484	269,627	7,291	2,084.47	54.97
	CLASSES.											
I.	ZYMOTIC DISEASES	95,216	91,948	2,762	131,017	128,459	2,522	226,233	220,407	5,284	1,705.64	39.83
II.	CONSTITUTIONAL	961	766	193	1,197	981	173	2,158	1,747	366	16.27	2.76
III.	LOCAL	15,748	15,418	817	21,543	21,061	686	37,291	36,479	1,503	281.13	11.33
IV.	DEVELOPMENTAL	35	22	9	8	2	5	43	24	14	.32	.1
V.	VIOLENCE	4,570	4,866	65	6,189	6,104	59	10,759	10,970	124	81.11	.95
	ORDERS.											
I.	ORDER 1.—Miasmatic Dis.											
	Small-pox	128	91	35	73	57	15	195,185	189,464	5,115	1,471.5	38.56
	Varicella	5	5	—	3	3	—					
	Measles	9	9	2	48	44	4					
	Vaccinia	6	6	—	—	—	—					
	Quinsy	558	552	4	958	943	13					
	Catarrh and Influenza	3,027	2,944	68	5,492	5,370	47					
	Ophthalmia	8,157	8,093	1	4,125	4,161	—					
	Fever (C. C.)	23,514	22,947	585	23,137	22,529	332					
	Typhus	14	6	5	1	—	1					
	Typhoid	1	1	—	—	—	—					
	Icterodes	2	1	—	1	1	—					
	Erysipelas	94	86	2	46	40	6					
	Dysentery	9,971	9,052	1,075	6,161	5,327	653					
	Diarrhœa	7,230	7,010	201	11,477	11,282	379					
	Cholera	1,027	617	421	1,257	494	738					
	Ague	18,107	17,706	113	52,561	52,861	173					
	Remittent Fever	3,405	3,009	112	2,011	1,938	88					
	Rheumatism	5,158	4,882	29	7,421	7,397	13					
	ORDER 2.—Euthetic Dis.											
	Syphilis, &c.	13,064	13,253	37	14,633	14,476	21	28,118	28,110	62	211.98	.47
	Stricture of Urethra	141	124	1	280	257	3					
	ORDER 3.—Dietic Dis.											
	Purpura and Scurvy	353	324	14	296	272	7	2,490	2,396	107	18.84	.8
	Alcoholism { a. Del. Tremens b. Intemperance	539 530	511 543	42 15	251 521	228 518	26 3					
	ORDER 4.—Parasitic Dis.											
	Vernex	124	123	—	239	236	—	440	437	—	3.32	—
	Psora	52	53	—	25	25	—					
II.	ORDER 1.—Diathetic Dis.											
	Lumbago	191	193	—	322	341	—	702	688	32	5.29	.24
	Dropsy	91	73	16	96	79	16					
	Cancer	2	2	—	—	—	—					
	ORDER 2.—Tubercular Dis.											
	Morbus Coxarius	7	8	1	15	14	1	1,456	1,059	334	10.98	2.52
	Scrofula	258	255	3	202	204	2					
	Phthisis	301	138	164	381	178	138					
	Hæmoptysis	111	97	9	181	165	16					
III.	ORDER 1.											
	Cephalitis	232	227	4	627	611	4	3,869	3,308	584	29.17	4.4
	Tetanus	4	—	4	2	1	1					
	Apoplexy	370	127	269	369	143	240					
	Odontalgia	32	34	—	51	48	—					
	Paralysis	127	123	15	154	140	9					
	Hydrophobia	1	—	1	—	—	—					
	Insanity	166	148	7	211	212	3					
	Epilepsy	223	229	7	302	309	7					
	Otitis	344	338	—	566	543	1					
	Brain Disease, &c.	24	24	5	27	17	7					
	Dysœcœa	6	5	—	81	29	—					

No. 3.—Bengal; Infantry. Presidential Returns. European Troops; H. M. Regiments—continued.

Class.	Diseases.	Five Years, 1847 to 1851.			Five Years, 1852 to 1856.			Total for 10 Years.			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
III.	ORDER 2.											
	Pericarditis	152	129	19	574	546	37	1,189	1,098	70	8.96	.53
	Aneurism	6	3	4	15	8	5					
	Varix	29	26	—	81	57	—					
	Heart Disease, &c.	63	63	2	269	266	3					
	ORDER 3.											
	Epistaxis	32	30	2	55	53	—	2,204	1,985	193	16.62	1.45
	Bronchitis	185	163	18	399	371	24					
	Hydrothorax	4	—	3	1	—	1					
	Pleurisy	272	250	17	243	226	7					
	Pneumonia	336	274	59	387	322	56					
	Asthma	116	129	4	174	167	2					
	ORDER 4.											
	Dyspepsia	933	915	4	1,899	1,804	3	19,027	18,251	614	144.04	4.63
	Gastritis	123	117	10	141	135	6					
	Enteritis	51	36	14	47	36	10					
	Peritonitis	60	40	19	64	46	17					
	Ascites	24	14	10	44	31	9					
	Hæmatemesis	17	14	3	26	21	5					
	Hernia	38	31	—	87	80	—					
	Ileus and Colic	1,461	1,475	4	1,623	1,623	5					
	Hæmorrhoids	619	583	1	677	669	3					
	Prolapsus Ani	4	4	—	25	25	—					
	Fistula	61	58	—	121	121	1					
	Obstipatio	510	499	1	539	526	—					
	Hepatitis	3,085	2,851	272	4,277	4,012	192					
	Jaundice	391	380	9	222	208	4					
	Spleen Disease, &c.	601	584	6	1,257	1,253	6					
	ORDER 5.											
	Nephritis	61	67	1	128	125	5	411	412	11	3.1	.08
	Hæmaturia	2	2	—	5	5	—					
	Ischuria	59	58	—	83	84	2					
Enuresis	16	14	—	23	23	—						
Diabetes	2	4	—	11	9	2						
Stone	1	1	—	1	1	—						
Cystitis	10	10	1	9	9	—						
ORDER 6.												
Hydrocele	32	34	—	52	55	1	88	93	1	.06	.01	
Testis Disease, &c.	—	—	—	4	4	—						
ORDER 7.												
Hydrarthrus	20	21	—	20	19	—	223	219	2	1.68	.02	
Arthritis	42	46	—	53	50	—						
Joint Disease, &c.	31	18	2	27	25	—						
Contractura	24	35	—	6	5	—						
ORDER 8.												
Phlegmon	2,610	2,896	15	3,249	3,641	5	10,280	11,113	28	77.5	.21	
Ulcer	1,802	1,939	4	1,768	1,762	2						
Tumor	22	22	—	95	96	—						
Skin Disease, &c.	312	328	1	422	429	1						
IV.	ORDER 4.											
	Atrophy	35	22	9	8	2	5	43	24	14	.32	.1
V.	ORDER 1.—Accident or Negligence.											
	Burns or Scalds	102	108	1	96	90	—	8,043	8,291	72	60.64	.54
	Contusion	1,946	2,116	4	2,480	2,465	4					
	Sub-luxation	684	706	—	969	972	—					
	Luxation	68	64	—	74	71	—					
	Fracture	157	168	4	194	189	3					
	Wounds { Gunshot	350	401	10	48	44	4					
	Wounds { Incised	436	461	2	421	422	2					
	Amputatio	13	9	—	5	5	1					
	Drowned	—	—	14	—	—	—					
	Found dead	—	—	11	—	—	7					
	Not known	—	—	1	—	—	2					
	ORDER 2.—Battle.											
	Wounds, Gunshot	—	—	—	—	—	2	—	—	2	—	.02
	ORDER 3.—Homicide.											
	Assassinated	—	—	—	—	—	1	—	—	1	—	.01
	ORDER 4.—Suicide (attempted or accomplished).											
	Wounds, Gunshot	1	—	5	—	—	4	1	—	10	—	.09
	Suspendium	—	—	1	—	—	—					
	ORDER 5.											
	Punitus	222	225	—	109	106	—	2,715	2,679	39	20.47	.29
	Observatio	591	608	10	1,793	1,740	29					

No. 4.

B O M B A Y.

PRESIDENTIAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS
AND MEN.

(A.)—SUMMARY.

STATIONS.	Number of Years under Observation.	Aggregate Strength.	Mean Number constantly sick in Hospital.	Admissions into Hospital.	Discharges from Hospital.	Deaths in and out of Hospital.
Kirkee - - - -	10	6,559	} No statistical information on the subject available. See Return below.*	13,588	13,541	131
Deesa - - - -	"	8,930		14,379	14,055	232
Poona - - - -	"	12,863		22,230	22,301	340
Kurrachee - - - -	9	10,605		19,415	18,928	361
Colaba - - - -	8	3,174		6,578	6,494	151
Troops en route, &c. - - - -	6	2,866		5,768	6,209	102
Belgaum - - - -	"	5,915		9,308	9,254	115
Aden - - - -	5	2,103		2,436	2,395	34
Hyderabad - - - -	4	1,728		4,030	4,036	62
Mount Aboo - - - -	1	83		101	94	7
Bombay - - - -	"	273	636	619	16	
Peshawur - - - -	"	498	1,470	1,359	30	
Total - - - -	-	55,597	-	99,939	99,285	1,581

ANNUAL AVERAGES.

	Average Annual Strength.	Number constantly Sick.	Annual Average.		
			Admitted.	Discharged.	Deaths.
Stations occupied during 10 years - - -	2,835	—	5,020	4,990	70
" 9 " - - -	1,178	—	2,157	2,103	40
" 8 " - - -	397	—	822	812	19
" 6 " - - -	1,463	—	2,512	2,577	36
" 5 " - - -	420	—	487	478	7
" 4 " - - -	432	—	1,007	1,009	15
" 1 " - - -	854	—	2,207	2,072	53
Average annual Results for whole Presidency of Bombay - - - -	7,579	400	14,212	14,041	240

* RETURN showing the AVERAGE DAILY SICK of the TROOPS serving in the Presidency of Bombay during the 10 Years 1847-56.

Year ending 31 March	Average Daily Sick.
1848	522
" 1849	486
" 1850	545
" 1851	355
" 1852	365
" 1853	441
" 1854	401
" 1855	343
" 1856	286
" 1857	257
Annual average - - - -	400

No. 5.

BOMBAY.—CAVALRY.

PRESIDENTIAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength - - - - - 6,559

RETURN showing (C) the Number of ATTACKS of SICKNESS; (E) the Number DISCHARGED to DUTY; and (F) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Five Years, 1847 to 1851.			Five Years, 1852 to 1856.			Total for 10 Years.			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES -	7,660	7,580	86	6,060	5,947	40	13,720	13,527	126	2,091.78	19.21
	CLASSES.											
I.	ZYMOTIC DISEASES -	4,905	4,879	56	4,165	4,084	27	9,070	8,963	83	1,382.84	12.65
II.	CONSTITUTIONAL -	27	18	11	31	29	3	58	47	14	8.84	2.13
III.	LOCAL - - - - -	2,079	2,033	19	1,367	1,346	10	3,446	3,379	29	525.38	4.42
V.	VIOLENCE - - - - -	649	650	—	497	488	2	1,146	1,138	—	174.72	—
	ORDERS.											
I.	ORDER 1.—Miasmatic Dis.											
	Small-pox - - - - -	—	—	—	3	5	—	7,107	7,028	82	1,083.56	12.5
	Measles - - - - -	—	—	—	3	3	—					
	Quinsy - - - - -	57	50	1	73	72	—					
	Catarrh and Influenza -	424	426	—	174	177	1					
	Ophthalmia - - - - -	125	125	—	68	61	—					
	Fever (C.C.) - - - - -	1,285	1,287	16	388	378	6					
	Erysipelas - - - - -	10	10	—	8	7	—					
	Dysentery - - - - -	171	179	14	68	63	3					
	Diarrhœa - - - - -	727	727	—	290	289	—					
	Cholera - - - - -	59	39	20	24	11	13					
	Ague - - - - -	418	409	—	1,682	1,670	1					
	Remittent Fever - - -	32	28	4	198	195	2					
	Rheumatism - - - - -	550	552	—	270	265	1					
	ORDER 2.—Ethetic Dis.											
	Syphilis, &c. - - - - -	984	985	1	829	810	—	1,848	1,826	1	281.75	.15
	Stricture of Urethra -	13	12	—	22	19	—					
	ORDER 3.—Dietic Dis.											
	Alcoholism - { a. Del. Tremens	7	7	—	9	9	—	25	25	—	3.81	—
	b. Intemperance	—	—	—	9	9	—					
	ORDER 4.—Parasitic Dis.											
	Psora - - - - -	5	5	—	47	41	—	90	84	—	13.72	—
	Vermes - - - - -	19	19	—	—	—	—					
	Dracunculus - - - - -	19	19	—	—	—	—					
II.	ORDER 1.—Diathetic Dis.											
	Gout - - - - -	—	—	—	2	2	—	18	18	3	2.74	.46
	Lumbago - - - - -	2	2	—	6	6	—					
	Dropsy - - - - -	2	2	1	6	6	1					
	ORDER 2.—Tubercular Dis.											
	Scrofula - - - - -	6	6	—	11	11	—	40	29	11	6.1	1.68
	Phthisis - - - - -	9	1	8	3	1	2					
	Hæmoptysis - - - - -	8	7	1	3	3	—					

No. 5.—Bombay; Cavalry. Presidential Returns. European Troops; H.M. Regiments—*continued.*

Class.	Diseases.	Five Years, 1847 to 1851.			Five Years, 1852 to 1856.			Total for 10 Years.			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
III.	ORDER 1.											
	Cephalitis	49	—	1	20	18	—	135	79	6	20·58	·92
	Apoplexy	4	2	4	—	—	—					
	Paralysis	8	8	—	8	7	—					
	Odontalgia	9	6	—	2	2	—					
	Insanity	—	1	—	2	2	—					
	Neuralgia	—	—	—	3	3	—					
	Epilepsy	3	3	—	6	5	1					
	Otitis	5	5	—	8	8	—					
	Dysecœa	4	5	—	3	3	—					
	Brain Disease, &c.	—	—	—	1	1	—					
	ORDER 2.											
	Pericarditis	12	10	—	23	24	—	116	114	1	17·68	·15
	Aneurism	—	—	—	6	5	1					
	Varix	6	6	—	8	8	—					
	Heart Disease, &c.	60	60	—	1	1	—					
	ORDER 3.											
	Epistaxis	1	1	—	—	—	—	61	58	3	9·31	·46
	Bronchitis	7	7	—	11	11	—					
	Pleurisy	—	—	—	15	15	—					
	Pneumonia	22	20	2	3	2	1					
	Asthma	2	2	—	—	—	—					
	ORDER 4.											
	Dyspepsia	312	310	—	154	158	—	1,477	1,478	19	225·19	2·89
	Gastritis	3	3	—	4	4	—					
	Enteritis	2	2	—	9	7	2					
	Peritonitis	—	—	—	1	1	—					
	Ascites	1	—	1	2	—	3					
	Hernia	10	10	—	2	1	1					
	Heus and Colic	230	230	—	166	165	—					
	Prolapsus Ani	1	1	—	—	—	—					
	Fistula	7	7	—	5	5	—					
	Obstipatio	59	59	—	25	25	—					
	Hæmorrhoids	48	48	—	26	26	—					
	Hepatitis	211	222	10	122	119	1					
	Jaundice	28	28	—	16	14	1					
	Spleen Disease, &c.	17	17	1	16	16	—					
	ORDER 5.											
	Nephritis	—	—	—	5	4	—	14	13	—	2·13	—
	Ischuria	—	—	—	1	1	—					
	Dysuria	5	5	—	—	—	—					
	Hæmaturia	—	—	—	1	1	—					
Cystitis	—	—	—	1	1	—						
ORDER 6.												
Sarcocele	1	1	—	—	—	—	5	5	—	·76	—	
Hydrocele	2	2	—	2	2	—						
ORDER 7.												
Joint Diseases, &c.	4	4	—	3	3	—	8	8	—	1·22	—	
Contractura	—	—	—	1	1	—						
ORDER 8.												
Phlegmon	571	575	—	487	482	—	1,630	1,624	—	248·51	—	
Abscess												
Ulcer												
Tumor												
Skin Disease, &c.												
ORDER 1.— <i>Accident or Negligence.</i>												
Burns or Scalds	2	2	—	2	1	—	1,113	1,113	—	169·69	—	
Contusion	393	394	—	284	284	—						
Sub-luxation	109	113	—	90	89	—						
Luxation	2	1	—	2	3	—						
Fracture	14	14	—	5	4	—						
Wounds { Gunshot	1	—	—	1	2	—						
{ Incised	127	125	—	80	80	—						
Amputatio	—	—	—	1	1	—						
ORDER 5.												
Punitus	1	1	—	7	6	—	33	25	—	5·03	—	
Observatio	—	—	—	25	18	—						

No. 6.

BOMBAY.—INFANTRY.

PRESIDENTIAL RETURNS—EUROPEAN TROOPS.—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength - - - - - 49,038.

RETURN showing (C) the Number of ATTACKS of SICKNESS; (E) the Number DISCHARGED to DUTY; and (F) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Five Years, 1847 to 1851.			Five Years, 1852 to 1856.			Total for 10 Years.			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	Attacked.	Died
	SPECIFIED CAUSES -	47,677	47,213	948	38,844	38,075	495	86,521	85,288	1,443	1,764.37	29.42
	CLASSES.											
I.	ZYMOTIC DISEASES -	34,578	34,298	625	27,577	27,125	252	62,155	61,423	877	1,267.5	17.88
II.	CONSTITUTIONAL -	594	523	69	574	527	48	1,168	1,050	117	23.82	2.38
III.	LOCAL - - - -	10,436	10,310	228	8,960	8,721	167	19,396	19,031	395	395.53	8.05
IV.	DEVELOPMENTAL -	1	1	—	16	15	1	17	16	1	.34	.02
V.	VIOLENCE - - - -	2,068	2,081	26	1,717	1,687	27	3,785	3,768	53	77.18	1.08
	ORDERS.											
	ORDER 1.—Miasmatic Dis.											
	Varicella - - - -	3	3	—	—	—	—					
	Small-pox - - - -	22	16	5	30	22	6					
	Erythema - - - -	1	1	—	—	—	—					
	Measles - - - -	—	—	—	7	7	—					
	Parotitis - - - -	4	4	—	—	—	—					
	Vaccinia - - - -	9	9	—	4	4	—					
	Quinsy - - - -	352	364	1	256	260	—					
	Catarrh and Influenza -	1,440	1,451	13	1,421	1,371	5					
	Ophthalmia - - - -	1,641	1,643	—	841	850	—					
	Fever (C. C.) - - - -	5,709	5,685	53	1,634	1,693	4	48,871	48,244	830	996.59	16.93
	Typhus - - - -	2	—	2	1	1	—					
	Icterodes - - - -	—	—	—	3	3	—					
	Erysipelas - - - -	45	41	2	22	20	1					
	Dysentery - - - -	2,550	2,341	234	888	805	91					
	Diarrhoea - - - -	3,335	3,315	33	1,565	1,545	9					
	Cholera - - - -	314	195	163	52	30	21					
	Ague - - - -	5,525	5,548	13	11,363	11,199	10					
	Remittent Fever - - -	2,268	2,255	75	2,164	2,096	82					
	Rheumatism - - - -	3,156	3,212	6	2,244	2,255	1					
	ORDER 2.—Ethnetic Dis.											
	Syphilis, &c. - - - -	7,550	7,572	10	4,650	4,542	4	12,392	12,302	15	252.73	.30
	Stricture of Urethra -	66	59	1	124	127	—					
	Lepra - - - -	2	2	—	—	—	—					
	ORDER 3.—Dietic Dis.											
	Purpura and Scurvy - -	144	145	5	151	150	2					
	Alcoholism { a. Del. Tremens -	145	135	9	155	143	16	598	575	32	12.19	.65
	b. Intemperance -	1	—	—	2	2	—					
	ORDER 4.—Parasitic Dis.											
	Psora - - - -	90	93	—	—	—	—	294	302	—	5.99	—
	Vermes - - - -	86	97	—	—	—	—					
	Dracunculus - - - -	118	112	—	—	—	—					

No. 6.—Bombay; Infantry. Presidential Returns. European Troops; H.M. Regiments—*continued.*

Class.	Diseases.	Five Years, 1847 to 1851.			Five Years, 1852 to 1856.			Total for 10 Years.			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
II.	ORDER 1.—Diathetic Dis.											
	Gout - - - - -	—	—	—	1	1	—	} 440	424	18	8·97	·37
	Lumbago - - - - -	114	109	1	216	218	—					
	Dropsy - - - - -	54	47	9	55	49	8					
	ORDER 2.—Tubercular Dis.											
	Scrofula - - - - -	283	280	1	154	149	2	} 728	626	99	14·85	2·02
	Morbus Coxarius - - - - -	6	8	—	4	4	—					
	Phthisis - - - - -	107	51	57	112	77	36					
	Hæmoptysis - - - - -	30	28	1	32	29	2					
	III.	ORDER 1.										
Cephalitis - - - - -		89	89	—	372	368	1	} 1,630	1,545	98	33·74	2·00
Vertigo - - - - -		3	3	—	—	—	—					
Apoplexy - - - - -		75	31	50	45	23	20					
Paralysis - - - - -		62	56	8	97	86	11					
Odontalgia - - - - -		19	22	—	18	18	—					
Insanity - - - - -		103	114	1	92	82	1					
Neuralgia - - - - -		16	15	—	14	14	—					
Epilepsy - - - - -		89	90	1	81	82	1					
Otitis - - - - -		234	235	—	174	172	—					
Chorea - - - - -		—	—	—	1	—	—					
Dyseccæa - - - - -		17	18	—	14	14	—					
Brain Disease, &c. - - - - -		11	10	2	4	3	2					
ORDER 2.												
Trismus Idiopathicus - - - - -		1	—	1	—	—	—	} 823	767	48	16·78	·98
Pericarditis - - - - -		198	190	5	298	266	26					
Aneurism - - - - -		2	1	1	36	24	12					
Varix - - - - -		29	30	—	81	82	—					
Heart Disease, &c. - - - - -		123	118	3	55	56	—					
ORDER 3.												
Epistaxis - - - - -		11	10	1	8	9	—	} 911	879	39	18·58	·79
Laryngitis - - - - -		—	—	—	1	1	—					
Bronchitis - - - - -		186	178	9	173	172	4					
Pleurisy - - - - -		44	46	1	73	75	1					
Hydrothorax - - - - -		2	2	—	1	1	—					
Pneumonia - - - - -		139	120	10	80	76	6					
Asthma - - - - -		72	71	3	121	118	4					
ORDER 4.												
Dyspepsia - - - - -		1,594	1,593	2	1,716	1,701	3	} 10,997	10,734	203	223·74	4·14
Gastritis - - - - -		28	28	1	42	40	2					
Enteritis - - - - -		25	21	3	13	10	3					
Peritonitis - - - - -		27	21	5	13	7	5					
Ascites - - - - -		13	7	4	40	29	4					
Colonitis - - - - -		1	1	—	—	—	—					
Hernia - - - - -		32	30	—	45	49	—					
Ileus and Colic - - - - -		738	713	1	552	542	—					
Prolapsus Ani - - - - -		11	11	—	11	12	—					
Stricture of Rectum - - - - -		5	4	—	—	—	—					
Stricture of Intestine - - - - -		—	—	—	1	2	—					
Fistula - - - - -		26	22	—	18	18	—					
Obstipatio - - - - -	489	490	1	261	261	2						
Hæmorrhoids - - - - -	298	312	—	208	208	—						
Hepatitis - - - - -	2,106	1,995	108	1,564	1,487	49						
Jaundice - - - - -	226	230	1	105	98	5						
Spleen Disease - - - - -	326	332	2	439	437	—						
Hæmatemesis - - - - -	15	15	—	9	8	2						
ORDER 5.												
Nephritis - - - - -	29	30	1	54	51	2	} 183	178	3	3·73	·06	
Enuresis - - - - -	17	17	—	16	14	—						
Ischuria - - - - -	—	—	—	30	31	—						
Dysuria - - - - -	28	29	—	—	—	—						
Diabetes - - - - -	—	—	—	2	2	—						
Stone - - - - -	1	1	—	—	—	—						
Cystitis - - - - -	3	3	—	3	—	—						

No. 6.—Bombay ; Infantry. Presidential Returns. European Troops ; H.M. Regiments—*continued.*

Class.	Diseases.	Five Years, 1847 to 1851.			Five Years, 1852 to 1856.			Total for 10 Years.			Annual Ratio per 1000 of Mean Strength.		
		(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	Attacked.	Died.	
III.	ORDER 6.												
	Sarcocele - - -	5	2	—	—	—	—	}	80	76	1	1·63	·02
	Orchitis - - -	1	1	—	—	—	—						
	Hydrocele - - -	32	31	—	42	42	1						
	ORDER 7.												
	Contractura - - -	1	—	—	5	5	—	}	69	63	—	1·41	—
	Arthritis - - -	4	3	—	—	—	—						
	Periostitis - - -	2	3	—	—	—	—						
	Joint Disease, &c. - - -	16	12	—	39	38	—						
	Hydrarthrus - - -	2	2	—	—	—	—						
	ORDER 8.												
	Phlegmon - - -	}	1,618	1,634	2	1,068	1,065	}	4,703	4,789	3	95·92	·06
	Abscess - - -												
	Ulcer - - -												
	Tumor - - -												
Skin Disease, &c. - - -													
ORDER 4.													
Atrophy - - -	1	1	—	16	15	1	17	16	1	·34	·02		
V. ORDER 1.— <i>Accident or Negligence.</i>													
Burns or Scalds - - -	32	33	—	26	21	—	}	3,497	3,487	43	71·31	·88	
Contusion - - -	1,066	1,084	—	935	920	—							
Concussio Cerebri - - -	1	—	1	1	1	—							
Sub-luxation - - -	473	472	—	313	307	—							
Luxation - - -	26	25	—	25	25	—							
Fracture - - -	65	69	—	60	62	1							
Wounds { Gunshot - - -	5	7	2	16	14	—							
{ Incised - - -	260	257	2	187	184	—							
Morsus Serpentinis - - -	1	1	—	—	—	—							
Drowning - - -	—	—	8	—	—	8							
Suffocatio - - -	—	—	—	1	1	—							
Venenatio - - -	—	—	—	1	1	1							
Amputatio - - -	1	—	1	2	3	—							
Sudden Death - - -	—	—	2	—	—	2							
Found Dead - - -	—	—	8	—	—	7							
ORDER 4.— <i>Suicide (attempted or accomplished).</i>													
Wounds { Gunshot - - -	—	—	—	—	—	1	}	—	—	4	—	·08	
{ Cut, Stab - - -	—	—	—	—	—	3							
ORDER 5.													
Punitus - - -	32	32	—	31	29	—	}	288	281	6	5·87	·12	
Observatio - - -	108	101	—	119	120	4							

No. 7.

MADRAS.

PRESIDENTIAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS
AND MEN.

(A)—SUMMARY.

STATIONS.	No of Years under Observation.	Aggregate Strength.	Mean Number constantly sick in Hospital.	Admissions into Hospital.	Discharged from Hospital.	Deaths in and out of Hospital.
Cannanore - - - -	10	9,032	58	13,252	13,036	195
Bangalore - - - -	"	13,424	97	18,446	18,200	269
Fort St. George - - -	8	6,601	67	11,892	11,702	223
Troops en route, &c. - - -	"	3,451	28	5,853	5,786	136
Trichinopoly - - - -	4	4,005	62	6,142	6,144	82
Secunderabad - - - -	3	3,022	69	4,806	4,692	96
Jackatalla - - - -	"	1,687	24	1,615	1,580	68
Poonamaltee - - - -	2	201	7	297	364	19
Kamptee - - - -	1	767	41	1,023	1,025	27
Total - - - -	-	42,190	453	63,326	62,529	1,135

ANNUAL AVERAGES.

	Average Annual Strength.	Number constantly Sick.	Annual Average.		
			Admissions.	Discharges.	Deaths.
Stations occupied during 10 years - - -	2,246	155	3,170	3,124	46
" 8 " - - -	1,256	95	2,219	2,197	45
" 4 " - - -	1,001	62	1,535	1,536	20
" 3 " - - -	1,570	93	2,140	2,091	55
" 2 " - - -	101	7	148	182	9
" 1 " - - -	767	41	1,023	1,025	27
Average Annual Results for the whole } Presidency of Madras - - - }	6,941	453	10,235	10,155	202

No. 8.

MADRAS.—CAVALRY.

PRESIDENTIAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength - - - - - 5,483.

RETURN showing (C) the Number of ATTACKS of SICKNESS; (E) the Number DISCHARGED to DUTY; and (F) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Five Years, 1847 to 1851.			Five Years, 1852 to 1856.			Total for 10 Years.			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES -	4,509	4,451	51	3,110	3,071	47	7,619	7,522	98	1,389.57	17.87
	CLASSES.											
I.	ZYMOTIC DISEASES -	2,522	2,489	21	1,828	1,808	24	4,350	4,297	45	793.36	8.21
II.	CONSTITUTIONAL -	40	30	5	48	44	2	88	74	7	16.05	1.27
III.	LOCAL - - - - -	1,342	1,320	20	898	888	17	2,240	2,208	37	408.53	6.75
IV.	DEVELOPMENTAL -	—	—	—	4	4	—	4	4	—	.73	—
V.	VIOLENCE - - - - -	605	612	5	332	327	4	937	939	9	170.90	1.64
	ORDERS.											
I.	ORDER 1.—Miasmatic Dis.											
	Small-pox - - - - -	3	3	—	3	5	—	2,417	2,381	40	440.82	7.29
	Vaccinia - - - - -	—	—	—	1	1	—					
	Varicella - - - - -	1	1	—	—	—	—					
	Measles - - - - -	1	1	—	2	2	—					
	Quinsy - - - - -	52	51	—	27	29	—					
	Catarrh and Influenza -	156	152	—	97	96	—					
	Ophthalmia - - - - -	79	79	—	77	76	—					
	Fever (C.C.) - - - - -	278	270	4	197	192	5					
	Erythema - - - - -	—	—	—	1	1	—					
	Erysipelas - - - - -	2	2	—	10	10	—					
	Dysentery - - - - -	276	270	9	104	101	3					
	Diarrhoea - - - - -	152	151	—	190	195	3					
	Cholera - - - - -	14	12	2	15	8	7					
	Ague - - - - -	7	3	—	14	13	1					
	Remittent Fever - - - -	34	35	3	48	45	3					
	Rheumatism - - - - -	316	315	—	260	262	—					
	ORDER 2.—Ethetic Dis.							1,831	1,816	8	333.94	.55
	Syphilis, &c. - - - - -	1,083	1,080	2	731	723	1					
	Stricture of Urethra - -	11	8	—	6	5	—					
	ORDER 3.—Dietic Dis.							88	86	2	16.05	.37
	Purpura and Scurvy - - -	1	1	—	—	—	—					
	Alcoholism { a. Del. Tremens	33	30	1	28	27	1					
	{ b. Intemperance	16	18	—	10	10	—					
	ORDER 4.—Parasitic Dis.							14	14	—	2.55	—
	Vermes - - - - -	6	6	—	4	4	—					
	Psora - - - - -	—	—	—	3	3	—					
	Porrigo, &c. - - - - -	1	1	—	—	—	—					
II.	ORDER 1.—Diathetic Dis.							46	89	2	8.39	.36
	Lumbago - - - - -	17	14	—	23	22	—					
	Gout - - - - -	—	—	—	1	1	—					
	Dropsy - - - - -	1	—	1	4	2	1					
	ORDER 2.—Tubercular Dis.							42	35	5	7.66	.91
	Morbus Coxarius - - - -	5	3	—	6	6	—					
	Scrofula - - - - -	11	11	—	11	11	—					
	Phthisis - - - - -	4	1	3	—	—	—					
	Hæmoptysis - - - - -	2	1	1	3	2	1					

No. 8.—Madras; Cavalry: Presidential Returns. European Troops; H. M. Regiments—*continued.*

Class.	Diseases.	Five Years, 1847 to 1851.			Five Years, 1852 to 1856.			Total for 10 Years.			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
III.	ORDER 1.											
	Cephalitis	37	37	—	77	76	1	226	209	15	41.22	2.74
	Meningitis	2	2	—	—	—	—					
	Apoplexy	4	1	3	3	1	3					
	Paralysis	20	12	5	17	15	2					
	Insanity	5	5	—	8	7	1					
	Odontalgia	3	3	—	—	—	—					
	Epilepsy	12	12	—	23	23	—					
	Otitis	8	8	—	5	5	—					
	Brain Disease, &c.	1	1	—	—	—	—					
Dysecœa	1	1	—	—	—	—						
	ORDER 2.											
Pericarditis	60	58	2	22	23	—	95	91	4	17.32	.73	
Aneurism	1	1	—	1	—	1						
Varix	1	1	—	3	3	—						
Heart Disease, &c.	2	1	—	5	4	1						
	ORDER 3.											
Pleurisy	—	—	—	1	1	—	48	49	1	8.75	.18	
Pneumonia	16	16	—	3	3	—						
Asthma	21	23	—	7	6	1						
	ORDER 4.											
Dyspepsia	50	50	—	32	32	—	817	807	17	149.01	3.10	
Gastritis	16	16	—	6	6	—						
Enteritis	12	11	2	1	1	—						
Hæmatemesis	2	2	—	1	—	1						
Hernia	4	4	—	—	—	—						
Ileus and Colic	75	75	—	20	19	—						
Hæmorrhoids	14	16	—	26	26	—						
Fistula	2	2	—	7	7	—						
Obstipatio	66	63	—	19	19	—						
Hepatitis	249	247	7	156	152	6						
Jaundice	11	11	1	9	9	—						
Spleen Disease, &c.	19	19	—	20	20	—						
	ORDER 5.											
Nephritis	3	3	—	8	8	—	36	35	—	6.57	—	
Ischuria	19	18	—	2	2	—						
Enuresis	—	—	—	1	1	—						
Cystitis	2	2	—	1	1	—						
	ORDER 6.											
Hydrocele	2	3	—	2	2	—	4	5	—	.73	—	
	ORDER 7.											
Arthritis	2	2	—	—	—	—	15	13	—	2.73	—	
Joint Disease, &c.	12	10	—	1	1	—						
	ORDER 8.											
Phlegmon	348	349	—	246	250	—	999	999	—	182.20	—	
Abscess												
Ulcer												
Tumor												
Skin Disease, &c.	116	111	—	72	71	—						
IV.	ORDER 4.											
Atrophy	—	—	—	4	4	—	4	4	—	.73	—	
V.	ORDER 1.— <i>Accident or Negligence.</i>											
Burns or Scalds	5	5	—	4	4	—	925	927	4	168.71	.73	
Contusion	467	472	—	245	241	—						
Sub-luxation	55	54	—	14	15	—						
Luxation	7	7	—	—	—	—						
Fracture	18	18	—	8	7	—						
Wounds, Incised	48	51	—	47	47	—						
Concussio Cerebri	3	3	—	4	3	1						
Drowned	—	—	2	—	—	1						
	ORDER 4.— <i>Suicide.</i>											
Gunshot Wound	—	—	3	—	—	1	—	—	5	—	.91	
Not stated	—	—	—	—	—	1						
	ORDER 5.											
Punitus	1	1	—	—	—	—	12	12	—	2.19	—	
Observatio	1	1	—	10	10	—						

No. 9.

MADRAS.—INFANTRY.

PRESIDENTIAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength - - - - - 36,707

RETURN showing (C.) the Number of ATTACKS of SICKNESS ; (E.) the Number DISCHARGED to DUTY ; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Five Years, 1847 to 1851.			Five Years, 1852 to 1856.			Total for 10 Years.			Annual Ratio per 100 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES	35,953	35,211	661	19,514	19,342	370	55,467	54,553	1,031	1,511.07	28.08
	CLASSES.											
I.	ZYMOTIC DISEASES	24,237	23,916	364	12,892	12,821	206	37,129	36,737	570	1,011.5	15.53
II.	CONSTITUTIONAL	468	393	79	300	285	32	768	678	111	20.92	3.02
III.	LOCAL	9,169	8,869	193	5,147	5,051	118	14,316	13,920	311	390.01	8.47
IV.	DEVELOPMENTAL	7	5	2	13	13	—	20	18	2	.54	.05
V.	VIOLENCE	2,072	2,028	23	1,162	1,172	14	3,234	3,200	37	88.10	1.01
	ORDERS.											
I.	ORDER 1.—Miasmatic Dis.											
	Anthrax	3	3	—	7	7	—	24,204	23,751	528	659.38	14.36
	Small-pox	26	21	4	8	9	—					
	Varicella	4	4	—	11	10	—					
	Measles	18	18	—	8	10	—					
	Scarlatina	1	1	—	—	—	—					
	Quinsy	333	336	—	190	191	—					
	Catarrh and Influenza	2,389	2,370	13	1,127	1,122	7					
	Ophthalmia	869	862	—	435	450	—					
	Fever (C. C.)	3,439	3,424	43	1,248	1,232	21					
	Typhus	—	—	—	1	—	1					
	Icterodes	1	1	—	—	—	—					
	Ephemeral	—	—	—	35	36	—					
	Erythema	—	—	—	4	4	—					
	Erysipelas	11	10	1	12	12	1					
	Dysentery	2,291	2,154	196	881	836	64					
	Diarrhoea	2,076	2,074	12	1,663	1,655	10					
	Cholera	71	23	49	144	69	80					
	Ague	1,534	1,531	1	1,518	1,494	2					
	Remittent Fever	67	63	6	180	172	7					
	Rheumatism	2,353	2,295	7	1,246	1,252	3					
	ORDER 2.—Euthetic Dis.											
	Syphilis, &c.	8,013	7,989	14	3,702	3,794	1	11,900	11,965	16	324.19	.44
	Stricture of Urethra	108	102	—	77	80	1					
	ORDER 3.—Dietic Dis.											
	Bronchocele	1	1	—	—	—	—	803	804	26	21.88	.71
	Purpura and Scurvy	100	113	4	14	13	5					
	Alcoholism { a. Del. Tremens b. Intemperance	178 302	175 300	10 4	77 131	62 140	3 —					
	ORDER 4.—Parasitic Dis.											
	Verues	49	46	—	88	87	—	222	217	—	6.05	—
	Psora	—	—	—	85	84	—					

No. 9.—Madras ; Infantry. Presidential Returns. European Troops ; H. M. Regiments—*continued.*

Class.	Diseases.	Five Years, 1847 to 1851.			Five Years, 1852 to 1856.			Total for 10 Years.			Annual Ratio per 1000 of Mean Strength.						
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.					
II.	ORDER 1.— <i>Diathetic Dis.</i>																
	Lumbago - - - -	92	87	—	93	95	—	234	237	9	6·37	·24					
	Dropsy - - - -	17	16	2	31	38	7										
	Cancer - - - -	—	—	—	1	1	—										
	ORDER 2.— <i>Tubercular Dis.</i>																
	Morbus Coxarius - -	5	5	—	2	2	—	534	441	102	14·55	2·78					
	Scrofula - - - -	146	144	2	56	54	1										
	Phtisis - - - -	146	82	72	87	67	23										
	Hæmoptysis - - - -	62	59	3	30	28	1										
III.	ORDER 1.																
	Cephalitis - - - -	230	225	1	172	171	—	1,327	1,250	77	36·15	2·09					
	Apoplexy - - - -	28	6	28	33	17	20										
	Vertigo - - - -	3	3	—	—	—	—										
	Paralysis - - - -	71	64	7	50	46	2										
	Tetanus - - - -	2	—	3	—	—	—										
	Insanity - - - -	94	87	3	38	40	2										
	Chorea - - - -	2	1	—	—	—	—										
	Epilepsy - - - -	100	94	4	61	59	1										
	Neuralgia - - - -	8	8	—	8	8	—										
	Otitis - - - -	223	224	1	109	109	1										
	Odontalgia - - - -	61	61	—	8	8	—										
	Brain Disease, &c. -	8	4	3	2	1	1										
	Dysœcœa - - - -	9	7	—	7	7	—										
	ORDER 2.																
	Pericarditis - - - -	86	71	14	62	55	7	438	393	53	11·93	1·44					
	Aneurism - - - -	9	—	12	32	22	11										
	Varix - - - -	41	40	2	12	13	—										
	Heart Disease, &c. -	40	38	4	152	150	3										
	Phlebitis - - - -	4	4	—	—	—	—										
	ORDER 3.																
	Epistaxis - - - -	4	4	—	4	4	—	537	518	21	14·63	·57					
	Laryngitis - - - -	—	—	—	3	3	—										
	Hydrothorax - - - -	3	—	3	—	—	—										
	Bronchitis - - - -	—	—	—	125	125	4										
	Pleurisy - - - -	—	—	—	23	23	—										
	Pneumonia - - - -	131	128	3	43	33	9										
	Asthma - - - -	145	138	2	55	59	—										
	Sarcoma - - - -	1	1	—	—	—	—										
	ORDER 4.																
	Dyspepsia - - - -	654	652	2	709	707	3						6,629	6,447	150	180·59	4·07
	Gastritis - - - -	138	137	1	54	53	1										
	Enteritis - - - -	13	11	2	4	2	1										
	Peritonitis - - - -	6	5	1	1	—	1										
	Ascites - - - -	4	1	3	7	5	1										
	Hæmatemesis - - - -	3	2	—	5	4	1										
	Hernia - - - -	41	37	—	17	16	—										
	Ileus and Colic - - -	294	293	1	125	124	—										
	Hæmorrhoids - - - -	359	354	—	187	188	1										
	Fistula - - - -	36	37	—	6	6	—										
	Obstipatio - - - -	1,021	1,022	1	414	386	—										
	Hepatitis - - - -	1,691	1,589	85	664	656	38										
	Jaundice - - - -	52	43	2	39	32	4										
	Spleen Disease, &c. -	58	58	1	27	27	—										
	ORDER 5.																
	Nephritis - - - -	27	26	—	19	19	—	120	116	3	3·27	·0					
	Ischuria - - - -	29	29	—	22	22	—										
	Hæmaturia - - - -	—	—	—	3	3	1										
	Enuresis - - - -	2	2	—	—	—	—										
	Stone - - - -	1	1	—	2	2	—										
	Cystitis - - - -	10	9	1	5	3	1										
	ORDER 6.																
	Sarcocele - - - -	5	5	—	—	—	—	65	65	1	1·77	·0					
	Hydrocele - - - -	35	35	1	2	25	—										

No. 9.—Madras ; Infantry. Presidential Returns. European Troops ; H.M. Regiments—*continued.*

Class.	Diseases.	Five Years, 1847 to 1851.			Five Years, 1852 to 1856.			Total for 10 Years.			Annual Ratio per 1,00 of Mean Strength.	
		(C.)	(E.)	(F.)	(C.)	(E.)	(F.)	(C.)	(E.)	(F.)	Attacked.	Died.
		No. of Attacks.	No. discharged to Duty.	No. of Deaths.	No. of Attacks.	No. discharged to Duty.	No. of Deaths.	No. of Attacks.	No. discharged to Duty.	No. of Deaths.		
III.	ORDER 7.											
	Arthritis - - -	6	5	—	8	8	—	} 46	45	1	1.25	.03
	Joint Disease, &c. - - -	15	13	1	10	12	—					
	Hydrarthrus - - -	3	3	—	1	1	—					
	Contractura - - -	—	—	—	3	3	—					
	ORDER 8.											
	Phlegmon - - -	} 1,791	1,728	1	977	990	2	} 5,154	5,086	5	140.42	.14
	Abscess - - -											
	Ulcer - - -											
	Tumor - - -											
	Skin Disease, &c. - - -	569	567	—	186	184	—					
	ORDER 4.											
IV.	Atrophy - - -	7	5	2	13	13	—	20	18	2	.54	.05
V.	ORDER 1.— <i>Accident or Negligence.</i>											
	Burns or Scalds - - -	94	35	—	15	17	—	} 2,912	2,371	27	79.33	.73
	Contusion - - -	1,023	1,038	1	524	527	1					
	Sub-luxation - - -	449	451	1	298	295	—					
	Luxation - - -	26	26	—	11	17	—					
	Fracture - - -	51	52	1	50	44	4					
	Wounds { Gunshot - - -	5	5	—	3	5	1					
	{ Incised - - -	252	253	1	92	88	—					
	Concussio Cerebri - - -	5	3	1	3	4	1					
	Amputatio - - -	—	—	—	9	9	—					
	Lightning Stroke - - -	—	—	—	1	1	—					
	Otherwise - - -	1	1	—	—	—	—					
	Killed by Elephant - - -	—	—	1	—	—	—					
	Drowning - - -	—	—	7	—	—	3					
	Found Dead - - -	—	—	2	—	—	1					
	ORDER 2.— <i>Battle.</i>											
	Wounds, Gunshot - - -	—	—	4	—	—	—	—	—	4	—	.11
	ORDER 4.— <i>Suicide.</i>											
	Wounds, Gunshot - - -	—	—	2	—	—	—	} —	—	5	—	.14
	Hanging - - -											
	Not stated - - -											
	ORDER 5.											
	Punitus - - -	17	15	—	13	16	—	} 322	329	1	8.77	.03
	Observatio - - -	149	149	—	143	149	1					

No. 10.

B U R M A H.

GENERAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS
AND MEN.

(A.)—SUMMARY.

Years.	REGIMENTS.	Annual Mean Strength during the Year.	Mean Number constantly sick in Hospital.	Admissions into Hospital during the Year.	Discharged from Hospital.	Deaths.
1852	Her Majesty's Troops - -	1,635	169·25	4,328	3,679	376
1853	" " - -	1,703	220·25	4,687	4,396	436
1854	" " - -	960	54·75	1,326	1,304	30
1855	" " - -	1,845	106·5	2,410	2,311	89
1856	" " - -	2,223	185·75	3,667	2,470	111
	Total - -	8,366	736·	16,418	15,160	1,042

No. 11.

TROOPS ON FIELD SERVICE.

GENERAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS
AND MEN.

(A.)—SUMMARY.

Year.	Regiments.	Annual Mean Strength during the Year.	Mean Number constantly sick in Hospital.	Admissions into Hospital during the Year.	Discharged from Hospital.	Deaths.
1848	Her Majesty's Troops - -	1,898	104	3,415	3,403	173
1849	" " - -	2,702	127	5,322	4,654	484
1850	" " - -	27	—	3	—	—
1852	" " - -	176	8·75	138	168	1
1854	" " - -	184	5·5	244	314	6
1856	" " - -	278	—	396	387	4
	Total - -	5,265	—	9,518	8,926	668

No. 12.

BURMAH.

GENERAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 5 Years. - - - - 8,366.

RETURN showing (C.) the Number of ATTACKS of SICKNESS ; (E.) the Number DISCHARGED to DUTY ; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Five Years, 1852 to 1856.			Total for 5 Years.			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES - - -	17,937	16,502	1,016	17,937	16,502	1,016	2,144.1	121.44
	CLASSES.								
I.	ZYMOTIC DISEASES - - -	12,985	11,786	856	12,985	11,786	856	1,552.1	102.32
II.	CONSTITUTIONAL - - -	193	177	25	193	177	25	23.07	2.99
III.	LOCAL - - -	3,742	3,545	102	3,742	3,545	102	447.29	12.19
IV.	DEVELOPMENTAL - - -	23	17	7	23	17	7	2.75	.83
V.	VIOLENCE - - -	994	977	26	994	977	26	113.81	3.11
	ORDERS.								
I.	ORDER 1.— <i>Miasmatic Diseases.</i>								
	Small pox - - -	12	8	4	11,963	10,764	855	1,430.02	102.20
	Varicella - - -	5	5	—					
	Measles - - -	3	—	—					
	Quinsy - - -	70	71	—					
	Catarrh and Influenza - - -	680	686	2					
	Ophthalmia - - -	381	348	—					
	Fever (C. C.) - - -	1,387	1,350	49					
	Ephemeral - - -	42	—	—					
	Erysipelas - - -	5	4	1					
	Anthrax - - -	2	2	—					
	Dysentery - - -	3,255	2,730	441					
	Diarrhœa - - -	1,690	1,643	40					
	Cholera - - -	785	366	235					
	Ague - - -	1,696	1,675	12					
	Remittent Fever - - -	1,299	1,182	71					
	Rheumatism - - -	651	651	—					
	ORDER 2.— <i>Enthetic Diseases.</i>								
	Syphilis, &c. - - -	836	846	1	871	879	1	104.11	.12
	Stricture of Urethra - - -	35	33	—					
	ORDER 3.— <i>Dietic Diseases.</i>								
	Purpura and Scurvy - - -	33	30	—	122	115	—	14.58	—
	Alcoholism { <i>a.</i> Delirium Tremens <i>b.</i> Intemperance. - - -	48 41	44 41	— —					
	ORDER 4.— <i>Parasitic Diseases.</i>								
	Vermes - - -	23	22	—	29	28	—	3.47	—
	Psora - - -	6	6	—					
II.	ORDER 1.— <i>Diathetic Diseases.</i>								
	Lumbago - - -	44	44	—	73	68	4	8.72	.48
	Dropsy - - -	29	24	4					
	ORDER 2.— <i>Tubercular Diseases.</i>								
	Scrofula - - -	43	46	1	120	109	21	14.35	2.51
	Phthisis - - -	57	41	19					
	Hæmoptysis - - -	20	22	1					
III.	ORDER 1.								
	Cephalitis - - -	157	149	—	412	386	20	49.25	2.89
	Apoplexy - - -	45	31	15					
	Paralysis - - -	29	30	2					
	Odontalgia - - -	6	6	—					
	Insanity - - -	20	22	1					
	Epilepsy - - -	49	48	—					
	Otitis - - -	90	87	—					
	Neuralgia - - -	12	11	—					
	Brain Disease, &c. - - -	2	—	2					
	Dysœcœa - - -	2	2	—					

No. 12.—Burmah. General Returns. European Troops; H. M. Regiments—*continued.*

Class.	Diseases.	Five Years, 1852 to 1856.			Total for 5 Years.			Annual Ratio per 1000 of Mean Strength.						
		(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	Attacked.	Died.					
III.	ORDER 2.													
	Pericarditis - - - -	23	20	1	92	83	5	10.99	.59					
	Aneurism - - - -	3	1	2										
	Varix - - - -	13	13	—										
	Heart Disease, &c. - -	53	49	2										
	ORDER 3.				91	84	7	10.88	.83					
	Epistaxis - - - -	1	—	1										
	Laryngitis - - - -	3	3	—										
	Bronchitis - - - -	23	21	—										
	Pleurisy - - - -	24	26	—										
	Pneumonia - - - -	17	11	6										
	Asthma - - - -	23	23	—	1,854	1,741	66	221.62	7.90					
	ORDER 4.													
	Dyspepsia - - - -	322	313	2										
	Gastritis - - - -	27	27	—										
	Enteritis - - - -	3	3	—										
	Peritonitis - - - -	4	3	1										
	Ascites - - - -	8	5	4										
	Hæmatemesis - - - -	5	4	1										
	Hernia - - - -	6	6	—										
	Ileus and Colic - - - -	137	136	—										
	Hæmorrhoids - - - -	155	151	3										
	Fistula - - - -	14	12	—										
Obstipatio - - - -	134	135	—											
Hepatitis - - - -	933	645	55											
Jaundice - - - -	66	61	—											
Spleen Disease, &c. - -	40	40	—	39	38	1	4.66	.12						
ORDER 5.														
Nephritis - - - -	22	22	—											
Ischuria - - - -	12	11	1											
Diabetes - - - -	1	1	—											
Stone - - - -	1	1	—											
Cystitis - - - -	3	3	—	19	19	—	2.27	—						
ORDER 6.														
Hydrocele - - - -	19	19	—	26	27	—	3.11	—						
ORDER 7.														
Hydrarthrus - - - -	5	6	—											
Arthritis - - - -	12	13	—											
Joint Disease, &c. - -	8	7	—											
Contractura - - - -	1	1	—	1,209	1,167	3	144.51	.36						
ORDER 8.														
Phlegmon - - - -	655	607	2											
Ulcer - - - -	457	474	1											
Tumor - - - -	8	5	—											
Skin Disease, &c. - -	89	81	—	23	17	7	2.75	.83						
IV.	ORDER 4.													
Atrophy - - - -	23	17	7											
V.	ORDER 1.— <i>Accident or Negligence.</i>									579	566	12	69.21	1.43
Burns or Scalds - - - -	22	20	2											
Contusion - - - -	340	335	2											
Sub-luxation - - - -	169	168	—											
Luxation - - - -	18	16	—											
Fracture - - - -	24	24	—											
Concussion of Brain - -	2	—	1											
Amputatio - - - -	4	3	1											
Killed by fall of Earth -	—	—	1											
Killed by fall of House -	—	—	1											
Found dead - - - -	—	—	1											
Drowned - - - -	—	—	3	267	260	9	31.91	1.07						
ORDER 2.— <i>Battle.</i>														
Gunshot Wound - - - -	143	135	9											
Cut, Stab - - - -	124	125	—	—	—	3	—	.36						
Homicide - - - -	—	—	3											
ORDER 5.				148	151	2	17.69	.25						
Punitus - - - -	16	18	—											
Observatio - - - -	132	133	2											

No. 13.

TROOPS ON FIELD SERVICE.

GENERAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 6 Years - - - - 5,265

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Six Years, 1848 to 1850, 1852, 1854, 1856.			Total for 6 Years.			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES - - -	9,415	8,991	667	9,415	9,021	667	1,788·24	126·69
	CLASSES.								
I.	ZYMOTIC DISEASES - - -	6,807	6,626	160	6,807	6,626	160	1,292·9	30·39
II.	CONSTITUTIONAL - - -	79	66	12	79	66	12	15·00	2·28
III.	LOCAL - - - - -	1,075	1,000	74	1,075	1,000	74	204·18	14·06
IV.	DEVELOPMENTAL - - -	—	1	—	—	1	—	—	—
V.	VIOLENCE - - - - -	1,454	1,328	421	1,454	1,328	421	276·16	79·96
	ORDERS.								
I.	ORDER 1.— <i>Miasmatic Dis.</i>								
	Small-pox - - - - -	13	14	3	5,743	5,534	158	1,090·81	30·01
	Measles - - - - -	1	—	—					
	Quinsy - - - - -	43	47	—					
	Catarrh and Influenza - - -	242	235	5					
	Ophthalmia - - - - -	378	199	—					
	Fever (C. C.) - - - - -	1,511	1,578	23					
	Brysipelas - - - - -	6	6	—					
	Dysentery - - - - -	959	808	97					
	Diarrhoea - - - - -	445	405	13					
	Cholera - - - - -	7	4	4					
	Ague - - - - -	1,846	1,943	3					
	Remittent Fever - - - - -	201	191	10					
	Rheumatism - - - - -	91	104	—					
	ORDER 2.— <i>Enthetic Dis.</i>								
	Syphilis, &c. - - - - -	982	984	1	993	998	2	188·61	·38
	Stricture of Urethra - - -	11	14	1					
	ORDER 3.— <i>Dietic Dis.</i>								
	Purpura and Scurvy - - - -	10	6	—	63	85	—	11·96	—
	Alcoholism { <i>a.</i> Del. Tremens - -	14	9	—					
	{ <i>b.</i> Intemperance - - - - -	39	70	—					
	ORDER 4.— <i>Parasitic Dis.</i>								
	Vermes - - - - -	3	3	—	8	9	—	1·52	—
	Psora - - - - -	5	6	—					
II.	ORDER 1.— <i>Diathetic Dis.</i>								
	Lumbago - - - - -	32	25	—	37	30	1	7·03	·19
	Dropsy - - - - -	5	5	1					
	ORDER 2.— <i>Tubercular Dis.</i>								
	Scrofula - - - - -	17	16	—	42	36	11	7·97	2·09
	Phthisis - - - - -	21	14	10					
	Hæmoptysis - - - - -	4	6	1					

No. 13.—Troops on Field Service. General Returns. European Troops; H.M. Regiments—*cont.*

Class.	Diseases.	Six Years, 1848 to 1850, 1852, 1854, 1856.			Total for 6 Years.			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
III.	ORDER 1.								
	Cephalitis	18	19	—	110	84	34	20·89	6·46
	Apoplexy	33	4	32					
	Paralysis	11	12	—					
	Insanity	18	22	1					
	Odontalgia	2	1	—					
	Epilepsy	18	16	1					
	Tetanus	2	1	—					
	Otitis	8	8	—					
	Dyseccæ	—	1	—					
	ORDER 2.								
	Pericarditis	12	12	2	28	33	3	5·32	·57
	Aneurism	2	1	1					
	Varix	3	7	—					
	Heart Diseases, &c.	11	18	—					
	ORDER 3.								
	Epistaxis	1	1	—	65	52	7	12·34	1·33
	Bronchitis	9	6	1					
	Pleurisy	19	18	1					
	Pneumonia	19	14	5					
	Asthma	17	13	—					
	ORDER 4.								
	Dyspepsia	57	47	1	577	539	30	109·59	5·7
	Gastritis	1	2	—					
	Enteritis	2	—	1					
	Peritonitis	7	5	2					
	Ascites	3	2	2					
	Hernia	2	7	—					
	Ileus and Colic	95	94	—					
	Hæmorrhoids	41	37	—					
	Fistula	6	7	—					
	Obstipatio	17	17	—					
	Hepatitis	263	244	23					
Jaundice	56	48	1						
Spleen Disease, &c.	27	29	—						
ORDER 5.									
Nephritis	1	1	—	3	3	—	·57	—	
Ischuria	2	1	—						
Hæmaturia	—	1	—						
ORDER 6.									
Hydrocele	2	1	—	2	1	—	·38	—	
ORDER 7.									
Joint Disease, &c.	—	1	—	—	1	—	—	—	
ORDER 8.									
Phlegmon	134	133	—	290	286	—	55·09	—	
Ulcer	149	142	—						
Skin Diseases, &c.	7	11	—						
IV	ORDER 4.								
Atrophy	—	1	—	—	1	—	—	—	
V.	ORDER 1.— <i>Accident or Negligence.</i>								
Burns or Scalds	29	29	1	492	464	22	93·44	4·18	
Contusion	290	274	4						
Sub-luxation	42	37	—						
Luxation	5	5	—						
Fracture	47	44	5						
Wounds, Incised	8	10	—						
Amputation	71	65	8						
Drowned	—	—	8						
Found dead	—	—	1						
ORDER 2.— <i>Battle.</i>									
Gunshot Wound	803	709	396	891	794	398	169·23	75·59	
Cut, Stab	88	85	2						
ORDER 5.									
Punitus	48	47	—	71	70	1	13·49	·19	
Observatio	23	23	2						

No. 14.

BENGAL.—UMBALLA STATION.—CAVALRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 10 Years 6,097
 Mean Annual Strength 610

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Five Years, 1847 to 1851.			Five Years, 1852 to 1856.			Total for 10 Years.			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES	3,828	3,647	80	4,628	4,607	61	8,456	8,254	141	1,386.9	23.12
	CLASSES.											
I.	ZYMOTIC DISEASES	2,680	2,562	48	3,550	3,541	47	6,230	6,103	95	1021.8	15.58
II.	CONSTITUTIONAL	18	11	3	27	22	5	45	33	8	7.38	1.31
III.	LOCAL	790	742	28	740	731	9	1,530	1,473	37	250.94	6.07
V.	VIOLENCE	340	332	1	311	313	—	651	645	1	106.78	.16
	ORDERS.											
I.	ORDER 1.— <i>Miasmatic Dis.</i>											
	Small-pox	1	1	—	1	—	—					
	Vaccinia	6	6	—	—	—	—					
	Measles	—	—	—	1	1	—					
	Quinsy	29	28	—	55	56	—					
	Catarrh and Influenza	98	98	—	154	153	—					
	Ophthalmia	115	120	—	81	81	—					
	Fever (C. C.)	729	700	12	410	409	2	4,704	4,617	86	771.53	14.11
	Erysipelas	5	5	—	5	5	—					
	Dysentery	157	152	16	62	58	6					
	Diarrhoea	207	191	10	248	246	4					
	Cholera	24	25	—	42	24	18					
	Ague	385	375	3	1,247	1,260	5					
	Remittent Fever	39	31	2	201	194	7					
	Rheumatism	182	171	1	220	227	—					
	ORDER 2.— <i>Enthetic Dis.</i>											
	Syphilis, &c.	567	538	1	703	704	—	1,300	1,267	2	213.22	.32
	Stricture of Urethra	20	16	—	10	9	1					
	ORDER 3.— <i>Dietic Dis.</i>											
	Purpura and Scurvy	4	4	—	3	2	—					
	Alcoholism { a. Del. Tremens	34	26	3	24	20	3	192	186	7	31.49	1.15
	{ b. Intemperance	73	71	—	54	63	1					
	ORDER 4.— <i>Parasitic Dis.</i>											
	Verues	5	4	—	28	28	—	34	33	—	5.57	—
	Psora	—	—	—	1	1	—					
II.	ORDER 1.— <i>Diathetic Dis.</i>											
	Lumbago	6	6	—	11	11	—	19	18	—	3.12	—
	Dropsy	1	—	—	1	1	—					
	ORDER 2.— <i>Tubercular Dis.</i>											
	Morbus Coxarius	—	—	—	1	—	—					
	Scrofula	2	2	—	5	5	—	26	15	8	4.26	1.31
	Phthisis	5	2	2	8	4	5					
	Hæmoptysis	4	1	1	1	1	—					

No. 14.—Bengal; Umballa Station; Cavalry. Stational Returns. European Troops; H. M. Regts.—*cont.*

Class.	Diseases.	Five Years, 1847 to 1851.			Five Years, 1852 to 1856.			Total for 10 Years.			Annual Ratio per 1000 of Mean Strength.						
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.					
III.	ORDER 1.																
	Cephalitis	28	26	1	34	34	—	141	134	8	23·13	1·32					
	Apoplexy	6	—	5	5	3	2										
	Paralysis	2	1	—	4	5	—										
	Insanity	4	3	—	2	2	—										
	Epilepsy	1	2	—	19	23	—										
	Odontalgia	7	7	—	—	—	—										
	Otitis	15	14	—	11	11	—										
	Brain Diseases, &c.	1	1	—	—	—	—										
	Dysecœa	—	—	—	2	2	—										
	ORDER 2.																
	Pericarditis	3	2	2	1	1	—	22	21	3	3·61	·49					
	Aneurism	1	1	—	1	1	—										
	Heart Disease, &c.	6	4	1	10	12	—										
	ORDER 3.																
	Epistaxis	—	—	—	1	1	—	48	43	2	7·87	·32					
	Bronchitis	5	5	—	3	3	—										
	Pleurisy	9	8	1	5	5	—										
	Pneumonia	10	7	1	6	7	—										
	Asthma	7	5	—	2	2	—										
	ORDER 4.																
	Dyspepsia	59	56	—	78	72	—	633	591	24	103·82	3·94					
	Gastritis	6	5	—	10	10	—										
	Enteritis	2	1	1	2	1	1										
	Peritonitis	1	1	—	—	—	—										
	Ascites	1	1	—	3	1	2										
	Hæmorrhoids	20	20	—	17	17	—										
	Hernia	3	4	—	—	—	—										
	Ileus and Colic	51	52	—	12	12	—										
	Fistula	7	6	1	4	4	—										
Obstipation	21	19	—	10	10	—											
Hepatitis	124	99	15	88	84	4											
Jaundice	28	30	—	39	39	—											
Spleen Disease, &c.	16	15	—	31	32	—											
ORDER 5.																	
Nephritis	7	7	—	4	3	—	18						15	—	2·95	—	
Ischuria	2	—	—	1	1	—											
Hæmaturia	—	—	—	3	3	—											
Cystitis	—	—	—	1	1	—											
ORDER 6.																	
Hydrocele	2	1	—	9	9	—	11	10	—	1·8	—						
ORDER 7.																	
Hydrarthrus	—	—	—	2	2	—	9	9	—	1·47	—						
Arthritis	—	—	—	3	3	—											
Joint Disease, &c.	1	1	—	3	3	—											
ORDER 8.																	
Phlegmon	247	242	—	184	181	—	648	650	—	106·29	—						
Abscess																	
Ulcer												64	69	—	106	108	—
Tumor												5	4	—	2	3	—
Skin Disease, &c.	18	23	—	22	20	—											
V.	ORDER 1.— <i>Accident or Negligence.</i>																
	Burns or Scalds	2	1	—	3	4	—	557	556	1	91·36	·16					
	Contusion	253	253	—	157	155	—										
	Sub-luxation	26	24	—	37	37	—										
	Luxation	6	6	—	3	5	—										
	Fracture	8	9	1	12	13	—										
	Wounds { Gunshot	3	3	—	7	8	—										
	{ Incised	18	18	—	22	20	—										
	ORDER 5.																
	Punitus	8	6	—	2	3	—						94	89	—	15·42	—
Observatio	16	12	—	68	68	—											

No. 15.

BENGAL.—MEERUT STATION.—CAVALRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 6 Years - - - - 3,780
 Mean Annual Strength - - - - - 630

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the NUMBER of DEATHS by different DISEASES.

Class.	Diseases.	Three Years,* 1847, 1848, and 1851.			Three Years,* 1852 to 1854.			Total for 6 Years.*			Annual Ratio per 1,000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES -	2,056	2,047	40	2,541	2,429	35	4,597	4,476	75	1216.2	19.83
	CLASSES.											
I.	ZYMOTIC DISEASES -	1,557	1,552	29	1,805	1,731	15	3,362	3,283	44	889.42	11.64
II.	CONSTITUTIONAL -	16	16	1	13	6	3	29	22	4	7.67	1.06
III.	LOCAL - - - -	334	329	8	478	452	17	812	781	25	214.81	6.61
V.	VIOLENCE - - - -	149	150	2	245	240	—	394	390	2	104.24	.52
	ORDERS.											
I.	ORDER 1.— <i>Miasmatic Dis.</i>											
	Small-pox - - - -	—	—	—	11	9	2	2,539	2,470	37	671.7	9.79
	Vaccina - - - -	4	4	—	1	1	—					
	Quinsy - - - -	28	29	—	34	34	—					
	Catarrh and Influenza -	45	40	3	52	46	—					
	Ophthalmia - - - -	63	66	—	37	39	—					
	Fever (C.C.) - - - -	188	184	5	176	177	2					
	Erysipelas - - - -	10	10	—	5	5	—					
	Dysentery - - - -	69	55	13	34	17	2					
	Diarrhœa - - - -	70	71	2	68	66	1					
	Cholera - - - -	7	7	—	15	14	1					
	Ague - - - -	430	449	2	843	823	—					
	Remittent Fever - - -	144	125	1	4	2	2					
	Rheumatism - - - -	96	108	1	105	89	—					
	ORDER 2.— <i>Enthetic Dis.</i>											
	Syphilis, &c. - - - -	359	359	2	326	320	—	699	693	2	184.92	.63
	Stricture of Urethra -	2	1	—	12	13	—					
	ORDER 3.— <i>Dietic Dis.</i>											
	Alcoholism - { a. Del. Tremens	20	20	—	18	15	4	119	115	5	31.48	1.32
	{ b. Intemperance	18	20	—	63	60	1					
	ORDER 4.— <i>Parasitic Dis.</i>											
	Verues - - - -	4	4	—	1	1	—	5	5	—	1.32	—
II.	ORDER 1.— <i>Diathetic Dis.</i>											
	Lumbago - - - -	6	3	—	3	2	1	9	6	1	2.38	.26
	Dropsy - - - -	—	1	—	—	—	—					
	ORDER 2.— <i>Tubercular Dis.</i>											
	Morbus Coxarius - - -	1	1	—	—	—	—	20	16	3	5.29	.8
	Scrofula - - - -	6	7	—	1	1	—					
	Phthisis - - - -	2	2	1	6	—	2					
	Hæmoptysis - - - -	1	2	—	2	3	—					

No. 15.—Bengal; Meerut Station; Cavalry. Stational Returns. European Troops; H. M. Regts.—*cont.*

Class.	Diseases.	Three Years,* 1847, 1848, and 1851.			Three Years,* 1852 to 1854.			Total for 6 Years.*			Annual Ratio per 1000/ of Mean Strength.							
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.						
III.	ORDER 1. *																	
	Cephalitis - - - - -	17	16	—	24	27	—	}	73	61	8	19·31	2·12					
	Apoplexy - - - - -	2	1	1	8	1	6											
	Paralysis - - - - -	1	1	—	3	1	1											
	Insanity - - - - -	3	1	—	—	—	—											
	Epilepsy - - - - -	2	2	—	—	—	—											
	Odontalgia - - - - -	2	2	—	—	—	—											
	Otitis - - - - -	3	2	—	7	6	—											
	Dyseecæa - - - - -	—	—	—	1	1	—											
	ORDER 2.																	
	Pericarditis - - - - -	3	3	—	3	1	2	}	13	8	5	3·44	1·32					
	Aneurism - - - - -	2	—	2	1	—	1											
	Heart Disease, &c. - - -	1	1	—	3	3	—											
	ORDER 3.																	
	Epistaxis - - - - -	1	1	—	1	—	—	}	44	39	2	11·64	·53					
	Bronchitis - - - - -	2	1	—	—	—	—											
	Pleurisy - - - - -	11	10	1	19	17	1											
	Pneumonia - - - - -	3	3	—	2	2	—											
	Asthma - - - - -	2	2	—	3	3	—											
	ORDER 4.																	
	Dyspepsia - - - - -	9	8	—	33	26	—	}	295	282	10	78·04	2·64					
	Gastritis - - - - -	—	—	—	1	1	—											
	Peritonitis - - - - -	1	1	—	—	—	—											
	Ascites - - - - -	—	—	—	1	—	—											
	Hernia - - - - -	5	6	—	3	3	—											
	Ileus and Colic - - - - -	28	28	—	20	25	—											
	Hæmorrhoids - - - - -	15	15	—	10	7	—											
	Fistula - - - - -	1	—	—	2	2	—											
Obstipatio - - - - -	5	1	—	—	—	—												
Hepatitis - - - - -	52	54	3	78	73	6												
Jaundice - - - - -	4	4	—	14	14	—												
Spleen Disease, &c. - - -	4	5	1	9	9	—												
ORDER 5.																		
Nephritis - - - - -	1	1	—	5	3	—	}	11	7	—	2·92	—						
Ischuria - - - - -	4	2	—	—	—	—												
Hæmaturia - - - - -	1	1	—	—	—	—												
ORDER 6.																		
Hydrocele - - - - -	1	1	—	—	—	—		1	1	—	·26	—						
ORDER 7.																		
Arthritis - - - - -	—	—	—	1	1	—	}	5	5	—	1·32	—						
Joint Disease, &c. - - -	—	—	—	2	2	—												
Contractura - - - - -	2	2	—	—	—	—												
ORDER 8.																		
Phlegmon - - - - -	}	86	98	—	157	152	}	370	378	—	97·88	—						
Abscess - - - - -																		
Ulcer - - - - -																		
Tumor - - - - -																		
Skin Disease, &c. - - - -	12	10	—	14	16	—												
V.	ORDER 1.— <i>Accident or Negligence.</i>																	
Burns or Scalds - - - - -	3	3	—	4	5	—	}	360	357	1	95·25	·26						
Contusion - - - - -	67	69	—	120	119	—												
Sub-luxation - - - - -	16	17	—	40	38	—												
Luxation - - - - -	4	5	—	1	1	—												
Fracture - - - - -	16	14	—	11	11	—												
Wounds { Gunshot - - - - -	1	1	—	2	2	—												
{ Incised - - - - -	22	22	—	49	49	—												
Amputatio - - - - -	3	1	1	1	—	—												
ORDER 5.																		
Punitus - - - - -	6	7	—	2	2	—							}	34	33	1	8·99	·26
Observatio - - - - -	11	11	1	15	13	—												

* No Cavalry separately accounted for at this Station during the years 1849, 1850, 1855, and 1856.

No. 16.

BENGAL.—FEROZEPURE STATION.—CAVALRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Mean Annual Strength - - - - - 163

RETURN showing (C.) the Number of ATTACKS of SICKNESS ; (E.) the Number DISCHARGED to DUTY ; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	One Year, 1848.*			Total for 1 Year.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES - - -	379	310	13	379	310	13	2,325·19	79·74
	CLASSES.								
I.	ZYMOTIC DISEASES - - -	296	244	10	296	244	10	1,816·	61·35
II.	CONSTITUTIONAL - - -	1	—	—	1	—	—	6·13	—
III.	LOCAL - - - - -	65	52	3	65	52	3	398·77	18·39
V.	VIOLENCE - - - - -	17	14	—	17	14	—	104·39	—
	ORDERS.								
I.	ORDER 1.— <i>Miasmatic Dis.</i>								
	Small-pox - - - - -	2	1	—	254	208	9	1,558·33	55·22
	Quinsy - - - - -	4	5	—					
	Catarrh and Influenza - - -	3	8	—					
	Ophthalmia - - - - -	8	9	—					
	Fever (C. C.) : - - - - -	201	160	8					
	Erysipelas - - - - -	1	1	—					
	Dysentery - - - - -	3	2	1					
	Diarrhoea - - - - -	13	10	—					
	Cholera - - - - -	2	2	—					
	Remittent Fever - - - - -	8	7	—					
	Rheumatism - - - - -	9	3	—					
	ORDER 2.— <i>Enthetic Dis.</i>								
	Syphilis, &c. - - - - -	38	33	1	38	33	1	233·14	6·13
	ORDER 3.— <i>Dietic Dis.</i>								
	Alcoholism, Del. Tremens - -	4	3	—	4	3	—	24·53	—
II.	ORDER 2.— <i>Tubercular Dis.</i>								
	Phthisis - - - - -	1	—	—	1	—	—	6·13	—
III.	ORDER 1.								
	Cephalitis - - - - -	1	1	—	5	3	2	30·68	12·26
	Apoplexy - - - - -	1	—	2					
	Paralysis - - - - -	1	—	—					
	Otitis - - - - -	2	2	—					

No. 16.—Bengal; Ferozepore Station; Cavalry. Stational Returns. European Troops; H. M. Regts.—*cont.*

Class.	Diseases.	One Year, 1848.*			Total for 1 Year.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
III.	ORDER 2.								
	Pericarditis - - - -	1	—	—	1	—	—	6·13	—
	ORDER 3.								
	Pleurisy - - - -	3	2	—	4	3	—	24·53	—
	Pneumonia - - - -	1	1	—					
	ORDER 4.								
	Dyspepsia - - - -	5	5	—	30	26	1	184·06	6·13
	Enteritis - - - -	1	—	—					
	Neus and Colic - - - -	4	4	—					
	Hæmorrhoids - - - -	1	1	—					
	Obstipatio - - - -	7	7	—					
	Hepatitis - - - -	10	9	1					
	Jaundice - - - -	1	—	—					
	Spleen Disease, &c. - - - -	1	—	—					
	ORDER 8.								
Phlegmon - - - -	13	10	—	25	22	—	153·37	—	
Ulcer - - - -	7	7	—						
Skin Disease, &c. - - - -	5	5	—						
V.	ORDER 1.— <i>Accident or Negligence.</i>								
Contusion - - - -	9	10	—	13	10	2	79·76	12·26	
Fracture - - - -	2	—	—						
Wounds, Incised - - - -	2	2	—						
ORDER 5.									
Punitus - - - -	2	—	—	4	2	—	24·53	—	
Observatio - - - -	2	2	—						

* No Cavalry separately accounted for at this Station during the Years 1847, 1849, 1850, 1851, 1852, 1853, 1854, 1855, and 1856.

No. 17:

BENGAL.—LAHORE STATION.—CAVALRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 2 Years - - - - 1,059
 Mean Annual Strength - - - - 530

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Two Years,* 1849 and 1850.			Total for 2 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES - -	2,111	2,026	59	2,111	2,026	59	1593.41	55.69
	CLASSES.								
I.	ZYMOTIC DISEASES - -	1,605	1,545	46	1,605	1,545	46	1515.6	43.44
II.	CONSTITUTIONAL - -	10	5	2	10	5	2	9.44	1.88
III.	LOCAL - - - -	343	329	10	343	329	10	323.89	9.43
IV.	VIOLENCE - - - -	153	147	1	153	147	1	144.48	.94
	ORDERS.								
I.	ORDER 1.—Miasmatic Dis.								
	Small-pox - - - -	5	6	—	1,234	1,177	41	1,165.27	38.71
	Quinsy - - - -	10	10	1					
	Catarrh and Influenza - -	64	60	3					
	Ophthalmia - - - -	82	72	—					
	Fever (C. C.) - - - -	457	448	16					
	Erysipelas - - - -	9	9	—					
	Dysentery - - - -	62	46	13					
	Diarrhoea - - - -	177	170	8					
	Cholera - - - -	9	9	—					
	Ague - - - -	288	279	—					
	Remittent Fever - - - -	2	2	—					
	Rheumatism - - - -	69	66	—					
	ORDER 2.—Euthetic Dis.								
	Syphilis, &c. - - - -	300	303	—	303	307	—	286.12	—
	Stricture of Urethra - -	3	4	—					
	ORDER 3.—Dietic Dis.								
	Purpura and Scurvy - -	1	1	—	68	61	5	64.21	4.73
	Alcoholism { a. Del. Tremens -	21	16	5					
	{ b. Intemperance - -	46	44	—					
II.	ORDER 1.—Diathetic Dis.								
	Lumbago - - - -	2	2	—	4	3	—	3.78	—
	Dropsy - - - -	2	1	—					
	ORDER 2.—Tubercular Dis.								
	Serofula - - - -	3	2	—	6	2	2	5.66	1.88
	Phthisis - - - -	3	—	2					
III.	ORDER 1.								
	Cephalitis - - - -	4	4	—	23	17	4	21.72	3.76
	Apoplexy - - - -	4	—	4					
	Paralysis - - - -	2	2	—					
	Insanity - - - -	1	—	—					
	Epilepsy - - - -	4	3	—					
	Odontalgia - - - -	1	1	—					
	Otitis - - - -	7	7	—					

No. 17.—Bengal; Lahore Station; Cavalry. Stational Returns. European Troops; H. M. Regts.—*cont.*

Class.	Diseases.	Two Years, 1849 and 1850.*			Total for 2 Years.*			Annual Ratio per 1000 of Mean Strength.																																																																																																																																																																																								
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.																																																																																																																																																																																							
III.	ORDER 2.																																																																																																																																																																																															
	Pericarditis - - - - -	3	3	—	5	5	—	4.72	—																																																																																																																																																																																							
	Heart Disease, &c. - - - - -	2	2	—							ORDER 3.								Epistaxis - - - - -	1	1	—	23	24	1	21.72	.94	Pleurisy - - - - -	16	18	—	Pneumonia - - - - -	5	4	1	Asthma - - - - -	1	1	—		ORDER 4.								Dyspepsia - - - - -	15	15	1	126	118	5	118.98	4.73	Gastritis - - - - -	2	1	—	Ileus and Colic - - - - -	9	11	—	Hæmorrhoids - - - - -	10	10	—	Obstipatio - - - - -	15	15	—	Hepatitis - - - - -	52	45	4	Jaundice - - - - -	18	18	—	Spleen Disease, &c. - - - - -	5	3	—		ORDER 5.								Hæmaturia - - - - -	1	1	—	1	1	—	.94	—		ORDER 6.								Phlegmon - - - - -	118	118	—	165	164	—	155.81	—	Abscess - - - - -	Ulcer - - - - -	Tumor - - - - -	Skin Disease, &c. - - - - -	10	10	—						V.	ORDER 1.— <i>Accident or Negligence.</i>								Contusion - - - - -	85	86	—	125	120	1	118.04	.94	Sub-luxation - - - - -	13	13	—	Luxation - - - - -	1	1	—	Fracture - - - - -	8	8	1	Wounds { Gunshot - - - - -	1	4	—	{ Incised - - - - -	16	7	—	Otherwise - - - - -	1	1	—		ORDER 5.								Punitus - - - - -	8	7	—	28	27	—	26.44
		ORDER 3.																																																																																																																																																																																														
	Epistaxis - - - - -	1	1	—	23	24	1	21.72	.94																																																																																																																																																																																							
	Pleurisy - - - - -	16	18	—																																																																																																																																																																																												
	Pneumonia - - - - -	5	4	1																																																																																																																																																																																												
	Asthma - - - - -	1	1	—																																																																																																																																																																																												
		ORDER 4.																																																																																																																																																																																														
	Dyspepsia - - - - -	15	15	1	126	118	5	118.98	4.73																																																																																																																																																																																							
	Gastritis - - - - -	2	1	—																																																																																																																																																																																												
	Ileus and Colic - - - - -	9	11	—																																																																																																																																																																																												
	Hæmorrhoids - - - - -	10	10	—																																																																																																																																																																																												
	Obstipatio - - - - -	15	15	—																																																																																																																																																																																												
	Hepatitis - - - - -	52	45	4																																																																																																																																																																																												
	Jaundice - - - - -	18	18	—																																																																																																																																																																																												
	Spleen Disease, &c. - - - - -	5	3	—																																																																																																																																																																																												
		ORDER 5.																																																																																																																																																																																														
	Hæmaturia - - - - -	1	1	—	1	1	—	.94	—																																																																																																																																																																																							
		ORDER 6.																																																																																																																																																																																														
Phlegmon - - - - -	118	118	—	165	164	—	155.81	—																																																																																																																																																																																								
Abscess - - - - -																																																																																																																																																																																																
Ulcer - - - - -																																																																																																																																																																																																
Tumor - - - - -																																																																																																																																																																																																
Skin Disease, &c. - - - - -	10	10	—																																																																																																																																																																																													
V.	ORDER 1.— <i>Accident or Negligence.</i>																																																																																																																																																																																															
Contusion - - - - -	85	86	—	125	120	1	118.04	.94																																																																																																																																																																																								
Sub-luxation - - - - -	13	13	—																																																																																																																																																																																													
Luxation - - - - -	1	1	—																																																																																																																																																																																													
Fracture - - - - -	8	8	1																																																																																																																																																																																													
Wounds { Gunshot - - - - -	1	4	—																																																																																																																																																																																													
{ Incised - - - - -	16	7	—																																																																																																																																																																																													
Otherwise - - - - -	1	1	—																																																																																																																																																																																													
	ORDER 5.																																																																																																																																																																																															
Punitus - - - - -	8	7	—	28	27	—	26.44	—																																																																																																																																																																																								
Observatio - - - - -	20	20	—																																																																																																																																																																																													

* No Cavalry separately accounted for at this Station during the Years 1847, 1848, 1851, 1852, 1853, 1854, 1855, and 1856.

No. 18.

BENGAL.—EN ROUTE, &c. &c.—CAVALRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 3 Years - - - - 825
 Mean Annual Strength - - - - 275

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Two Years,* 1848 and 1849.			One Year,* 1855.			Total for 3 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES -	1,111	1,171	52	162	195	2	1,273	1,366	54	1,542.43	65.45
	CLASSES.											
I.	ZYMOTIC DISEASES -	796	835	15	103	122	2	899	957	17	1,089.7	20.60
II.	CONSTITUTIONAL -	3	6	3	—	—	—	3	6	3	3.63	3.64
III.	LOCAL - - - -	250	242	32	38	45	—	288	287	32	349.09	38.79
V.	VIOLENCE - - - -	62	88	2	21	28	—	83	116	2	100.61	2.42
	ORDERS.											
I.	ORDER 1.—Miasmatic Dis.											
	Small-pox - - - -	4	2	2	—	—	—					
	Quinsy - - - - -	6	6	—	1	1	—					
	Catarrh and Influenza -	23	17	1	3	3	—					
	Ophthalmia - - - -	48	42	—	6	7	—					
	Fever (C. C.) - - - -	360	370	6	9	8	1					
	Erysipelas - - - -	1	1	—	—	—	—					
	Dysentery - - - - -	43	40	—	1	1	—	643	665	14	779.39	16.97
	Diarrhoea - - - - -	51	57	4	5	6	—					
	Cholera - - - - -	7	7	—	—	—	—					
	Ague - - - - -	15	22	—	13	18	—					
	Remittent Fever - - -	5	10	—	—	—	—					
	Rheumatism - - - - -	34	38	—	8	9	—					
	ORDER 2.—Ethereal Dis.											
	Syphilis, &c. - - - -	161	181	1	52	65	—					
	Stricture of Urethra -	3	2	—	1	1	—	217	249	1	263.04	1.21
	ORDER 3.—Dietic Dis.											
	Alcoholism { a. Del. Tremens	10	13	1	1	1	—					
	{ b. Intemperance	24	25	—	3	2	1	38	41	2	46.06	2.42
	ORDER 4.—Parasitic Dis.											
	Verues - - - - -	1	2	—	—	—	—	1	2	—	1.21	—
II.	ORDER 1.—Diathetic Dis.											
	Lumbago - - - - -	—	1	—	—	—	—	—	1	1	—	1.21
	Dropsy - - - - -	—	—	1	—	—	—	—	—	—	—	—
	ORDER 2.—Tubercular Dis.											
	Scrofula - - - - -	—	1	—	—	—	—	—	—	—	—	—
	Phthisis - - - - -	2	3	2	—	—	—	3	5	2	3.63	2.43
	Hæmoptysis - - - - -	1	1	—	—	—	—	—	—	—	—	—

No. 18.—Bengal; En Route, &c. &c.; Cavalry. Stational Returns. European Troops; H. M. Regts.—*cont.*

Class.	Diseases.	Two Years,* 1848 and 1849.			One Year,* 1855.			Total for 3 Years.*			Annual Ratio per 100 of Mean Strength.		
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.	
III.	ORDER 1.												
	Cephalitis - - - - -	4	7	—	2	2	—	}	51	32	24	61·82	29·05
	Apoplexy - - - - -	35	12	23	—	—	—						
	Paralysis - - - - -	—	1	—	—	—	—						
	Insanity - - - - -	2	2	—	—	—	—						
	Epilepsy - - - - -	1	7	—	—	—	—						
	Otitis - - - - -	5	6	—	—	—	—						
	Brain Disease, &c. - - -	1	—	1	—	—	—						
	Dysecœa - - - - -	1	1	—	—	—	—						
	ORDER 2.												
	Pericarditis - - - - -	3	5	—	—	—	—	}	4	5	1	4·85	1·21
	Heart Disease, &c. - - -	1	—	1	—	—	—						
	ORDER 3.												
	Bronchitis - - - - -	1	1	—	—	—	—	}	11	11	1	13·33	1·21
	Pleurisy - - - - -	3	4	—	2	3	—						
	Pneumonia - - - - -	2	2	1	1	1	—						
	Asthma - - - - -	2	—	—	—	—	—						
	ORDER 4.												
	Dyspepsia - - - - -	17	20	—	—	—	—	}	107	116	4	129·7	4·86
	Peritonitis - - - - -	1	1	—	—	—	—						
	Heus and Colic - - - - -	10	8	—	—	—	—						
	Hæmorrhoids - - - - -	5	6	—	1	1	—						
	Fistula - - - - -	2	1	—	—	—	—						
	Obstipatio - - - - -	11	11	—	—	—	—						
	Hepatitis - - - - -	36	37	4	8	9	—						
	Jaundice - - - - -	10	14	—	1	1	—						
	Spleen Disease, &c. - - -	3	4	—	2	3	—						
ORDER 5.													
Nephritis - - - - -	1	1	—	—	—	—	}	3	2	1	3·64	1·21	
Ischuria - - - - -	1	1	—	—	—	—							
Hæmaturia - - - - -	1	—	1	—	—	—							
ORDER 7.													
Arthritis - - - - -	—	—	—	1	1	—	1	1	—	1·21	—		
ORDER 8.													
Phlegmon - - - - -	}	66	67	1	13	17	}	111	120	1	134·54	1·21	
Abscess - - - - -													
Ulcer - - - - -													
Skin Disease, &c. - - - - -	5	7	—	—	—	—	—	—	—	—	—		
V.	ORDER 1.— <i>Accident or Negligence.</i>												
Burns or Scalds - - - - -	2	2	—	—	—	—	}	74	102	2	89·69	2·45	
Contusion - - - - -	32	49	—	11	12	—							
Sub-luxation - - - - -	8	9	—	6	8	—							
Luxation - - - - -	2	1	1	—	—	—							
Fracture - - - - -	1	5	—	1	1	—							
Wounds { Gunshot - - - - -	—	2	—	—	—	—							
{ Incised - - - - -	9	9	—	2	4	—							
Found dead - - - - -	—	—	1	—	—	—							
ORDER 5.													
Punitus - - - - -	7	9	—	—	—	—	}	9	14	—	10·92	—	
Observatio - - - - -	1	2	—	1	3	—							

* No Cavalry separately accounted for under this Heading during the Years 1847, 1850, 1851, 1852, 1853, 1854, and 1856.

BENGAL.—WUZEERABAD STATION.—CAVALRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 4 Years - - - - 2,295
 Mean Annual Strength - - - - 574

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Three Years,* 1849 to 1851.			One Year,* 1852.			Total for Four Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES -	2,258	2,152	96	564	552	11	2,822	2,704	107	1,229.6	46.62
	CLASSES.											
I.	ZYMOTIC DISEASES -	1,763	1,700	64	383	371	7	2,146	2,071	71	935.07	30.94
II.	CONSTITUTIONAL -	11	10	2	7	4	1	18	14	3	7.84	1.31
III.	LOCAL - - - -	329	289	30	130	127	3	459	416	33	200.00	14.37
V.	VIOLENCE - - - -	155	153	—	44	50	—	199	203	—	86.71	—
	ORDERS.											
I.	ORDER 1.—Miasmatic Dis.											
	Small Pox - - - -	1	1	—	1	—	1					
	Vaccinia - - - -	7	7	—	—	—	—					
	Quinsy - - - -	8	8	—	3	3	—					
	Catarrh and Influenza -	26	25	—	8	7	—					
	Ophthalmia - - - -	35	33	—	4	4	—					
	Fever (C. C.) - - - -	642	629	26	94	89	3	1,634	1,553	65	711.98	28.32
	Erysipelas - - - -	2	2	—	—	—	—					
	Dysentery - - - -	136	115	21	32	32	1					
	Diarrhoea - - - -	56	50	5	16	16	—					
	Cholera - - - -	4	3	1	5	5	—					
	Ague - - - -	260	255	1	72	60	—					
	Remittent Fever - - -	52	47	6	1	1	—					
	Rheumatism - - - -	143	136	—	26	25	—					
	ORDER 2.—Ethetic Dis.											
	Syphilis, &c. - - - -	333	325	—	68	81	—	414	417	—	180.39	—
	Stricture of Urethra -	4	5	—	9	6	—					
	ORDER 3.—Dietic Dis.											
	Purpura and Scurvy - -	5	5	2	—	—	—					
	Alcoholism { a. Del. Tremens	9	9	1	4	2	2	97	99	6	42.27	2.62
	{ b. Intemperance	39	43	1	40	40	—					
	ORDER 4.—Parasitic Dis.											
	Vermes - - - -	1	2	—	—	—	—	1	2	—	43	—
II.	ORDER 1.—Diathetic Dis.											
	Lumbago - - - -	3	4	—	4	3	—	9	8	—	3.92	—
	Dropsy - - - -	1	1	—	1	—	—					
	ORDER 2.—Tubercular Dis.											
	Scrofula - - - -	4	4	—	1	1	—	9	6	3	3.92	1.31
	Phthisis - - - -	2	—	2	1	—	1					
	Hæmoptysis - - - -	1	1	—	—	—	—					
III.	ORDER 1.											
	Cephalitis - - - -	4	4	—	—	—	—	23	15	9	10.02	3.92
	Apoplexy - - - -	7	—	7	1	—	1					
	Insanity - - - -	2	3	—	—	—	—					
	Epilepsy - - - -	2	2	—	1	—	1					
	Odontalgia - - - -	1	1	—	1	1	—					
	Otitis - - - -	3	3	—	1	1	—					

No. 19.—Bengal ; Wuzerabad Station ; Cavalry. Stational Returns. European Troops ; H. M. Regts.—*cont.*

Class.*	Diseases.	Three Years,* 1849 to 1851.			One Year,* 1852.			Total for 4 Years.*			Annual Ratio per 1000 of Mean Strength.		
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.	
III.	ORDER 2.												
	Pericarditis - - -	1	1	—	—	—	—	1	1	—	·43	—	
	ORDER 3.												
	Epistaxis - - -	1	1	—	—	—	—	}	21	20	2	9·15	·87
	Bronchitis - - -	4	4	—	—	—	—						
	Pleurisy - - -	3	2	1	—	—	—						
	Pneumonia - - -	2	2	1	6	6	—						
	Asthma - - -	4	4	—	1	1	—						
	ORDER 4.												
	Dyspepsia - - -	20	21	—	7	7	—	}	251	226	22	109·38	9·58
	Gastritis - - -	4	2	1	5	6	—						
	Enteritis - - -	—	—	—	1	1	—						
	Peritonitis - - -	2	1	2	—	—	—						
	Ascites - - -	1	1	—	—	—	—						
	Hernia - - -	1	1	—	1	1	—						
	Ileus and Colic - - -	12	11	—	18	19	—						
	Hæmorrhoids - - -	8	6	1	2	3	—						
	Obstipatio - - -	6	5	—	11	11	—						
	Hepatitis - - -	98	81	17	21	19	1						
	Jaundice - - -	19	17	—	2	2	—						
	Spleen Disease, &c. - - -	9	8	—	3	3	—						
	ORDER 5.												
	Nephritis - - -	1	1	—	2	2	—	}	8	8	—	3·48	—
Ischuria - - -	3	3	—	1	1	—							
Hæmaturia - - -	1	1	—	—	—	—							
ORDER 6.													
Hydrocele - - -	2	1	—	3	—	—		5	1	—	2·18	—	
ORDER 7.													
Hydrarthrus - - -	1	—	—	1	—	—	}	4	1	—	1·74	—	
Joint Disease, &c. - - -	1	1	—	—	—	—							
Contractura - - -	1	—	—	—	—	—							
ORDER 8.													
Phlegmon - - -	}	81	79	—	34	35	}	146	144	—	63·62	—	
Abscess - - -													
Ulcer - - -													
Tumor - - -													
Skin Disease, &c. - - -													
ORDER 1.— <i>Accident or Negligence.</i>													
Contusion - - -	91	87	—	31	36	—	}	179	180	—	79·99	—	
Sub-luxation - - -	19	21	—	3	3	—							
Luxation - - -	5	4	—	5	5	—							
Fracture - - -	8	5	—	1	2	—							
Wounds { Gunshot - - -	1	2	—	—	—	—							
{ Incised - - -	14	14	—	1	1	—							
ORDER 5.													
Punitus - - -	5	6	—	1	1	—	}	20	23	—	8·72	—	
Observatio - - -	12	14	—	2	2	—							

* No Cavalry separately accounted for at this Station during the Years 1847, 1848, 1853, 1854, 1855, and 1856.

No. 20.

BENGAL.—SEALKOTE STATION.—CAVALRY.

STATIONAL RETURNS.—EUROPEAN TROOPS.—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Mean Annual Strength 158.

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class	Diseases.	One Year, 1850.*			Total for 1 Year.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES	206	194	2	206	194	2	1,303·86	12·66
	CLASSES.								
I.	ZYMOTIC DISEASES	159	146	1	159	146	1	1,006·4	6·33
II.	CONSTITUTIONAL	2	1	—	2	1	—	12·66	—
III.	LOCAL	23	28	1	23	28	1	145·57	6·33
V.	VIOLENCE	22	19	—	22	19	—	139·24	—
	ORDERS.								
I.	ORDER 1.— <i>Miasmatic Dis.</i>								
	Ophthalmia	5	6	—	120	106	1	759·56	6·33
	Fever (C. C.)	38	38	1					
	Erysipelas	1	1	—					
	Dysentery	14	16	—					
	Diarrhoea	4	3	—					
	Cholera	1	1	—					
	Ague	48	26	—					
	Rheumatism	5	4	—					
	ORDER 2.— <i>Enthetic Dis.</i>								
	Syphilis, &c.	23	31	—	34	37	—	215·2	—
	Stricture of Urethra	6	6	—					
	ORDER 3.— <i>Dietic Dis.</i>								
	Alcoholism { a. Del. Tremens	1	—	—	4	2	—	25·31	—
	{ b. Intemperance	3	2	—					
	ORDER 4.— <i>Parasitic Dis.</i>								
	Verues	1	1	—	1	1	—	6·33	—
II.	ORDER 2.— <i>Tubercular Dis.</i>								
	Scrofula	1	—	—	2	1	—	13·66	—
	Hæmoptysis	1	1	—					

No. 20.—Bengal; Sealkote Station; Cavalry. Stational Returns. European Troops; H. M. Regts.—*cont.*

Class.	Diseases.	One Year, 1850.*			Total for 1 Year.*			Annual Ratio per 1000 of Mean Strength.		
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.	
III.	ORDER 1.									
	Paralysis - - - -	1	1	—	}	3	2	1	18·98	6·33
	Insanity - - - -	1	1	—						
	Hydrophobia - - - -	1	—	1						
	ORDER 4.									
	Ileus and Colic - - - -	6	6	—	}	12	12	—	75·95	—
	Hæmorrhoids - - - -	1	1	—						
	Obstipatio - - - -	1	1	—						
	Hepatitis - - - -	3	3	—						
	Spleen Disease, &c. - - - -	1	1	—						
	ORDER 5.									
	Ischuria - - - -	1	1	—	1	1	—	6·33	—	
	ORDER 8.									
	Phlegmon - - - -	5	11	—	}	7	13	—	44·3	—
	Ulcer - - - -	1	1	—						
	Skin Disease, &c. - - - -	1	1	—						
	ORDER 1.— <i>Accident or Negligence.</i>									
	Burns or Scalds - - - -	1	1	—	}	21	19	—	132·91	—
	Contusion - - - -	19	18	—						
	Sub-luxation - - - -	1	—	—						
	ORDER 5.									
Observatio - - - -	1	—	—	1	—	—	6·33	—		

* No Cavalry separately accounted for at this Station except during the Year 1850.

No. 21.

BENGAL.—ALLAHABAD STATION.—CAVALRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Mean Annual Strength - - - - - 148

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	One Year, 1856.*			Total for 1 Year.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attaced.	Died.
	SPECIFIED CAUSES - - -	72	70	1	72	70	1	486.49	6.76
	CLASSES.								
I.	ZYMOTIC - - - - -	59	56	1	59	56	1	398.65	6.76
II.	CONSTITUTIONAL - - -	—	—	—	—	—	—	—	—
III.	LOCAL - - - - -	10	10	—	10	10	—	67.57	—
V.	VIOLENCE - - - - -	3	4	—	3	4	—	20.27	—
	ORDERS.								
I.	ORDER 1.— <i>Miasmatic Dis.</i>								
	Quinsy - - - - -	1	1	—	}	}	}	}	}
	Fever (C.C.) - - - - -	7	7	—					
	Dysentery - - - - -	1	—	—					
	Diarrhœa - - - - -	23	23	—					
	Cholera - - - - -	4	3	1					
	Remittent Fever - - - - -	1	1	—					
	Rhenmatism - - - - -	4	4	—					
	ORDER 2.— <i>Ethetic Dis.</i>								
	Syphilis, &c. - - - - -	12	12	—	12	12	—	81.08	—
	ORDER 3.— <i>Dietic Dis.</i>								
	Purpura and Scurvy - - - - -	2	2	—	}	}	}	}	}
	Alcoholism, Intemperance - - - - -	1	—	—					
	ORDER 4.— <i>Parasitic Dis.</i>								
	Psora - - - - -	3	3	—	3	3	—	20.27	—
III.	ORDER 7.								
	Joint Diseases, &c: - - - - -	1	1	—	1	1	—	6.76	—
	ORDER 8.								
	Phlegmon - - - - -	3	3	—	}	}	}	}	}
	Ulcer - - - - -	6	6	—					
V.	ORDER 1.— <i>Accident or Negligence.</i>								
	Sub-luxation - - - - -	—	1	—	}	}	}	}	}
	Fracture - - - - -	1	1	—					
	Wounds, Incised - - - - -	1	1	—					
	ORDER 5.								
	Observatio - - - - -	1	1	—	1	1	—	6.76	—

* No Cavalry separately accounted for at this Station during the Years 1847 to 1855.

No. 22.

BENGAL.—KURRACHEE STATION.—CAVALRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Mean Annual Strength - - - - - 156

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different Diseases.

Class.	Diseases.	One Year, 1853.*			Total for One Year.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES - - -	101	88	1	101	88	1	647·43	6·41
	CLASSES.								
I.	ZYMOTIC DISEASES - - -	86	74	—	86	74	—	551·28	—
II.	CONSTITUTIONAL - - -	2	1	1	2	1	1	12·82	6·41
III.	LOCAL - - - - -	12	12	—	12	12	—	76·92	—
V.	VIOLENCE - - - - -	1	1	—	1	1	—	6·41	—
	ORDERS.								
I.	ORDER 1.— <i>Miasmatic Dis.</i>								
	Quinsy - - - - -	3	3	—	}	}	}	}	}
	Catarrh and Influenza - - -	7	5	—					
	Fever (C.C.) - - - - -	2	2	—					
	Dysentery - - - - -	18	12	—					
	Diarrhœa - - - - -	18	16	—					
	Cholera - - - - -	1	1	—					
	Ague - - - - -	15	10	—					
	Remittent Fever Rheumatism - - - - -	1 4	— 4	— —					
	ORDER 2.— <i>Enthetic Dis.</i>								
	Syphilis, &c. - - - - -	16	21	—	16	21	—	102·56	—
	ORDER 3.— <i>Dietic Dis.</i>								
	Purpura and Scurvy - - -	1	—	—	1	—	—	6·41	—
II.	ORDER 1.— <i>Diathetic Dis.</i>								
	Dropsy - - - - -	—	—	1	—	—	1	—	6·41
	ORDER 2.— <i>Tubercular Dis.</i>								
	Scrofula - - - - -	1	—	—	}	}	}	}	}
	Phthisis - - - - -	1	1	—					
III.	ORDER 1.								
	Epilepsy - - - - -	1	1	—	1	1	—	6·41	—
	ORDER 3.								
	Pleurisy - - - - -	1	1	—	}	}	}	}	}
	Pneumonia - - - - -	3	1	—					
	ORDER 4.								
	Dyspepsia - - - - -	2	1	—	}	}	}	}	}
	Hæmatemesis - - - - -	1	1	—					
	Obstipatio - - - - -	2	2	—					
	Hepatitis - - - - -	2	5	—					
V.	ORDER 1.— <i>Accident or Negligence.</i>								
	Contusion - - - - -	1	1	—	1	1	—	6·41	—

* No Cavalry separately accounted for at this Station during the Years 1847 to 1852, and 1854 to 1856.

N.B.—Invalids are included in these Numbers, but the Returns do not enable them to be distinguished.

No 23.

BENGAL.—MEERUT STATION.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 10 Years - - - - 8,156
 Mean Annual Strength - - - - - 816

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Five Years, 1847 to 1851.			Five Years, 1852 to 1856.			Total for 10 Years.			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES -	8,759	8,381	199	7,314	7,090	169	16,073	15,471	368	1,970.65	45.12
	CLASSES.											
I.	ZYMOTIC DISEASES -	7,031	6,752	129	5,952	5,783	126	12,983	12,535	255	1,591.8	31.26
II.	CONSTITUTIONAL -	49	41	13	40	28	12	89	69	25	10.91	3.06
III.	LOCAL -	1,289	1,213	53	1,004	964	27	2,293	2,177	80	281.14	9.81
IV.	DEVELOPMENTAL -	2	1	1	—	—	—	2	1	1	.24	.12
V.	VIOLENCE -	388	374	3	318	315	4	706	689	7	86.56	.86
	ORDERS.											
I.	ORDER 1.—Miasmatic Dis.											
	Small-pox -	4	1	3	4	5	—	10,869	10,406	248	2,329.6	30.41
	Varicella -	—	—	—	2	2	—					
	Measles -	—	—	—	5	4	1					
	Quinsy -	62	62	—	63	63	—					
	Catarrh and Influenza -	212	205	4	285	279	5					
	Ophthalmia -	686	663	—	391	386	—					
	Fever (C.C.) -	1,471	1,392	40	1,804	1,745	29					
	Typhus -	1	1	—	—	—	—					
	Erysipelas -	6	5	—	4	4	—					
	Dysentery -	503	438	41	268	220	36					
	Diarrhoea -	374	363	8	539	532	18					
	Cholera -	12	12	—	64	29	35					
	Ague -	1,961	1,885	22	1,434	1,416	1					
	Remittent Fever -	106	91	4	15	15	—					
	Rheumatism -	382	369	1	211	219	—					
	ORDER 2.—Euthetic Dis.											
	Syphilis, &c -	1,098	1,111	1	827	830	—	1,942	1,957	1	241.11	.12
	Stricture of Urethra -	10	10	—	7	6	—					
	ORDER 3.—Dietic Dis.											
	Purpura and Scurvy -	17	13	3	9	8	—	153	153	6	18.76	.73
	Alcoholism { a. Del. Tremens	79	80	1	9	9	1					
	b. Intemperance	38	42	1	1	1	—					
	ORDER 4.—Parasitic Dis.											
	Verues -	5	4	—	10	10	—	19	19	—	2.33	—
	Psora -	4	5	—	—	—	—					
II.	ORDER 1.—Diathetic Dis.											
	Lumbago -	14	15	—	1	1	—	20	20	1	2.45	.12
	Dropsy -	4	4	—	1	—	1					
	ORDER 2.—Tubercular Dis.											
	Morbus Coxarius -	1	2	—	3	2	1	69	49	24	8.46	2.94
	Scrofula -	7	9	—	5	5	—					
	Phthisis -	18	7	12	14	7	8					
	Hæmoptysis -	5	4	1	16	13	2					
	—	—	—	—	—	—	—					
III.	ORDER 1.											
	Cephalitis -	27	27	1	9	9	—	232	188	48	28.45	5.88
	Apoplexy -	39	12	27	23	3	20					
	Paralysis -	4	4	—	3	3	—					
	Odontalgia -	—	—	—	1	1	—					
	Insanity -	5	7	—	6	6	—					
	Epilepsy -	14	14	—	14	16	—					
	Otitis -	32	31	—	51	51	—					
	Brain Disease, &c. -	1	1	—	—	—	—					
	Dyseceæ -	1	1	—	2	2	—					

No. 23.—Bengal; Meerut Station; Infantry. Stational Returns. European Troops; H. M. Regts.—*cont.*

Class.	Diseases.	Five Years, 1847 to 1851.			Five Years, 1852 to 1856.			Total for 10 Years.			Annual Ratio per 1000 of Mean Strength.		
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.	
III.	ORDER 2.												
	Pericarditis - - -	3	3	—	16	16	—	}	24	23	—	2·94	—
	Aneurism - - -	—	—	—	1	—	—						
	Heart Disease, &c. - - -	4	4	—	—	—	—						
	ORDER 3.												
	Epistaxis - - -	3	3	—	1	1	—	}	87	72	6	10·66	·86
	Bronchitis - - -	7	6	1	5	4	—						
	Pleurisy - - -	21	17	—	6	4	—						
	Pneumonia - - -	22	15	4	13	13	1						
	Asthma - - -	5	4	—	4	5	—						
	ORDER 4.												
	Dyspepsia - - -	49	49	—	86	87	—	}	961	928	26	117·83	3·08
	Gastritis - - -	3	3	—	—	—	—						
	Enteritis - - -	—	—	—	2	1	1						
	Peritonitis - - -	1	2	—	4	4	—						
	Ascites - - -	1	2	1	1	1	—						
	Hernia - - -	3	2	—	4	3	—						
	Ileus and Colic - - -	158	158	1	74	73	—						
	Hæmorrhoids - - -	28	26	1	32	29	—						
	Hæmatemesis - - -	—	—	—	3	3	—						
	Fistula - - -	2	2	—	5	5	—						
	Obstipatio - - -	33	35	—	35	35	—						
	Hepatitis - - -	206	191	17	109	103	5						
Jaundice - - -	21	21	—	25	18	—							
Spleen Disease, &c. - - -	45	44	—	31	31	—							
ORDER 5.													
Nephritis - - -	2	1	—	5	3	—	}	9	6	—	1·10	—	
Enuresis - - -	—	—	—	1	1	—							
Cystitis - - -	1	1	—	—	—	—							
ORDER 6.													
Hydrocele - - -	—	—	—	4	5	—		4	5	—	·49	—	
ORDER 7.													
Hydrarthrus - - -	1	1	—	1	1	—	}	14	14	—	1·72	—	
Arthritis - - -	4	4	—	4	4	—							
Joint Disease, &c. - - -	2	1	—	1	1	—							
Contractura - - -	1	1	—	—	1	—							
ORDER 8.													
Phlegmon } - - -	292	288	—	258	258	—	}	962	941	—	117·95	—	
Abcess - - -													
Ulcer - - -													
Tumor - - -													
Skin Disease, &c. - - -	26	25	—	27	27	—							
IV.	ORDER 4.												
Atrophy - - -	2	1	1	—	—	—		2	1	1	·24	·12	
V.	ORDER 1.— <i>Accident or Negligence.</i>												
Burns or Scalds - - -	7	7	—	5	3	—	}	535	524	7	65·59	·86	
Contusion - - -	155	156	—	114	113	—							
Sub-luxation - - -	67	62	—	69	70	—							
Luxation - - -	5	6	—	11	10	—							
Fracture - - -	11	10	—	6	6	—							
Wounds { Gunshot - - -	14	13	—	1	1	1							
{ Incised - - -	50	48	1	17	17	—							
Amputatio - - -	3	2	—	—	—	—							
Found dead - - -	—	—	2	—	—	2							
Drowned - - -	—	—	—	—	—	1							
ORDER 5.													
Funitus - - -	40	41	—	9	9	—	}	171	165	—	20·97	—	
Observatio - - -	36	29	—	86	86	—							

BENGAL.—UMBALLA STATION.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 10 Years - - - - 7,003
 Mean Annual Strength - - - - 700

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases,	Five Years, 1847 to 1851.			Five Years, 1852 to 1856.			Total for 10 Years.			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES -	6,411	6,192	201	4,992	4,895	186	11,40	11,087	387	1,628·24	55·24
	CLASSES.											
I.	ZYMOTIC DISEASES -	5,292	5,120	133	4,280	4,165	144	9,572	9,285	277	1,366·82	39·55
II.	CONSTITUTIONAL -	51	41	5	57	47	7	108	88	12	15·42	1·71
III.	LOCAL -	825	783	56	492	527	28	1,317	1,310	84	188·06	11·99
IV.	DEVELOPMENTAL -	7	5	1	1	—	1	8	5	2	1·14	·28
V.	VIOLENCE -	236	243	6	162	156	6	398	399	12	56·82	1·71
	ORDERS.											
I.	ORDER 1.—Miasmatic Dis.											
	Small-pox -	3	3	—	3	3	—					
	Measles -	—	—	—	—	—	—					
	Quinsy -	32	31	—	49	55	—					
	Catarrh and Influenza -	150	150	6	164	175	2					
	Ophthalmia -	808	825	—	237	218	—					
	Fever (C. C.) -	1,998	1,933	62	880	837	38					
	Typhus -	2	1	1	—	—	—					
	Erysipelas -	4	4	—	4	4	—	8,111	7,877	268	1,158·2	38·27
	Dysentery -	353	319	36	181	169	14					
	Diarrhoea -	404	401	13	702	703	29					
	Cholera -	16	16	2	70	29	41					
	Ague -	337	247	1	1,174	1,216	18					
	Remittent Fever -	16	17	1	7	7	—					
	Rheumatism -	266	255	3	248	256	1					
	ORDER 2.—Enthetic Dis.											
	Syphilis, &c. -	817	839	2	517	450	—	1,348	1,302	2	192·49	·28
	Stricture of Urethra -	3	3	—	11	10	—					
	ORDER 3.—Dietic Dis.											
	Purpura and Scrvy -	43	42	1	2	3	—					
	Alcoholism { a. Del. Tremens	18	14	3	14	12	1	107	100	7	15·28	1·00
	b. Intemperance	19	17	2	11	12	—					
	ORDER 4.—Parasitic Dis.											
	Verrea -	1	1	—	—	—	—	6	6	—	·85	—
	Psora -	2	2	—	3	—	—					
II.	ORDER 1.—Diathetic Dis.											
	Lumbago -	5	2	—	6	6	—	18	15	—	2·57	—
	Dropsy -	—	—	—	7	7	—					
	ORDER 2.—Tubercular Dis.											
	Morbus Coxarius -	3	3	—	—	—	—					
	Scrofula -	24	24	—	8	8	—	90	73	12	12·85	1·71
	Phthisis -	12	4	5	29	19	7					
	Hemoptysis -	7	8	—	7	7	—					
III.	ORDER 1.											
	Cephalitis -	5	5	2	17	19	—					
	Apoplexy -	52	28	24	27	5	20					
	Paralysis -	2	2	—	4	5	—					
	Odontalgia -	—	—	—	4	4	—					
	Insanity -	11	9	1	3	5	—	155	111	50	22·13	7·14
	Tetanus -	1	—	1	—	—	—					
	Epilepsy -	6	4	1	11	13	1					
	Otitis -	6	7	—	6	5	—					

No. 24.—Bengal ; Umballa Station ; Infantry. Stational Returns. European Troops ; H. M. Regts.—*cont.*

Class.	Diseases.	Five Years, 1847 to 1851.			Five Years, 1852 to 1856.			Total for 10 Years.			Annual Ratio per 1000 of Mean Strength.							
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.						
III.	ORDER 2.																	
	Pericarditis - - -	5	4	—	9	23	—	}	36	53	—	5·14	—					
	Varix - - -	1	1	—	1	2	—											
	Heart Disease, &c. -	8	7	—	12	16	—											
	ORDER 3.																	
	Epistaxis - - -	1	—	—	2	1	—	}	73	70	8	104·2	1·14					
	Bronchitis - - -	4	4	1	11	13	—											
	Pleurisy - - -	18	17	2	—	—	—											
	Hydrothorax - - -	1	—	—	—	—	—											
	Pneumonia - - -	24	23	3	9	9	2											
	Asthma - - -	3	3	—	—	—	—											
	ORDER 4.																	
	Dyspepsia - - -	28	35	—	54	60	—	}	544	553	23	77·68	3·28					
	Gastritis - - -	3	3	—	1	1	—											
	Enteritis - - -	1	—	1	1	1	—											
	Peritonitis - - -	6	5	1	1	1	—											
	Ascites - - -	—	—	—	2	1	—											
	Hæmatemesis - - -	1	1	—	—	—	—											
	Prolapsus Ani - - -	—	—	—	1	1	—											
Hernia - - -	1	1	—	—	—	—												
Ileus and Colic - - -	83	84	1	23	26	—												
Hæmorrhoids - - -	32	31	—	7	9	—												
Fistula - - -	—	—	—	4	4	—												
Obstipatio - - -	17	17	—	3	3	—												
Hepatitis - - -	132	118	12	72	79	3												
Jaundice - - -	28	26	2	11	8	2												
Spleen Disease, &c. -	15	15	1	17	23	—												
ORDER 5.																		
Nephritis - - -	2	1	—	—	2	—	}	10	12	—	1·43	—						
Ischuria - - -	1	1	—	5	6	—												
Diabetes - - -	2	2	—	—	—	—												
ORDER 6.																		
Hydrocele - - -	3	3	—	2	1	—	}	5	4	—	·72	—						
ORDER 7.																		
Hydrarthrus - - -	2	2	—	5	8	—	}	13	16	—	1·86	—						
Arthritis - - -	1	1	—	1	1	—												
Joint Disease, &c. -	1	—	—	1	1	—												
Contractura - - -	2	3	—	—	—	—												
ORDER 8.																		
Phlegmon - - -	}	183	177	3	100	111	}	481	491	3	68·68	·43						
Abscess - - -																		
Ulcer - - -																		
Tumor - - -																		
Skin Disease, &c. -	20	22	—	17	17	—												
IV.	ORDER 4.																	
Atrophy - - -	7	5	1	1	—	1	}	8	5	2	1·14	·28						
V.	ORDER 1.— <i>Accident or Negligence.</i>																	
Found dead - - -	—	—	1	—	—	1	}	299	301	3	42·69	·43						
Burns or Scalds - - -	9	8	1	1	—	—												
Contusion - - -	116	118	—	53	47	—												
Sub-luxation - - -	17	20	—	18	22	—												
Luxation - - -	2	3	—	4	3	—												
Fracture - - -	8	7	—	9	9	—												
Wounds { Gunshot - - -	10	11	—	4	5	—												
{ Incised - - -	22	23	—	26	25	—												
ORDER 4.— <i>Suicide.</i>																		
Suspendium - - -	—	—	1	—	—	—							}	99	98	8	14·13	1·14
ORDER 5.																		
Punitus - - -	10	10	—	7	7	—												
Observatio - - -	42	43	3	40	38	5												

No. 25.

BENGAL.—FEROZEPURE STATION.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 10 Years - - - - - 7,778.
Mean Annual Strength - - - - - 794.

RETURN showing (C.) the Number of ATTACKS of SICKNESS ; (E.) the Number DISCHARGED to DUTY ; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Five Years, 1847 to 1851.			Five Years, 1852 to 1856.			Total for 10 Years.			Annual Ratio per 100 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES -	7,950	7,755	265	8,671	8,501	171	16,621	16,256	436	2,136.9	56.05
	CLASSES.											
I.	ZYMOTIC DISEASES -	6,579	6,469	164	7,044	6,911	134	13,623	13,380	298	1,751.5	38.31
II.	CONSTITUTIONAL -	87	71	17	100	106	14	187	177	31	24.04	3.98
III.	LOCAL - - - - -	1,009	923	82	1,204	1,163	22	2,213	2,086	104	284.52	13.37
V.	VIOLENCE - - - - -	275	292	2	323	321	1	598	613	3	76.88	.38
	ORDERS.											
I.	ORDER 1.—Miasmatic Dis.											
	Small-pox - - - - -	1	—	—	—	—	—					
	Measles - - - - -	2	2	1	—	—	—					
	Quinsy - - - - -	29	33	—	66	67	1					
	Catarrh and Influenza -	239	227	7	407	405	2					
	Ophthalmia - - - - -	494	512	—	218	214	—					
	Fever (C. C.) - - - - -	2,591	2,481	63	1,907	1,956	16					
	Erysipelas - - - - -	17	17	—	6	5	1	11,326	11,034	286	1,456.2	36.77
	Dysentery - - - - -	665	624	55	306	286	14					
	Diarrhœa - - - - -	423	410	7	747	733	6					
	Cholera - - - - -	18	13	5	134	41	89					
	Ague - - - - -	333	339	5	1,533	1,495	—					
	Remittent Fever - - - -	36	27	9	103	97	5					
	Rheumatism - - - - -	515	516	—	536	534	—					
	ORDER 2.—Ethereal Dis.											
	Syphilis, &c. - - - - -	1,105	1,165	5	1,000	999	—	2,137	2,196	5	274.5	.64
	Stricture of Urethra - -	12	11	—	20	21	—					
	ORDER 3.—Dietic Dis.											
	Purpura and Scurvy - - -	44	42	—	16	15	—					
	Alcoholism { a. Del. Tremens	23	18	7	7	7	—	134	125	7	17.23	.9
	{ b. Intemperance	18	17	—	26	26	—					
	ORDER 4.—Parasitic Dis.											
	Vermes - - - - -	13	14	—	12	10	—	26	25	—	3.34	—
	Psora - - - - -	1	1	—	—	—	—					
II.	ORDER 1.—Diathetic Dis.											
	Lumbago - - - - -	21	32	—	33	53	—	68	88	1	8.74	.13
	Dropsy - - - - -	11	9	—	3	3	1					
	ORDER 2.—Tubercular Dis.											
	Morbus Coxarius - - - -	2	1	1	—	—	—					
	Scrofula - - - - -	18	15	—	9	9	—	119	89	80	15.8	3.85
	Phthisis - - - - -	22	11	15	31	19	11					
	Hæmoptysis - - - - -	13	12	1	24	22	2					

No. 25.—Bengal ; Ferozepore Station ; Infantry. Stational Returns. European Troops ; H.M. Regts.—*cont.*

Class.	Diseases.	Five Years, 1847 to 1851.			Five Years, 1852 to 1856.			Total for 10 Years.			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
		III.	ORDER 1.									
	Cephalitis - - -	17	17	—	34	31	—	299	257	46	38.44	5.91
	Apoplexy - - -	38	10	35	19	16	7					
	Paralysis - - -	4	4	—	12	12	—					
	Insanity - - -	5	5	—	9	9	—					
	Epilepsy - - -	10	10	1	29	28	—					
	Odontalgia - - -	4	4	—	7	7	—					
	Otitis - - -	33	32	—	71	70	—					
	Brain Disease, &c. - - -	4	—	2	2	1	1					
	Dysecœa - - -	—	—	—	1	1	—					
	ORDER 2.											
	Pericarditis - - -	21	16	3	36	36	1	75	67	4	9.64	.51
	Varix - - -	4	4	—	2	1	—					
	Heart Disease, &c. - - -	1	1	—	11	9	—					
	ORDER 3.											
	Epistaxis - - -	7	6	—	6	5	—	152	133	19	19.54	2.45
	Bronchitis - - -	3	3	1	20	20	1					
	Pleurisy - - -	25	20	4	12	12	—					
	Hydrothorax - - -	2	—	2	—	—	—					
	Pneumonia - - -	19	14	6	16	12	4					
	Asthma - - -	8	8	1	34	33	—					
	ORDER 4.											
	Dyspepsia - - -	64	63	2	70	69	—	1,007	948	31	129.47	3.98
	Gastritis - - -	10	9	1	12	11	1					
	Enteritis - - -	6	5	1	4	4	—					
	Peritonitis - - -	5	3	2	6	5	1					
	Ascites - - -	1	1	1	2	2	—					
	Hæmatemesis - - -	1	1	—	1	1	—					
	Hernia - - -	3	3	—	5	5	—					
	Ileus and Colic - - -	48	50	—	129	127	—					
	Hæmorrhoids - - -	32	35	—	34	35	—					
	Fistula - - -	4	4	—	13	15	—					
	Obstipatio - - -	37	31	1	18	18	—					
	Hepatitis - - -	187	166	16	193	179	5					
	Jaundice - - -	13	13	—	12	10	—					
	Spleen Disease, &c. - - -	33	21	—	64	62	—					
	ORDER 5.											
	Nephritis - - -	4	4	1	12	11	1	37	36	2	4.76	.26
	Hæmaturia - - -	—	—	—	1	1	—					
	Ischuria - - -	5	5	—	8	8	—					
	Diabetes - - -	—	—	—	1	1	—					
	Stone - - -	—	—	—	1	1	—					
	Cystitis - - -	1	1	—	4	4	—					
	ORDER 6.											
	Hydrocele - - -	5	5	—	2	3	—	7	8	—	.91	—
	ORDER 7.											
	Arthritis - - -	6	6	—	4	4	—	31	30	—	3.98	—
	Joint Disease, &c. - - -	12	2	—	2	2	—					
	Contractura - - -	7	16	—	—	—	—					
	ORDER 8.											
	Phlegmon - - -	206	203	—	194	190	—	605	607	2	77.78	.26
	Abscess - - -											
	Ulcer - - -											
	Tumor - - -											
	Skin Diseases, &c. - - -											
	ORDER 1.— <i>Accident or Negligence.</i>											
	Burns or Scalds - - -	6	7	—	9	9	—	487	505	3	62.61	.38
	Contusion - - -	82	92	—	152	153	—					
	Sub-luxation - - -	49	35	—	53	53	—					
	Luxation - - -	5	5	—	8	8	—					
	Fracture - - -	11	9	—	4	4	—					
	Wounds { Gynshot - - -	50	75	—	8	2	1					
	{ Incised - - -	23	21	—	31	31	—					
	Amputatio - - -	1	—	2	—	—	—					
	Otherwise - - -	—	1	—	—	—	—					
	ORDER 5.											
	Funitus - - -	13	13	—	5	5	—	111	108	—	14.27	—
	Observatio - - -	35	34	—	58	56	—					

No. 26.

BENGAL.—LAHORE STATION.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 10 Years - - - - - 8,155
 Mean Annual Strength - - - - - 815

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Five Years, 1847 to 1851.			Five Years, 1852 to 1856.			Total for 10 Years.			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES	9,451	9,132	357	11,059	10,655	307	20,510	19,787	664	2,515.04	81.42
	CLASSES.											
I.	ZYMOTIC DISEASES	7,996	7,836	236	9,268	8,948	249	17,264	16,784	485	2,117.	59.47
II.	CONSTITUTIONAL	88	63	18	86	69	12	174	132	30	21.34	3.68
III.	LOCAL	1,079	957	100	1,285	1,227	43	2,364	2,184	143	289.89	17.53
IV.	DEVELOPMENTAL	3	2	—	1	1	—	4	3	—	.49	—
V.	VIOLENCE	285	274	3	419	410	3	704	684	6	86.32	*73
	ORDERS.											
I.	ORDER 1.—Miasmatic Dis.											
	Small-pox	27	18	9	9	5	4	15,622	15,128	475	1,915.65	58.23
	Vaccinia	3	3	—	—	—	—					
	Varicella	—	—	—	1	1	—					
	Measles	1	1	—	2	2	—					
	Quinsy	28	23	—	46	48	—					
	Catarrh and Influenza	204	194	12	396	408	—					
	Ophthalmia	693	761	—	336	348	—					
	Fever (C. C.)	2,776	2,812	49	2,104	2,041	31					
	Typhus	1	—	—	—	—	—					
	Icterodes	1	—	—	—	—	—					
	Erysipelas	18	16	—	2	2	—					
	Dysentery	1,052	913	103	584	561	53					
	Diarrhoea	476	436	25	480	472	9					
	Cholera	74	66	7	193	69	125					
	Ague	885	869	1	3,431	3,322	—					
	Remittent Fever	644	610	19	272	238	22					
	Rheumatism	386	387	6	497	502	—					
	ORDER 2.—Ethereic Dis.											
	Syphilis, &c.	676	680	3	845	867	1	1,546	1,570	4	189.58	*49
	Stricture of Urethra	11	10	—	14	13	—					
	ORDER 3.—Dietic Dis.											
	Purpura and Scurvy	5	3	—	15	12	2	73	63	6	8.95	*73
	Alcoholism { a. Del. Tremens	21	18	2	14	12	2					
	b. Intemperance	10	12	—	8	6	—					
	ORDER 4.—Parasitic Dis.											
	Vermes	4	4	—	17	17	—	23	23	—	2.82	—
	Psora	—	—	—	2	2	—					
II.	ORDER 1.—Diathetic Dis.											
	Lumbago	18	16	—	9	9	—	50	44	2	6.13	*25
	Dropsy	5	4	—	18	15	2					
	ORDER 2.—Tubercular Dis.											
	Morbus Coxarius	—	—	—	2	2	—	124	88	28	15.21	3.43
	Scrofula	3	31	—	17	17	—					
	Phthisis	19	1	18	23	10	9					
	Hæmoptysis	14	11	—	17	16	1					

No. 26.—Bengal; Lahore Station; Infantry. Stational Returns. European Troops; H.M. Regts.—*cont.*

Class.	Diseases.	Five Years, 1847 to 1851.			Five Years, 1852 to 1856.			Total for 10 Years.			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
III.	ORDER 1.											
	Cephalitis	13	12	—	29	28	—	213	165	43	26·12	5·27
	Apoplexy	27	3	22	29	15	14					
	Paralysis	12	12	2	4	4	—					
	Insanity	6	5	1	3	2	—					
	Hydrophobia	1	—	—	—	—	—					
	Epilepsy	11	8	—	15	14	1					
	Odontalgia	2	2	—	4	3	—					
	Otitis	22	22	—	21	22	—					
	Brain Disease, &c.	5	6	—	4	1	2					
	Dyseecæa	1	1	—	4	5	—					
	ORDER 2.											
	Pericarditis	3	—	—	26	25	2	43	38	2	5·27	·25
	Varix	—	—	—	1	1	—					
	Heart Disease, &c.	5	4	—	8	8	—					
	ORDER 3.											
	Epistaxis	7	7	—	—	1	—	134	119	12	16·43	1·46
	Bronchitis	12	10	2	—	12	2					
	Pleurisy	21	19	1	—	31	—					
	Pneumonia	14	10	3	32	22	4					
	Asthma	8	7	—	—	—	—					
	ORDER 4.											
	Dyspepsia	52	50	2	83	82	—	1,295	1,190	78	158·82	9·56
	Gastritis	37	38	2	12	12	—					
	Enteritis	4	—	4	2	1	1					
	Peritonitis	7	5	2	11	10	1					
	Ascites	1	—	1	3	2	—					
	Hæmatemesis	1	1	—	3	2	2					
	Hernia	—	—	—	4	4	—					
	Hæmorrhoids	36	33	—	43	44	—					
Ileus and Colic	57	56	—	87	87	—						
Fistula	5	6	—	4	4	—						
Obstipatio	22	22	—	26	27	—						
Hepatitis	270	215	48	279	260	12						
Jaundice	79	70	2	28	27	—						
Spleen Disease, &c.	51	50	—	88	82	1						
ORDER 5.												
Nephritis	4	3	—	2	1	1	17	15	1	2·08	·13	
Ischuria	3	2	—	5	6	—						
Enuresis	3	3	—	—	—	—						
ORDER 6.												
Hydrocele	1	—	—	4	3	—	5	3	—	·61	—	
ORDER 7.												
Hydrarthrus	2	2	—	1	1	—	13	11	1	1·59	·13	
Arthritis	1	2	—	8	6	—						
Joint Disease, &c.	1	—	1	—	—	—						
ORDER 8.												
Phlegmon	149	155	6	162	159	—	644	643	6	78·97	·73	
Abscess												
Ulcer												
Tumor												
Skin Disease, &c.												
IV.	ORDER 4.											
Atrophy	3	2	—	1	1	—	4	3	—	·49	—	
V.	ORDER 1.— <i>Accident or Negligence.</i>											
Burns or Scalds	6	5	—	4	5	—	493	486	4	60·45	·49	
Contusion	142	139	1	157	156	1						
Sub-luxation	30	30	—	67	69	—						
Luxation	2	2	—	3	3	—						
Fracture	13	11	1	9	7	1						
Wounds { Gunshot	11	9	—	—	—	—						
{ Incised	24	25	—	25	25	—						
ORDER 5.												
Punitus	34	35	—	6	6	—	211	198	2	25·87	·25	
Observatio	23	18	1	148	139	1						

No. 27.

BENGAL.—FORT WILLIAM STATION.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 10 Years - - - - - 6,077
Average Annual Strength - - - - - 608

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Five Years, 1847 to 1851.			Five Years, 1852 to 1856.			Total for 10 Years.			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES -	7,275	7,027	347	5,921	5,622	275	13,196	12,649	622	2,171.45	102.35
	CLASSES.											
I.	ZYMOTIC DISEASES -	5,488	5,268	284	4,430	4,212	204	9,918	9,480	488	1,632.1	80.3
II.	CONSTITUTIONAL -	74	59	17	55	49	8	129	108	25	21.23	4.11
III.	LOCAL - - - - -	1,306	1,276	43	1,080	1,017	58	2,386	2,293	101	392.63	16.62
IV.	DEVELOPMENTAL -	1	3	—	—	—	—	1	3	—	.16	—
V.	VIOLENCE - - - - -	406	421	3	356	344	5	762	765	8	125.39	1.32
	ORDERS.											
I.	ORDER 1.—Miasmatic Dis.											
	Small-pox - - - - -	11	9	2	—	—	—					
	Measles - - - - -	3	3	—	3	3	—					
	Quinsy - - - - -	23	29	—	20	21	—					
	Catarrh and Influenza -	256	260	9	138	139	3					
	Ophthalmia - - - - -	606	633	—	129	126	—					
	Fever (C. C.) - - - - -	1,366	1,287	42	1,510	1,505	17					
	Typhus - - - - -	1	—	—	—	—	—					
	Erysipelas - - - - -	4	4	—	3	1	1	8,101	7,718	473	1,333.15	77.83
	Dysentery - - - - -	782	679	118	534	465	65					
	Diarrhoea - - - - -	709	707	14	414	434	20					
	Cholera - - - - -	126	54	83	171	78	86					
	Ague - - - - -	295	297	1	338	336	2					
	Remittent Fever - - - -	86	85	6	91	83	2					
	Rheumatism - - - - -	259	262	2	223	218	—					
	ORDER 2.—Euthetic Dis.											
	Syphilis, &c. - - - - -	805	800	2	671	632	—	1,496	1,451	2	246.07	.33
	Stricture of Urethra - -	6	6	—	14	13	—					
	ORDER 3.—Dietic Dis.											
	Purpura and Scurvy - - -	29	29	4	12	7	1					
	Alcoholism { a. Del. Tremens	45	46	1	66	64	7	301	290	13	49.53	2.14
	b. Intemperance	67	68	—	82	76	—					
	ORDER 4.—Parasitic Dis.											
	Verues - - - - -	7	7	—	6	6	—					
	Psora - - - - -	2	3	—	5	5	—	20	21	—	3.29	—
II.	ORDER 1.—Diathetic Dis.											
	Lumbago - - - - -	9	9	—	16	19	—	32	34	1	5.26	.16
	Dropsy - - - - -	6	5	1	1	1	—					
	ORDER 2.—Tubercular Dis.											
	Morbus Coxarius - - - -	—	—	—	1	1	—					
	Scrofula - - - - -	4	5	—	7	8	—	97	74	24	15.96	3.95
	Phthisis - - - - -	42	28	15	27	17	8					
	Hæmoptysis - - - - -	13	12	1	3	3	—					
III.	ORDER 1.											
	Cephalitis - - - - -	5	6	—	4	3	—					
	Apoplexy - - - - -	12	2	10	36	9	32					
	Paralysis - - - - -	10	9	1	17	17	—					
	Tetanus - - - - -	1	—	1	—	—	—					
	Insanity - - - - -	29	25	—	19	19	—	236	194	45	38.83	7.4
	Epilepsy - - - - -	19	19	—	19	20	—					
	Odontalgia - - - - -	7	6	—	1	1	—					
	Otitis - - - - -	23	23	—	29	31	—					
	Brain Disease, &c. - - -	—	—	—	2	1	1					
	Dyseecæ - - - - -	—	—	—	3	3	—					

No. 27.—Bengal; Fort William Station; Infantry. Stational Returns. European Troops; H. M. Regts.—*cont.*

Class.	Diseases.	Five Years, 1847 to 1851.			Five Years, 1852 to 1856.			Total for 10 Years.			Annual Ratio per 1000 of Mean Strength.		
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.	
III.	ORDER 2.												
	Pericarditis - - -	5	4	—	35	31	2	}	70	63	2	11·52	·33
	Varix - - -	4	4	—	—	—	—						
	Heart Disease, &c. - - -	3	2	—	23	22	—						
	ORDER 3.												
	Epistaxis - - -	1	1	—	2	2	—	}	139	139	10	22·87	1·66
	Bronchitis - - -	17	14	1	33	35	2						
	Pleurisy - - -	12	12	2	6	6	—						
	Pneumonia - - -	24	29	3	26	25	1						
	Asthma - - -	12	12	1	6	3	—						
	ORDER 4.												
	Dyspepsia - - -	76	74	—	150	148	—	}	1,108	1,077	39	122·23	6·42
	Gastritis - - -	3	2	1	6	6	—						
	Enteritis - - -	1	1	—	2	—	2						
	Peritonitis - - -	4	3	1	1	1	—						
	Ascites - - -	3	3	—	—	—	—						
	Hæmatemesis - - -	3	2	1	1	—	1						
	Hernia - - -	2	2	—	6	6	—						
	Ileus and Colic - - -	116	115	—	84	89	4						
Prolapsus Ani - - -	2	1	—	—	—	—							
Hæmorrhoids - - -	95	90	—	26	25	—							
Fistula - - -	5	4	—	4	4	—							
Obstipatio - - -	85	85	—	14	14	—							
Hepatitis - - -	143	141	15	174	161	12							
Jaundice - - -	43	39	1	13	13	—							
Spleen Disease, &c. - - -	21	23	1	25	25	—							
ORDER 5.													
Nephritis - - -	8	8	—	1	1	—	}	33	33	1	5·43	·16	
Ischuria - - -	11	11	—	4	5	—							
Enuresis - - -	3	3	—	2	2	—							
Diabetes - - -	—	—	—	3	3	—							
Cystitis - - -	1	—	1	—	—	—							
ORDER 6.													
Hydrocele - - -	—	—	—	3	5	—	}	4	6	—	·66	—	
Testis Disease, &c. - - -	—	—	—	1	1	—							
ORDER 7.													
Hydrarthrus - - -	1	1	—	—	—	—	}	13	11	1	2·14	·16	
Arthritis - - -	—	—	—	4	4	—							
Joint Disease, &c. - - -	2	1	1	3	2	—							
Contractura - - -	2	2	—	1	1	—							
ORDER 8.													
Phlegmon - - -	}	242	242	1	178	161	1	}	783	770	3	123·55	·49
Abscess - - -													
Ulcer - - -													
Tumor - - -													
Skin Disease, &c. - - -	41	35	—	22	22	—							
IV.	ORDER 4.												
Atrophy - - -	1	3	—	—	—	—	1	3	—	·16	—		
V.	ORDER 1.— <i>Accident or Negligence.</i>												
	Burns or Scalds - - -	6	5	—	3	3	—	}	586	599	5	96·43	·83
	Contusion - - -	174	179	—	152	153	—						
	Sub-luxation - - -	55	59	—	51	51	—						
	Luxation - - -	4	3	—	3	3	—						
	Fracture - - -	11	13	1	15	12	2						
	Wounds { Gunshot - - -	16	18	—	6	6	—						
	{ Incised - - -	55	61	—	34	32	—						
	Amputatio - - -	1	1	—	—	—	—						
	Found dead - - -	—	—	1	—	—	—						
	ORDER 3.— <i>Homicide.</i>												
Assassinated - - -	—	—	—	—	—	1							
ORDER 5.													
Punitus - - -	10	9	—	4	4	—	}	176	166	3	28·96	·49	
Observatio - - -	74	73	1	88	80	2							

N.B.—Invalids are included in these Numbers, but the Returns do not enable them to be distinguished.

No. 23.

BENGAL.—LANDOUR STATION.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 10 Years - - - - 1,103
 Mean Annual Strength - - - - 110

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Five Years, 1847 to 1851.			Five Years, 1852 to 1856.			Total for 10 Years.			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES -	648	572	43	1,501	1,453	24	2,149	2,025	67	1,948.3	60.71
	CLASSES.											
I.	ZYMOTIC DISEASES -	435	391	25	959	938	11	1,394	1,329	36	1,263.8	32.63
II.	CONSTITUTIONAL -	17	8	5	13	10	3	30	18	8	27.2	7.25
III.	LOCAL - - - -	119	100	11	468	446	8	587	546	19	532.19	17.22
IV.	DEVELOPMENTAL -	—	—	—	1	—	1	1	—	1	.9	.9
V.	VIOLENCE - - - -	77	73	2	60	59	1	137	132	3	124.21	2.71
	ORDERS.											
I.	ORDER 1.—Miasmatic Dis.											
	Small-pox - - - -	—	—	—	4	4	—					
	Quinsy - - - - -	—	—	—	18	18	—					
	Catarrh and Influenza -	11	10	—	55	54	—					
	Ophthalmia - - - -	56	49	—	48	49	—					
	Fever (C. C.) - - - -	56	54	1	56	51	3					
	Icteroidea - - - - -	—	—	—	1	1	—					
	Dysentery - - - - -	63	47	14	67	63	2	1,242	1,196	32	1,126.	29.01
	Diarrhoea - - - - -	25	26	1	67	60	3					
	Cholera - - - - -	—	—	—	1	1	—					
	Ague - - - - -	109	107	2	386	392	1					
	Remittent Fever - - -	8	8	—	10	10	—					
	Rheumatism - - - - -	54	48	4	147	144	1					
	ORDER 2.—Euthetic Dis.											
	Syphilis, &c. - - - -	45	34	3	78	69	1	136	116	4	123.3	3.62
	Stricture of Urethra -	5	5	—	8	8	—					
	ORDER 3.—Dietic Dis.											
	Purpura and Scurvy - -	1	1	—	6	6	—					
	Alcoholism { a. Del. Tremens	2	2	—	3	4	—	16	17	—	14.5	—
	{ b. Intemperance	—	—	—	4	4	—					
II.	ORDER 1.—Diathetic Dis.											
	Lumbago - - - - -	—	—	—	2	2	—					
	Dropsy - - - - -	4	3	1	1	—	1	7	5	2	6.35	1.81
	ORDER 2.—Tubercular Dis.											
	Scrofula - - - - -	9	5	1	4	4	—					
	Phthisis - - - - -	3	—	3	4	2	2	23	18	6	20.85	5.44
	Hæmoptysis - - - - -	1	—	—	4	2	—					
III.	ORDER 1.											
	Cephalitis - - - - -	—	—	—	2	2	—					
	Apoplexy - - - - -	—	—	—	3	1	1					
	Paralysis - - - - -	1	—	1	5	4	1					
	Insanity - - - - -	2	2	—	—	—	—	28	21	3	25.38	2.72
	Epilepsy - - - - -	5	4	—	9	7	—					
	Otitis - - - - -	1	1	—	—	—	—					

No. 28.—Bengal; Landour Station; Infantry. Stational Returns. European Troops; H. M. Regts.—*cont.*

Class.	Diseases.	Five Years, 1847 to 1851.			Five Years, 1852 to 1856.			Total for 10 Years.			Annual Ratio per 1000 of Mean Strength.		
		(C.) No. of Attacks.	(C.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.	
III.	ORDER 2.												
	Pericarditis - - -	1	—	—	39	38	1	}	45	43	1	40·8	·9
	Varix - - -	—	—	—	3	3	—						
	Heart Disease, &c. - - -	1	1	—	1	1	—						
	ORDER 3.												
	Epistaxis - - -	—	—	—	2	1	—	}	57	52	2	51·68	1·81
	Bronchitis - - -	6	4	1	25	24	1						
	Pleurisy - - -	—	—	—	4	4	—						
	Pneumonia - - -	1	—	—	3	3	—						
	Asthma - - -	7	7	—	9	9	—						
	ORDER 4.												
	Dyspepsia - - -	4	5	—	25	26	—	}	383	355	13	347·24	11·79
	Gastritis - - -	—	—	—	1	—	—						
	Peritonitis - - -	1	1	—	—	—	—						
	Ascites - - -	2	2	—	—	—	—						
	Prolapsus Ani - - -	—	—	—	6	6	—						
	Ileus and Colic - - -	1	1	—	11	9	—						
	Hæmorrhoids - - -	1	1	—	7	7	—						
	Hæmatemesis - - -	—	—	—	1	—	1						
	Fistula - - -	2	2	—	3	3	—						
	Obstipatio - - -	—	—	—	10	10	—						
Hepatitis - - -	65	52	8	176	167	3							
Jaundice - - -	—	—	—	3	3	—							
Spleen Disease, &c. - - -	6	4	1	58	56	—							
ORDER 5.													
Nephritis - - -	—	—	—	16	16	—	}	21	21	—	19·04	—	
Ischuria - - -	—	—	—	3	3	—							
Stone - - -	1	1	—	—	—	—							
Cystitis - - -	1	1	—	—	—	—							
ORDER 7.													
Arthritis - - -	1	1	—	—	—	—	}	2	2	—	1·81	—	
Joint Disease, &c. - - -	—	—	—	1	1	—							
ORDER 8.													
Phlegmon - - -	4	5	—	17	17	—	}	51	52	—	46·24	—	
Ulcer - - -	5	5	—	25	25	—							
IV.	ORDER 4.												
Atrophy - - -	—	—	—	1	—	1	1	—	1	·9	·9		
V.	ORDER 1.— <i>Accident or Negligence.</i>												
Contusion - - -	10	10	—	29	29	—	}	120	116	2	108·79	1·81	
Sub-luxation - - -	1	1	—	11	11	—							
Fracture - - -	1	1	—	1	1	—							
Wounds { Gunshot - - -	58	55	1	—	—	—							
{ Incised - - -	4	3	1	5	5	—							
ORDER 5.													
Observatio - - -	3	3	—	14	13	1	17	16	1	15·42	·9		

No. 29.

BENGAL.—EN ROUTE, &c. &c.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 10 Years - - - 24,601
 Mean Annual Strength - - - - - 2,460

RETURN showing (C.) the Number of ATTACKS of SICKNESS ; (E.) the Number DISCHARGED to DUTY ; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Five Years, 1847 to 1851.			Five Years, 1852 to 1856.			Total for 10 Years.			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES	20,672	20,192	816	15,014	15,186	455	35,686	35,378	1,261	1,450.6	51.24
	CLASSES.											
I.	ZYMOTIC DISEASES	16,556	16,206	644	11,833	11,997	331	28,389	28,203	975	1,154.0	39.63
II.	CONSTITUTIONAL	174	140	36	154	146	21	328	286	57	13.32	2.31
III.	LOCAL	2,876	2,843	114	2,277	2,330	84	5,153	5,173	198	209.46	8.04
IV.	DEVELOPMENTAL	10	7	—	1	—	1	11	7	1	.45	.04
V.	VIOLENCE	1,056	996	22	749	713	8	1,805	1,709	30	73.87	1.21
	ORDERS.											
I.	ORDER 1.—Miasmatic Dis.											
	Small-pox	31	24	7	4	3	—					
	Measles	—	—	—	3	2	1					
	Varicella	1	1	—	—	—	—					
	Quinsy	117	106	2	132	129	2					
	Catarrh and Influenza	688	787	14	716	715	10					
	Ophthalmia	1,571	1,580	1	515	547	—					
	Fever (C. C.)	3,501	3,316	124	1,456	1,448	42					
	Typhus	3	1	1	—	—	—					
	Typhoid	1	1	—	—	—	—	23,886	23,621	949	970.95	38.58
	Erysipelas	18	19	—	5	5	1					
	Dysentery	2,114	1,988	221	752	583	97					
	Diarrhoea	1,967	1,887	57	1,627	1,563	76					
	Cholera	277	125	145	144	55	69					
	Ague	2,213	2,326	28	2,893	3,077	19					
	Remittent Fever	640	707	21	495	540	6					
	Rheumatism	956	872	3	1,045	1,029	2					
	ORDER 2.—Enthetic Dis.											
	Syphilis, &c.	2,225	2,322	11	1,848	1,858	5	4,123	4,221	16	167.60	.65
	Stricture of Urethra	14	13	—	36	28	—					
	ORDER 3.—Dietic Dis.											
	Purpura and Scurvy	77	75	2	52	40	—					
	Alcoholism { a. Del. Tremens	41	37	5	24	24	1	333	314	10	13.5	.41
	b. Intemperance	72	73	2	67	65	—					
	ORDER 4.—Parasitic Dis.											
	Vermes	16	16	—	18	19	—	47	47	—	1.91	—
	Psora	13	12	—	—	—	—					
II.	ORDER 1.—Diathetic Dis.											
	Lambago	29	30	—	27	27	—	88	87	8	3.57	.32
	Dropsy	21	17	4	11	13	4					
	ORDER 2.—Tubercular Dis.											
	Morbus Coxarius	—	1	—	2	2	—	240	199	49	9.75	1.99
	Scrofula	47	45	2	34	37	—					
	Fththisis	57	28	28	58	47	17					
	Hæmoptysis	22	19	2	20	20	—					

No. 29.—Bengal; En Route, &c. &c.; Infantry. Stational Returns. European Troops; H. M. Regts.—cont.

Class.	Disease.	Five Years, 1847 to 1851.			Five Years, 1852 to 1856.			Total for 10 Years.			Annual Ratio per 1,000 of Mean Strength.					
		(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	Attacked.	Died.				
III.	ORDER 1.															
	Cephalitis	34	33	—	56	61	—	502	517	43	20·4	1·75				
	Apoplexy	19	10	21	17	6	12									
	Paralysis	28	25	3	23	27	—									
	Odontalgia	4	5	—	3	4	—									
	Insanity	49	49	1	61	82	1									
	Tetanus	1	—	1	—	—	—									
	Epilepsy	44	47	1	42	45	1									
	Otitis	58	62	—	51	48	—									
	Brain Disease, &c.	6	6	2	—	—	—									
	Dyseecœa	—	2	—	6	5	—									
	ORDER 2.							170	158	19	6·91	·77				
	Pericarditis	48	49	6	63	60	10									
	Aneurism	1	1	—	3	2	1									
	Varix	10	6	—	5	4	—									
	Heart Disease, &c.	8	8	1	32	28	1									
	ORDER 3.							316	285	37	12·84	1·50				
	Epistaxis	2	2	—	8	10	—									
	Bronchitis	24	21	2	56	49	5									
	Pleurisy	46	42	4	25	23	2									
	Pneumonia	65	49	13	51	44	10									
	Asthma	19	22	1	20	23	—									
	ORDER 4.							2,472	2,470	91	100·50	3·70				
	Dyspepsia	227	223	—	122	129	1									
	Gastritis	16	15	2	20	21	2									
	Enteritis	11	4	2	6	4	1									
	Peritonitis	11	8	3	3	1	2									
	Ascites	7	4	1	8	6	1									
	Prolapsus Ani	1	2	—	2	2	—									
	Hernia	11	9	—	8	10	—									
	Ileus & Colic	233	237	—	170	168	—									
	Hæmorrhoids	135	131	1	83	97	1									
	Obstipation	110	104	—	50	40	—									
	Fistula	11	12	—	13	14	—									
	Hæmatemesis	1	1	—	2	2	—									
	Hepatitis	469	469	45	452	466	26									
	Jaundice	40	40	2	20	23	—									
	Spleen Disease, &c.	84	86	—	127	123	1									
	ORDER 5.							42	53	3	1·70	·12				
	Nephritis	8	17	—	13	15	2									
Ischuria	6	7	—	10	9	—										
Diabetes	—	—	—	1	1	1										
Cystitis	2	2	—	2	2	—										
ORDER 6.							10	10	—	·41	—					
Hydrocele	5	4	—	4	5	—										
Testis Disease, &c.	—	—	—	1	1	—										
ORDER 7.							40	35	—	1·62	—					
Hydrarthrus	2	2	—	4	2	—										
Arthritis	8	8	—	8	7	—										
Joint Disease, &c.	3	5	—	8	6	—										
Contractura	4	4	—	3	1	—										
ORDER 8.							1,601	1,645	5	65·08	·20					
Phlegmon	525	535	2	349	351	—										
Abscess																
Ulcer												441	442	—	214	249	1
Tumor							7	4	—	1	2	—				
Skin Disease, &c.	31	28	1	33	34	1										
IV.	ORDER 4.						11	7	1	·45	·04					
Atrophy	10	7	—	1	—	1										
V.	ORDER 1.— <i>Accident or Negligence.</i>						1,472	1,382	19	59·83	·77					
Burns or Scalds	24	23	—	21	17	—										
Contusion	409	397	1	352	349	—										
Sub-luxation	181	168	—	130	124	—										
Luxation	27	25	—	10	7	—										
Fracture	35	34	—	45	42	—										
Wounds { Gunshot	91	53	8	3	4	—										
{ Incised	70	78	—	67	59	—										
Amputation	5	4	—	2	2	—										
Drowned	—	—	6	—	—	2										
Found Dead	—	—	1	—	—	1										
ORDER 4.— <i>Suicide.</i>												—	—	3	—	·12
Gunshot	—	—	2	—	—	1										
ORDER 5.												333	327	8	13·54	·32
Punitus	41	40	—	28	25	—										
Observatio	173	178	4	91	84	4										

N.B.—Invalids are included in these Numbers, but the Returns do not enable them to be distinguished.

No. 30.

BENGAL.—DINAPORE STATION.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 9 Years - - - - 7,018
 Mean Annual Strength - - - - 779

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Five Years, 1847 to 1851.			Four Years,* 1852 to 1854, and 1856.			Total for 9 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.)	(E.)	(F.)	(C.)	(E.)	(F.)	(C.)	(E.)	(F.)	Attacked.	Died.
		No. of Attacks.	No. discharged to Duty.	No. of Deaths.	No. of Attacks.	No. discharged to Duty.	No. of Deaths.	No. of Attacks.	No. discharged to Duty.	No. of Deaths.		
	SPECIFIED CAUSES	7,200	6,676	284	6,306	6,084	155	13,506	12,760	439	1,924.49	62.55
	CLASSES.											
I.	ZYMOTIC DISEASES	5,582	5,111	227	4,499	4,345	116	10,081	9,456	343	1,436.46	48.89
II.	CONSTITUTIONAL	44	34	9	36	29	5	80	63	14	11.4	1.99
III.	LOCAL	1,254	1,191	48	1,472	1,410	32	2,726	2,601	80	388.43	11.40
IV.	DEVELOPMENTAL	—	—	—	1	1	—	1	1	—	.14	—
V.	VIOLENCE	320	340	—	298	299	2	618	639	2	88.06	.28
	ORDERS.											
I.	ORDER 1.—Miasmatic Dis.											
	Small-pox	1	1	—	4	3	1	7,380	6,773	337	1,051.6	48.02
	Vaccina	1	1	—	—	—	—					
	Measles	3	2	1	2	2	—					
	Varicella	1	1	—	—	—	—					
	Quinsy	37	37	1	59	58	1					
	Catarrh and Influenza	181	171	4	175	174	1					
	Ophthalmia	312	287	—	204	203	—					
	Fever (C.C.)	933	912	11	651	648	2					
	Typhus	—	—	—	1	—	1					
	Erysipelas	2	2	—	1	1	—					
	Dysentery	826	677	100	454	373	68					
	Diarrhoea	377	373	17	323	323	3					
	Cholera	220	145	76	66	33	33					
	Ague	317	322	5	710	719	4					
	Remittent Fever	636	420	8	135	131	—					
	Rheumatism	317	321	—	426	433	—					
	ORDER 2.—Ethnetic Dis.							2,521	2,514	3	359.22	.43
	Syphilis, &c.	1,286	1,311	2	1,198	1,168	—					
	Stricture of Urethra	13	13	—	24	22	1					
	ORDER 3.—Dietic Dis.							127	117	3	18.09	.43
	Purpura and Scurvy	13	12	1	11	8	—					
	Alcoholism { a. Del. Tremens b. Intemperance	68 25	66 24	1 —	9 1	6 1	1 —					
	ORDER 4.—Parasitic Dis.							53	52	—	7.55	—
	Verues	6	6	—	38	37	—					
	Psora	7	7	—	2	2	—					
II.	ORDER 1.—Diathetic Dis.							13	12	1	1.85	.14
	Lumbago	5	5	—	6	6	—					
	Dropsy	1	1	1	1	—	—					
	ORDER 2.—Tubercular Dis.							67	51	13	9.55	1.85
	Morbus Coxarius	—	—	—	3	3	—					
	Scrofula	21	20	—	8	8	—					
	Phthisis	14	6	7	12	6	5					
	Hæmoptysis	3	2	1	6	6	—					

No. 30.—Bengal; Dinapore Station; Infantry. Stational Returns. European Troops; H.M. Regts.—cont.

Class.	Diseases.	Five Years, 1847 to 1851.			Four Years,* 1852 to 1854, and 1856.			Total for 9 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
III.	ORDER 1.											
	Cephalitis	7	7	—	21	20	—	236	194	26	33.62	2.71
	Apoplexy	19	4	14	13	6	7					
	Paralysis	11	6	3	5	5	—					
	Odontalgia	—	—	—	3	3	—					
	Insanity	3	2	—	11	10	—					
	Epilepsy	29	37	1	9	9	—					
	Otitis	11	11	—	81	63	—					
	Brain Disease, &c.	2	2	—	8	6	1					
	Dysecœa	2	1	—	1	2	—					
	ORDER 2.							58	35	5	8.26	.72
	Pericarditis	7	5	2	15	12	2					
	Aneurism	—	—	—	1	1	1					
	Varix	2	2	—	24	9	—					
	Heart Disease, &c.	1	1	—	8	5	—					
	ORDER 3.							128	125	4	18.24	.56
	Epistaxis	5	5	—	2	2	—					
	Bronchitis	1	—	—	6	5	—					
	Pleurisy	20	21	—	29	30	1					
	Pneumonia	17	16	2	16	14	1					
	Asthma	—	—	—	32	32	—					
	ORDER 4.							1,264	1,188	44	180.11	6.27
	Dyspepsia	44	45	—	118	116	—					
	Gastritis	18	17	1	5	5	—					
	Enteritis	7	7	—	2	2	—					
	Peritonitis	—	—	—	4	4	—					
	Ascites	2	1	1	3	2	—					
	Hæmatemesis	3	3	—	1	1	—					
	Hernia	4	4	—	8	8	—					
	Ileus and Colic	81	68	1	34	34	—					
	Hæmorrhoids	32	29	—	35	34	—					
	Prolapsus Ani	—	—	—	1	1	—					
	Fistula	12	9	—	6	6	—					
	Obstipatio	16	15	—	101	100	—					
	Hepatitis	322	292	23	266	242	18					
	Jaundice	17	17	—	18	18	—					
	Spleen Disease, &c.	43	43	—	61	65	—					
	ORDER 5.							30	28	1	4.27	.14
	Nephritis	1	1	—	10	9	1					
Ischuria	5	4	—	4	5	—						
Enuresis	1	1	—	4	4	—						
Diabetes	—	—	—	2	1	—						
Cystitis	—	—	—	3	3	—						
ORDER 6.							8	8	—	1.14	—	
Hydrocele	3	3	—	5	5	—						
ORDER 7.							23	23	—	3.28	—	
Hydrarthrus	5	6	—	1	1	—						
Arthritis	1	1	—	5	5	—						
Joint Disease, &c.	6	5	—	4	4	—						
Contractura	1	1	—	—	—	—						
ORDER 8.							979	1,000	—	139.51	—	
Phlegmon	324	321	—	274	291	—						
Abscess	—	—	—	—	—	—						
Ulcer	145	154	—	148	146	—						
Tumor	—	—	—	5	5	—						
Skin Disease, &c.	24	24	—	59	59	—						
IV.	ORDER 4.						1	1	—	.14	—	
Atrophy	—	—	—	1	1	—						
V.	ORDER 1.— <i>Accident or Negligence.</i>						471	497	—	67.11	—	
Burns or Scalds	3	3	—	3	3	—						
Contusion	146	163	—	109	108	—						
Sub-luxation	58	58	—	40	40	—						
Luxation	9	9	—	2	2	—						
Fracture	14	18	—	6	8	—						
Wounds { Gunshot	1	2	—	—	—	—						
{ Incised	46	46	—	34	37	—						
ORDER 5.							147	142	2	21.05	.28	
Punitus	18	18	—	6	6	—						
Observatio	25	23	—	98	95	2						

* No Troops separately accounted for at this Station during the Year 1855.

No. 31.

BENGAL.—JULLUNDUR STATION—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 9 Years - - - - - 6,472
 Mean Annual Strength - - - - - 712

RETURN showing (C.) the Number of ATTACKS of SICKNESS ; (E.) the Number DISCHARGED to DUTY ; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Four Years,* 1848 to 1851.			Five Years, 1852 to 1856.			Total for 9 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES -	4,872	4,755	113	8,479	8,249	124	13,351	13,004	237	2,062.89	36.62
	CLASSES.											
I.	ZYMOTIC DISEASES -	3,700	3,617	66	6,938	6,766	82	10,638	10,383	148	1,643.7	22.87
II.	CONSTITUTIONAL -	41	35	7	39	35	2	80	70	9	12.36	1.39
III.	LOCAL - - - -	852	817	31	1,322	1,266	38	2,174	2,083	69	335.91	10.66
V.	VIOLENCE - - - -	279	286	9	180	182	2	459	468	11	70.92	1.7
	ORDERS.											
I.	ORDER 1.—Miasmatic Dis.											
	Small-pox - - - -	1	—	1	7	5	2	8,666	8,496	138	1,339.	21.33
	Measles - - - - -	—	—	—	2	2	—					
	Quinsy - - - - -	18	17	—	48	47	—					
	Catarrh and Influenza -	122	114	2	262	256	2					
	Ophthalmia - - - -	298	298	—	346	367	—					
	Fever (C. C.) - - - -	1,075	1,041	16	464	459	8					
	Erysipelas - - - -	1	1	—	1	—	1					
	Dysentery - - - - -	473	436	27	127	102	24					
	Diarrhoea - - - - -	151	147	3	590	568	32					
	Cholera - - - - -	11	8	3	—	—	—					
	Ague - - - - -	322	338	1	3,590	3,546	9					
	Remittent Fever - - -	75	70	5	22	20	1					
	Rheumatism - - - -	247	251	—	413	403	1					
	ORDER 2.—Euthetic Dis.											
	Syphilis, &c. - - - -	775	778	2	1,022	946	1	1,822	1,751	3	281.52	.46
	Stricture of Urethra -	6	6	—	19	21	—					
	ORDER 3.—Dietic Dis.											
	Purpura and Scurvy - -	9	2	—	9	9	—	123	109	7	19.	1.03
	Alcoholism { a. Del. Tremens -	35	32	5	3	2	1					
	{ b. Intemperance - - -	65	62	1	2	2	—					
	ORDER 4.—Parasitic Dis.											
	Vermes - - - - -	15	15	—	10	10	—	27	27	—	4.18	—
	Psora - - - - -	1	1	—	1	1	—					
II.	ORDER 1.—Diathetic Dis.											
	Lumbago - - - - -	4	5	—	9	9	—	21	21	—	3.24	—
	Dropsy - - - - -	7	7	—	1	—	—					
	ORDER 3.—Tubercular Dis.											
	Morbus Coxarius - - -	—	—	—	1	1	—	59	49	9	9.12	1.39
	Scrofula - - - - -	12	14	—	9	8	—					
	Plithisis - - - - -	14	5	7	13	11	2					
	Hæmoptysis - - - - -	4	4	—	6	6	—					

No. 31. Bengal ; Jullundur Station ; Infantry. Stational Returns. European Troops ; H.M. Regts.—*cont.*

Class.	Diseases.	Four Years,* 1848 to 1851.			Five Years, 1852 to 1856.			Total for 9 Years.*			Annual Ratio per 1000 of Mean Strength.		
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.	
III.	ORDER 1.												
	Cephalitis - - -	37	36	—	35	31	—	}	201	166	22	31·06	3·4
	Apoplexy - - -	10	3	9	12	—	11						
	Paralysis - - -	11	10	1	5	4	1						
	Odontalgia - - -	4	3	—	—	—	—						
	Insanity - - -	5	4	—	4	3	—						
	Tetanus - - -	—	—	—	1	1	—						
	Epilepsy - - -	12	12	—	15	12	—						
	Otitis - - -	20	18	—	29	29	—						
	Brain Disease, &c. - - -	1	—	—	—	—	—						
	ORDER 2.												
	Pericarditis - - -	—	—	—	113	110	3	}	147	141	6	22·71	·93
	Aneurism - - -	1	—	1	1	—	1						
	Varix - - -	1	1	—	2	2	—						
	Heart Disease, &c. - - -	15	15	1	14	13	—						
	ORDER 3.												
	Epistaxis - - -	—	—	—	3	3	—	}	64	57	6	9·89	·93
	Bronchitis - - -	9	8	—	20	21	—						
	Pleurisy - - -	2	3	—	7	6	1						
	Pneumonia - - -	9	7	2	6	2	2						
	Asthma - - -	4	3	1	4	4	—						
	ORDER 4.												
	Dyspepsia - - -	16	15	—	206	202	—	}	1,258	1,223	34	194·38	5·25
	Gastritis - - -	2	2	—	3	2	1						
	Enteritis - - -	—	—	—	1	—	1						
	Peritonitis - - -	1	—	1	3	1	1						
	Prolapsus Ani - - -	1	1	—	1	1	—						
	Hæmatemesis - - -	1	—	1	1	—	1						
	Hernia - - -	2	2	—	—	—	—						
	Ileus and Colic - - -	163	162	—	70	69	—						
	Hæmorrhoids - - -	13	12	—	47	40	—						
	Fistula - - -	2	2	—	6	7	—						
	Obstipatio - - -	21	22	—	26	26	—						
	Hepatitis - - -	196	179	14	340	331	14						
	Jaundice - - -	18	22	—	15	15	—						
	Spleen Disease, &c. - - -	15	15	—	88	95	—						
	ORDER 5.												
	Nephritis - - -	—	—	—	7	7	—	}	13	11	1	2·01	·15
	Ischuria - - -	1	1	—	3	2	—						
	Hæmaturia - - -	1	1	—	—	—	—						
	Diabetes - - -	—	—	—	1	—	1						
	ORDER 6.												
	Hydrocele - - -	3	3	—	5	5	—		8	8	—	1·23	—
	ORDER 7.												
	Arthritis - - -	—	—	—	4	4	—	}	6	6	—	·93	—
	Contractura - - -	2	2	—	—	—	—						
	ORDER 8.												
	Phlegmon - - -	162	159	—	111	108	—	477	471	—	73·7	—	
	Abscess - - -												
	Ulcer - - -												
	Tumor - - -												
	Skin Disease, &c. - - -	31	32	—	17	18	—						
V.	ORDER 1.— <i>Accident or Negligence.</i>												
	Drowned - - -	—	—	2	—	—	—	}	395	405	9	61·03	1·39
	Burns or Scalds - - -	6	6	—	4	4	—						
	Contusion - - -	150	151	1	68	70	—						
	Sub-luxation - - -	42	44	—	61	62	—						
	Luxation - - -	5	3	—	1	1	—						
	Fracture - - -	9	10	—	7	6	—						
	Wounds { Gunshot - - -	14	21	—	3	2	1						
	{ Incised - - -	23	23	—	2	2	—						
	Found dead - - -	—	—	5	—	—	—						
	ORDER 4.— <i>Suicide.</i>												
	Gunshot Wound - - -	—	—	1	—	—	1		—	—	2	—	·31
	ORDER 5.												
	Punitus - - -	8	8	—	7	8	—	}	64	63	—	9·89	—
	Observatio - - -	22	20	—	27	27	—						

* No Troops separately accounted for at this Station during the Year 1847.

No. 32.

BENGAL—DARJEELING STATION.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN,

Aggregate Strength for 9 Years - - - - 642
Mean Annual Strength - - - - 72

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Four Years,* 1848 to 1851.			Five Years, 1852 to 1856.			Total for 9 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES	465	424	18	380	342	7	845	766	25	1,316·2	38·95
	CLASSES.											
I.	ZYMOTIC DISEASES	276	254	10	210	195	5	486	449	15	757·01	23·37
II.	CONSTITUTIONAL	16	12	3	10	8	2	26	20	5	40·5	7·79
III.	LOCAL	131	120	4	135	114	—	266	234	4	414·33	6·23
V.	VIOLENCE	42	38	1	25	25	—	67	63	1	104·36	1·56
	ORDERS.											
I.	ORDER 1.—Miasmatic Dis.											
	Quinsy	4	3	—	5	4	1	389	350	15	605·92	23·37
	Catarrh and Influenza	9	9	—	18	14	1					
	Ophthalmia	28	28	—	3	3	—					
	Fever (C. C.)	13	14	—	19	19	—					
	Dysentery	64	53	8	10	8	—					
	Diarrhoea	16	16	—	23	24	2					
	Ague	14	15	—	35	34	1					
	Remittent Fever	23	16	2	1	1	—					
	Rheumatism	51	45	—	53	44	—					
	ORDER 2.—Ethetic Dis.											
	Syphilis, &c.	39	40	—	29	29	—	70	71	—	109·04	—
	Stricture of Urethra	1	1	—	1	1	—					
	ORDER 3.—Dietic Dis.											
	Purpura and Scurvy	—	—	—	3	4	—	17	18	—	26·48	—
	Alcoholism { a. Del. Tremens b. Intemperance	3 2	3 2	— —	2 7	2 7	— —					
	ORDER 4.—Parasitic Dis.											
	Vermin	9	9	—	1	1	—	10	10	—	15·57	—
II.	ORDER 1.—Diathetic Dis.											
	Dropsy	3	1	2	—	—	—	5	3	2	7·79	3·12
	Cancer	2	2	—	—	—	—					
	ORDER 2.—Tubercular Dis.											
	Morbus Coxarius	—	—	—	1	1	—	21	17	3	32·71	4·67
	Scrofula	7	6	—	5	5	—					
	Phthisis	3	3	—	3	1	2					
	Hæmoptysis	1	—	1	1	1	—					

No. 32.—Bengal ; Darjeeling Station ; Infantry. Stational Returns. European Troops ; H. M. Regts.—*cont.*

Class.	Diseases.	Four Years,* 1848 to 1851.			Five Years, 1852 to 1856.			Total for 9 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
III.	ORDER 1.											
	Cephalitis - - -	3	3	—	3	4	—	19	19	—	29·59	—
	Apoplexy - - -	1	1	—	—	—	—					
	Paralysis - - -	4	4	—	4	2	—					
	Epilepsy - - -	1	2	—	2	2	—					
	Brain Disease, &c. - - -	1	1	—	—	—	—					
	ORDER 2.											
	Pericarditis - - -	4	4	—	1	1	—	9	9	—	14·02	—
	Aneurism - - -	1	1	—	—	—	—					
	Heart Disease, &c. - - -	—	—	—	3	3	—					
	ORDER 3.											
	Bronchitis - - -	5	3	1	1	1	—	18	13	1	28·04	1·56
	Pleurisy - - -	5	5	—	—	—	—					
	Pneumonia - - -	1	—	—	6	4	—					
	ORDER 4.											
	Dyspepsia - - -	18	18	—	15	15	—	184	161	3	286·61	4·67
	Gastritis - - -	4	3	—	1	1	—					
	Enteritis - - -	1	1	—	1	1	—					
	Peritonitis - - -	1	1	—	—	—	—					
	Ileus and Colic - - -	16	15	1	5	5	—					
	Hæmorrhoids - - -	4	3	—	11	9	—					
	Fistula - - -	—	—	—	4	4	—					
	Obstipatio - - -	3	3	—	1	1	—					
	Hepatitis - - -	31	28	2	51	35	—					
	Jaundice - - -	2	2	—	—	—	—					
	Spleen Disease, &c. - - -	8	8	—	7	8	—					
	ORDER 5.											
Nephritis - - -	—	—	—	3	3	—	4	4	—	6·23	—	
Ischuria - - -	—	—	—	1	1	—						
ORDER 6.												
Hydrocele - - -	4	4	—	—	—	—	4	4	—	6·23	—	
ORDER 7.												
Arthritis - - -	1	1	—	3	2	—	6	4	—	9·34	—	
Joint Disease, &c. - - -	2	1	—	—	—	—						
ORDER 8.												
Phlegmon - - -	3	3	—	3	3	—	22	20	—	34·27	—	
Abscess - - -												
Ulcer - - -												
Skin Disease, &c. - - -												
V.												
ORDER 1.— <i>Accident or Negligence.</i>												
Contusion - - -	29	28	—	7	8	—	52	50	—	80·99	—	
Sub-luxation - - -	1	1	—	3	3	—						
Fracture - - -	5	3	—	2	2	—						
Wounds; Incised - - -	4	4	—	1	1	—						
ORDER 5.												
Observatio - - -	3	2	1	12	11	—	15	13	1	23·37	1·56	

* No Troops separately accounted for at this Station during the Year 1847.

BENGAL.—WUZEERABAD STATION.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 8 Years - - - - - 8,615
 Mean Annual Strength - - - - - 1,077

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Three Years,* 1849 to 1851.			Five Years, 1852 to 1856.			Total for 8 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES	7,788	7,683	213	6,574	6,405	108	14,362	14,088	321	1,667.1	37.26
	CLASSES.											
I.	ZYMOTIC DISEASES	6,533	6,406	149	4,935	4,813	61	11,468	11,219	210	1,331.2	24.37
II.	CONSTITUTIONAL	56	59	5	70	54	10	126	113	15	14.62	1.74
II.	LOCAL	959	919	59	1,193	1,165	34	2,152	2,084	93	249.79	10.79
IV.	DEVELOPMENTAL	1	—	—	—	—	—	1	—	—	.12	—
V.	VIOLENCE	239	299	—	376	373	3	615	672	3	71.39	4.35
	ORDERS.											
I.	ORDER 1.—Miasmatic Dis.											
	Small-pox	3	2	—	2	1	—					
	Varicella	2	2	—	—	—	—					
	Quinsy	30	31	—	48	50	—					
	Catarrh and Influenza	126	127	1	357	359	3					
	Ophthalmia	743	654	—	173	173	—					
	Fever (C. C.)	838	952	16	1,698	1,624	20					
	Typhus	6	3	3	—	—	—					
	Erysipelas	5	4	1	3	3	—	9,214	8,958	202	1,069.57	23.45
	Dysentery	630	596	90	209	184	17					
	Diarrhoea	191	198	11	422	418	14					
	Cholera	17	14	3	8	10	—					
	Ague	1,988	1,879	8	601	605	—					
	Remittent Fever	267	263	8	83	58	4					
	Rheumatism	433	411	1	331	337	2					
	ORDER 2.—Ethetic Dis.											
	Syphilis, &c.	1,101	1,127	3	902	891	—	2,049	2,060	3	237.84	4.35
	Stricture of Urethra	18	15	—	28	27	—					
	ORDER 3.—Dietic Dis.											
	Purpura and Scurvy	57	53	1	17	17	1					
	Alcoholism { a. Del. Tremens	31	30	2	4	3	—	163	157	5	18.92	4.58
	{ b. Intemperance	27	25	1	27	29	—					
	ORDER 4.—Parasitic Dis.											
	Vermes	14	14	—	20	22	—	42	44	—	4.87	—
	Psora	6	6	—	2	2	—					
II.	ORDER 1.—Diathetic Dis.											
	Lumbago	15	17	—	35	33	—	56	55	—	6.5	—
	Dropsy	3	3	—	3	2	—					
	ORDER 2.—Tubercular Dis.											
	Scrofula	25	31	—	6	6	—	70	58	15	8.12	1.74
	Phthisis	6	3	4	16	5	8					
	Hæmoptysis	7	5	1	10	8	2					
III.	ORDER I.											
	Cephalitis	28	26	1	32	31	—					
	Apoplexy	38	19	26	13	6	7					
	Paralysis	9	9	—	10	8	2					
	Odontalgia	3	3	—	8	7	—					
	Insanity	14	13	1	6	3	—	233	193	38	27.05	4.41
	Epilepsy	8	9	—	13	14	—					
	Otitis	12	10	—	30	29	—					
	Brain Disease, &c.	—	—	—	4	2	1					
	Dyseecæ	—	—	—	5	4	—					

No. 33.—Bengal; Wuzerabad Station; Infantry. Stational Returns. European Troops; H.M. Regts.—cont.

Class.	Diseases.	Three Years,* 1849 to 1851.			Five Years, 1852 to 1856.			Total for 8 Years.*			Annual Ratio per 1000 of Mean Strength.		
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.	
III.	ORDER 2.												
	Pericarditis	-	16	15	1	25	25	1	92	95	5	10.68	.58
	Aneurism	-	—	—	1	1	—	1					
	Varix	-	1	2	—	7	7	—					
	Heart Disease, &c.	-	4	4	—	38	42	1					
	ORDER 3.												
	Epistaxis	-	2	—	2	8	8	—	168	162	12	19.5	2.39
	Bronchitis	-	39	38	1	13	11	—					
	Pleurisy	-	43	42	2	19	19	—					
	Pneumonia	-	29	24	5	9	10	2					
	Asthma	-	5	9	—	1	1	—					
	ORDER 4.												
	Dyspepsia	-	42	43	—	98	98	—	1,050	1,012	35	121.88	4.06
	Gastritis	-	10	9	—	9	10	—					
	Enteritis	-	6	5	1	6	5	1					
Peritonitis	-	6	5	1	2	2	—						
Ascites	-	1	—	1	2	1	1						
Hæmatemesis	-	1	2	—	4	4	—						
Hernia	-	7	5	—	3	4	—						
Ileus and Colic	-	31	29	—	85	84	—						
Hæmorrhoids	-	12	15	—	40	37	2						
Fistula	-	3	3	—	3	3	—						
Obstipatio	-	16	12	—	50	46	—						
Hepatitis	-	246	234	13	241	230	12						
Jandice	-	38	40	1	2	3	—						
Spleen Disease, &c.	-	51	47	2	35	36	—						
ORDER 5.													
Nephritis	-	7	7	—	15	14	—	38	37	—	4.41	—	
Ischuria	-	2	2	—	7	7	—						
Enuresis	-	3	3	—	—	—	—						
Diabetes	-	—	—	—	2	2	—						
Cystitis	-	2	2	—	—	—	—						
ORDER 6.													
Hydrocele	-	2	2	—	4	4	—	6	6	—	.69	—	
ORDER 7.													
Hydrarthrus	-	1	1	—	6	4	—	29	32	—	3.37	—	
Arthritis	-	14	16	—	4	6	—						
Joint Disease, &c.	-	—	—	—	2	2	—						
Contractura	-	2	3	—	—	—	—						
ORDER 8.													
Phlegmon	-	110	111	—	202	209	2	536	547	3	62.21	.35	
Ulcer	-	71	75	—	95	93	1						
Tumor	-	1	1	—	1	1	—						
Skin Disease, &c.	-	23	24	—	33	33	—						
ORDER 1.													
Atrophy	-	1	—	—	—	—	—	1	—	—	.12	—	
V. ORDER 1.— <i>Accident or Negligence.</i>													
Burns or Scalds	-	6	7	—	4	4	—	434	492	3	50.38	.35	
Contusion	-	53	58	—	135	136	—						
Sub-luxation	-	37	35	—	81	81	—						
Luxation	-	—	—	—	4	4	—						
Fracture	-	4	8	—	9	9	—						
Wounds	-	56	111	—	1	—	2						
{ Gunshot	-	16	12	—	26	26	—						
{ Incised	-	1	1	—	1	—	—						
Amputation	-	—	—	—	—	—	—						
Found dead	-	—	—	—	—	—	1						
ORDER 5.													
Punitus	-	3	3	—	8	3	—	181	180	—	21.01	—	
Observatio	-	63	64	—	112	110	—						

* No Troops separately accounted for at this Station during the Years 1847 and 1848.

No. 34.

BENGAL.—RAWUL PINDI STATION.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 8 Years - - - - 7,136
 Mean Annual Strength - - - - 892

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (D.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Three Years,* 1849 to 1851.			Five Years, 1852 to 1856.			Total for 8 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(D.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(D.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(D.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES -	4,210	3,903	89	13,383	13,255	117	17,593	17,158	206	2,465.4	28.86
	CLASSES.											
I.	ZYMOTIC DISEASES -	3,395	3,143	33	11,474	11,395	80	14,869	14,538	113	2,083.7	15.83
II.	CONSTITUTIONAL -	49	44	7	63	59	6	112	103	13	15.69	1.82
III.	LOCAL -	543	506	37	1,290	1,255	29	1,833	1,761	66	256.87	9.25
IV.	DEVELOPMENTAL -	8	1	7	—	—	—	8	1	7	1.13	.98
V.	VIOLENCE -	215	209	5	556	546	2	771	755	7	108.	.98
	ORDERS.											
I.	ORDER 1.—Miasmatic Dis.											
	Small-pox -	2	—	2	—	—	—					
	Measles -	—	—	—	5	5	—					
	Quinsy -	26	24	1	54	54	—					
	Catarrh and Influenza -	110	111	—	348	345	2					
	Ophthalmia -	207	210	—	138	155	—					
	Fever (C. C.) -	237	228	8	1,820	1,853	10					
	Icterodes -	1	1	—	—	—	—	13,579	13,238	102	1,902.9	14.29
	Erysipelas -	3	3	—	—	—	—					
	Dysentery -	148	143	15	245	206	28					
	Diarrhoea -	197	201	—	665	663	12					
	Cholera -	15	14	1	5	3	1					
	Ague -	1,619	1,580	1	6,730	6,661	14					
	Remittent Fever -	216	9	1	128	117	6					
	Rheumatism -	238	234	—	422	418	—					
	ORDER 2.—Enthetic Dis.											
	Syphilis, &c. -	298	313	—	817	823	1	1,126	1,144	1	157.81	.14
	Stricture of Urethra -	6	3	—	5	5	—					
	ORDER 3.—Dietic Dis.											
	Purpura and Scurvy -	21	21	1	34	36	1					
	Alcoholism { a. Del. Tremens -	28	27	2	24	17	5	135	127	10	18.92	1.4
	{ b. Intemperance -	17	15	1	11	11	—					
	ORDER 4.—Parasitic Dis.											
	Vermes -	6	6	—	23	23	—	29	29	—	4.07	—
II.	ORDER 1.—Diathetic Dis.											
	Lumbago -	22	23	—	24	23	—	63	56	5	8.82	7.0
	Dropsy -	13	7	5	4	3	—					
	ORDER 2.—Tubercular Dis.											
	Scrofula -	8	10	—	11	11	—	49	47	8	6.87	1.12
	Phthisis -	6	4	2	12	10	6					
	Hæmoptysis -	—	—	—	12	12	—					
III.	ORDER 1.											
	Cephalitis -	24	24	—	40	38	4					
	Apoplexy -	12	4	8	27	22	6					
	Paralysis -	1	17	—	6	3	—					
	Odontalgia -	—	—	—	1	—	—					
	Insanity -	7	6	—	13	13	1	205	207	22	28.73	3.09
	Tetanus -	1	—	1	—	—	—					
	Epilepsy -	9	8	1	15	21	1					
	Otitis -	13	12	—	36	37	—					
	Brain Disease, &c. -	—	—	—	1	1	—					
	Dysœcœa -	—	—	—	—	1	—					

No. 34.—Bengal; Rawul Pindi Station; Infantry. Stational Returns. European Troops; H.M. Regts.—*cont.*

Class.	Diseases.	Three Years,* 1849 to 1851.			Five Years, 1852 to 1856.			Total for 8 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
III.	ORDER 2.											
	Pericarditis - - -	6	4	3	15	11	2	69	62	5	9.67	.7
	Aneurism - - -	1	1	—	4	3	—					
	Varix - - -	3	3	—	11	9	—					
	Heart Disease, &c. - -	3	4	—	26	27	—					
	ORDER 3.											
	Epistaxis - - -	—	—	—	4	5	—	143	116	13	20.04	1.82
	Bronchitis - - -	16	12	3	19	17	—					
	Pleurisy - - -	8	6	2	16	13	—					
	Pneumonia - - -	11	8	3	32	22	5					
	Asthma - - -	10	10	—	27	23	—					
	ORDER 4.											
	Dyspepsia - - -	92	75	—	72	73	—	818	772	25	114.63	3.5
	Gastritis - - -	5	4	1	5	3	—					
	Enteritis - - -	2	—	2	1	1	—					
Peritonitis - - -	4	—	4	6	3	3						
Ascites - - -	1	—	1	4	2	2						
Prolapsus Ani - - -	—	—	—	1	1	—						
Hernia - - -	—	—	—	8	6	—						
Ileus and Colic - - -	21	22	—	38	39	—						
Hæmorrhoids - - -	18	18	—	60	60	—						
Fistula - - -	5	5	—	11	11	—						
Obstipatio - - -	7	7	—	17	17	—						
Hepatitis - - -	66	61	7	231	224	5						
Jaundice - - -	20	20	—	7	7	—						
Spleen Disease, &c. - -	24	22	—	92	91	—						
ORDER 5.												
Nephritis - - -	2	1	—	6	4	—	31	28	—	4.34	—	
Ischuria - - -	3	3	—	4	4	—						
Enuresis - - -	4	4	—	12	12	—						
ORDER 6.												
Hydrocele - - -	3	2	—	—	—	—	3	2	—	4.20	—	
ORDER 7.												
Hydrarthrus - - -	3	3	—	—	—	—	8	8	—	1.13	—	
Arthritis - - -	1	2	—	1	1	—						
Joint Disease, &c. - -	—	—	—	1	1	—						
Contractura - - -	—	—	—	2	2	—						
ORDER 8.												
Phlegmon - - -	67	64	1	202	209	—	556	566	1	77.91	.14	
Ulcer - - -	43	54	—	153	147	—						
Tumor - - -	—	—	—	22	23	—						
Skin Disease, &c. - -	27	20	—	42	48	—						
IV.	ORDER 4.											
	Atrophy - - -	8	1	7	—	—	—	8	1	7	1.13	.98
V.	ORDER 1.— <i>Accident or Negligence.</i>											
	Burns or Scalds - - -	8	9	—	7	7	—	484	484	4	67.8	.56
	Contusion - - -	76	76	1	226	219	—					
	Sub-luxation - - -	21	21	—	57	67	—					
	Luxation - - -	2	2	—	1	1	—					
	Fracture - - -	12	11	—	19	20	—					
	Wounds - { Gunshot - - -	—	—	—	10	9	—					
	{ Incised - - -	19	19	—	23	21	—					
	Amputatio - - -	2	1	—	1	1	1					
	Drowned - - -	—	—	2	—	—	—					
	ORDER 4.— <i>Suicide (attempted or accomplished).</i>											
	Wound, Gunshot - - -	1	—	2	—	—	—	1	—	2	.14	.28
	ORDER 5.											
	Punitus - - -	19	19	—	6	4	—	286	271	1	40.06	.14
	Observatio - - -	55	51	—	206	197	1					

* No Troops separately accounted for at this Station during the Years 1847 and 1848.

BENGAL.—PESHAWUR STATION.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 8 Years - - - - 13,393
 Mean Annual Strength - - - - 1,674

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Three Years,* 1849 to 1851.			Five Years, 1852 to 1856.			Total for 8 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES	12,904	12,330	331	38,491	38,093	489	51,395	50,423	820	3,837.5	61.23
	CLASSES.											
I.	ZYMOTIC DISEASES	11,622	11,132	267	34,226	34,115	314	45,848	45,247	581	3,423.31	43.38
II.	CONSTITUTIONAL	44	32	12	159	143	19	203	175	31	15.16	2.32
III.	LOCAL	944	882	50	3,140	2,882	142	4,084	3,764	192	304.94	14.33
IV.	DEVELOPMENTAL	—	—	—	3	—	2	3	—	2	.23	.15
V.	VIOLENCE	294	284	2	963	953	12	1,257	1,237	14	93.86	1.05
	ORDERS.											
I.	ORDER 1.—Miasmatic Dis.											
	Small-pox	6	4	2	12	10	2	42,376	42,340	560	3,201.4	41.81
	Measles	—	—	—	20	18	2					
	Varicella	1	1	—	—	—	—					
	Quinsy	32	32	—	111	102	6					
	Catarrh and Influenza	220	212	4	948	927	5					
	Ophthalmia	520	495	—	457	444	—					
	Fever (C. C.)	2,626	2,609	65	4,488	4,307	50					
	Erysipelas	3	3	—	8	7	1					
	Dysentery	770	653	113	1,185	972	113					
	Diarrhoea	556	539	16	1,334	1,241	21					
	Cholera	23	14	9	27	18	10					
	Ague	5,600	5,386	30	22,205	22,680	71					
	Remittent Fever	161	150	12	306	280	23					
	Rheumatism	311	289	4	946	947	1					
	ORDER 2.—Ethereal Dis.											
	Syphilis, &c.	641	607	—	1,978	1,974	4	2,655	2,616	4	198.23	.3
	Stricture of Urethra	4	3	—	32	32	—					
	ORDER 3.—Dietic Dis.											
	Purpura and Scurvy	4	2	—	42	35	1	272	249	17	20.32	1.27
	Alcoholism { a. Del. Tremens	41	35	6	26	24	3					
	{ b. Intemperance	93	89	6	66	64	1					
	ORDER 4.—Parasitic Dis.											
	Vermes	8	7	—	32	30	—	45	42	—	3.36	—
	Psora	2	2	—	3	3	—					
II.	ORDER 1.—Diathetic Dis.											
	Lumbago	10	10	—	74	75	—	109	107	5	8.14	.37
	Dropsy	4	4	—	21	18	5					
	ORDER 2.—Tubercular Dis.											
	Morbus Coxarius	1	1	—	1	1	—	94	68	26	7.09	1.94
	Scrofula	8	7	—	21	21	—					
	Phthisis	16	5	12	29	16	13					
	Hæmoptysis	5	5	—	13	12	1					
III.	ORDER I.											
	Cephalitis	7	7	—	187	170	—	511	394	38.15	5.82	
	Apoplexy	24	12	12	95	32	59					
	Paralysis	4	3	1	14	12	—					
	Insanity	13	10	—	30	21	—					
	Tetanus	—	—	—	1	—	1					
	Epilepsy	7	6	1	21	18	2					
	Odontalgia	1	1	—	5	5	—					
	Otitis	16	16	—	80	78	1					
	Brain Disease, &c.	—	—	—	1	—	1					
	Dysceæ	1	1	—	4	2	—					

No. 35.—Bengal; Peshawur Station; Infantry. Stational Returns. European Troops; H.M. Regts.—cont.

Class.	Diseases.	Three Years,* 1849 to 1851.			Five Years, 1852 to 1856.			Total for 8 Years.*			Annual Ratio per 1000 of Mean Strength.						
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.					
III.	ORDER 2.																
	Pericarditis - - -	6	6	1	37	29	6	94	81	8	7.02	.6					
	Aneurism - - -	—	—	—	1	1	—										
	Varix - - -	—	—	—	13	8	—										
	Heart Disease, &c. - - -	7	8	—	30	29	1										
	ORDER 3.																
	Epistaxis - - -	—	—	—	3	3	—	283	247	37	21.31	2.76					
	Bronchitis - - -	5	5	4	73	67	6										
	Pleurisy - - -	14	14	—	28	28	1										
	Pneumonia - - -	53	42	9	84	67	16										
	Asthma - - -	1	1	—	22	20	1										
	ORDER 4.																
	Dyspepsia - - -	44	44	—	196	178	1	2,309	2,178	66	172.04	4.92					
	Gastritis - - -	7	7	—	22	20	1										
	Enteritis - - -	7	5	2	5	3	2										
	Peritonitis - - -	3	1	1	10	8	2										
	Ascites - - -	1	—	1	9	6	2										
	Hæmatemesis - - -	2	—	—	3	2	—										
	Hernia - - -	—	—	—	31	26	—										
	Ileus and Colic - - -	124	123	—	294	292	1										
	Hæmorrhoids - - -	42	41	—	93	93	—										
	Prolapsus Ani - - -	—	—	—	8	8	—										
	Fistula - - -	2	1	—	18	15	1										
	Obstipatio - - -	30	30	—	62	63	—										
	Hepatitis - - -	227	211	16	633	570	30										
	Jaundice - - -	44	44	—	26	25	2										
	Spleen Disease, &c. - - -	94	91	1	272	271	3										
	ORDER 5.																
	Nephritis - - -	5	5	—	5	5	—						34	33	2	2.54	15
	Ischuria - - -	2	1	—	16	16	1										
	Hæmaturia - - -	1	1	—	—	—	—										
	Enuresis - - -	—	—	—	2	2	—										
	Diabetes - - -	—	—	—	1	1	1										
	Cystitis - - -	2	2	—	—	—	—										
	ORDER 6.																
	Hydrocele - - -	—	—	—	10	10	—	10	10	—	.75	—					
	ORDER 7.																
	Hydrarthrus - - -	—	—	—	2	2	—	10	9	—	.75	—					
	Arthritis - - -	1	1	—	2	2	—										
	Joint Disease, &c. - - -	2	2	—	3	2	—										
	ORDER 8.																
	Phlegmon - - -	77	75	1	472	465	—	833	812	1	62.2	.07					
	Abcess - - -																
	Ulcer - - -																
	Tumor - - -																
	Skin Disease, &c. - - -																
	ORDER 4.																
IV.	Atrophy - - -	—	—	—	3	—	.2	3	—	2	.23	.15					
V.	ORDER 1.—Accident or Negligence.																
	Drowned - - -	—	—	—	—	—	1	773	767	5	57.72	.37					
	Burns or Scalds - - -	8	8	—	18	17	—										
	Contusion - - -	174	171	—	276	279	—										
	Sub-luxation - - -	26	25	—	119	114	—										
	Luxation - - -	—	—	—	13	16	—										
	Fracture - - -	7	6	1	18	18	—										
	Wounds { Gunshot - - -	18	18	—	12	11	1										
	{ Incised - - -	32	30	—	51	52	1										
	Amputatio - - -	—	—	—	1	2	—										
	Found dead - - -	—	—	—	—	—	1										
	ORDER 5.																
	Punitus - - -	6	6	—	13	15	—	484	470	9	36.14	.68					
	Observatio - - -	23	20	1	442	429	8										

* No Troops separately accounted for at this Station during the Years 1847 and 1848.

No. 36.

BENGAL.—KUSSOWLIE STATION.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 8 Years - - - - 3,521
 Mean Annual Strength - - - - 440

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Three Years,* 1847, 1848, and 1850.			Five Years, 1852 to 1856.			Total for 8 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES -	1,881	1,846	75	4,044	3,973	57	5,925	5,819	132	1,682.75	37.48
	CLASSES.											
I.	ZYMOTIC DISEASES -	1,527	1,501	62	3,274	3,217	48	4,801	4,718	110	1,363.53	31.24
II.	CONSTITUTIONAL -	12	8	2	23	21	2	35	29	4	9.93	1.13
III.	LOCAL - - - -	255	241	10	600	586	5	855	827	15	242.83	4.26
V.	VIOLENCE - - - -	87	96	1	147	149	2	234	245	3	66.46	.85
	ORDERS											
I.	ORDER I.— <i>Miasmatic Dis.</i>											
	Small-pox - - - -	3	3	—	—	—	—					
	Measles - - - - -	—	—	—	1	1	—					
	Quinsy - - - - -	34	34	—	54	53	—					
	Catarrh and Influenza -	80	78	2	168	167	2					
	Ophthalmia - - - -	253	243	—	61	68	—					
	Fever (C. C.) - - - -	278	267	3	290	292	1					
	Erysipelas - - - -	—	—	—	1	1	—	4,322	4,217	108	1,227.5	30.68
	Dysentery - - - - -	324	352	50	143	137	12					
	Diarrhoea - - - - -	183	187	6	672	591	25					
	Cholera - - - - -	2	1	1	4	3	1					
	Ague - - - - -	2	2	—	1,273	1,285	3					
	Remittent Fever - - -	171	139	—	1	—	1					
	Rheumatism - - - - -	43	38	—	281	275	1					
	ORDER 2.— <i>Enthetic Dis.</i>											
	Syphilis, &c. - - - -	132	137	—	300	316	1	437	457	1	124.11	.28
	Stricture of Urethra -	2	1	—	3	3	—					
	ORDER 3.— <i>Dietic Dis.</i>											
	Purpura and Scurvy - -	17	17	—	5	9	—					
	Alcoholism { a. Del. Tremens	2	1	—	1	—	1	41	43	1	11.64	.28
	{ b. Intemperance - - -	—	—	—	16	16	—					
	ORDER 4.— <i>Parasitic Dis.</i>											
	Vermes - - - - -	1	1	—	—	—	—	1	1	—	.28	—
II.	ORDER 1.— <i>Diathetic Dis.</i>											
	Lumbago - - - - -	2	1	—	4	4	—	9	6	1	2.55	.28
	Dropsy - - - - -	2	1	1	1	—	—					
	ORDER 2.— <i>Tubercular Dis.</i>											
	Scrofula - - - - -	6	6	—	8	8	—					
	Phthisis - - - - -	2	—	1	7	5	2	26	23	3	7.38	.85
	Hæmoptysis - - - - -	—	—	—	3	4	—					

No. 36.—Bengal; Kussowlie Station; Infantry. Stational Returns. European Troops; H.M. Regts.—*cont.*

Class.	Diseases.	Three Years,* 1847, 1848, and 1850.			Five Years, 1852 to 1856.			Total for 8 Years.*			Annual Ratio per 1000 of Mean Strength.						
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.					
III.	ORDER 1.																
	Cephalitis - - - - -	1	1	—	37	41	—	93	85	7	26.41	1.99					
	Apoplexy - - - - -	5	2	3	1	—	2										
	Paralysis - - - - -	4	3	1	8	7	—										
	Insanity - - - - -	3	1	—	8	9	—										
	Epilepsy - - - - -	4	2	1	12	12	—										
	Otitis - - - - -	1	1	—	6	5	—										
	Brain Disease, &c. - - -	2	1	—	—	—	—										
	Dyseæcia - - - - -	1	—	—	—	—	—										
	ORDER 2.																
	Pericarditis - - - - -	7	2	1	16	17	—	32	27	1	9.09	.28					
	Heart Disease, &c. - - -	—	—	—	—	8	—										
	ORDER 3.																
	Epistaxis - - - - -	—	1	—	2	1	—	35	29	2	12.51	.57					
	Bronchitis - - - - -	1	—	—	7	5	2										
	Pleurisy - - - - -	4	4	—	4	4	—										
	Pneumonia - - - - -	4	3	—	12	10	—										
	Asthma - - - - -	—	—	—	1	1	—										
	ORDER 4.																
	Dyspepsia - - - - -	30	31	—	43	44	—	488	477	5	138.6	1.42					
	Gastritis - - - - -	—	—	—	2	2	—										
	Peritonitis - - - - -	2	1	—	1	—	1										
	Ascites - - - - -	—	—	—	1	1	—										
	Hernia - - - - -	—	—	—	1	—	—										
	Ileus and Colic - - - - -	13	13	—	83	83	—										
	Hæmorrhoids - - - - -	4	4	—	18	17	—										
	Fistula - - - - -	—	—	—	1	2	—										
	Obstipatio - - - - -	3	2	—	7	7	—										
	Hepatitis - - - - -	53	51	4	162	158	—										
	Jaundice - - - - -	3	2	—	4	4	—										
	Spleen Disease, &c. - - -	11	10	—	46	45	—										
	ORDER 5.																
	Nephritis - - - - -	—	—	—	3	4	—						6	7	—	1.7	—
	Ischuria - - - - -	—	1	—	2	1	—										
	Hæmaturia - - - - -	—	—	—	1	1	—										
	ORDER 6.																
	Hydrocele - - - - -	1	1	—	—	—	—	1	1	—	.28	—					
	ORDER 8.																
	Phlegmon - - - - -	59	60	—	62	58	—	200	201	—	56.8	—					
	Ulcer - - - - -	34	39	—	29	27	—										
	Tumor - - - - -	1	1	—	—	—	—										
	Skin Disease, &c. - - - -	4	4	—	11	12	—										
V.	ORDER 1.— <i>Accident or Negligence.</i>																
	Burns or Scalds - - - - -	4	4	—	1	2	—	216	226	3	61.34	.85					
	Contusion - - - - -	27	29	—	74	77	1										
	Sub-luxation - - - - -	24	28	—	37	35	—										
	Luxation - - - - -	—	—	—	8	7	—										
	Fracture - - - - -	5	4	1	6	7	—										
	Wounds { Gunshot - - - - -	1	2	—	2	1	—										
	{ Incised - - - - -	18	20	—	9	10	—										
	Found dead - - - - -	—	—	—	—	—	1										
	ORDER 5.																
	Punitus - - - - -	8	9	—	3	3	—	18	19	—	5.12	—					
	Observatio - - - - -	—	—	—	7	7	—										

* No Troops separately accounted for at this Station during the Years 1849 and 1851.

No. 37.

BENGAL.—SEALKOTE STATION.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 7 Years - - - - 4,404
 Mean Annual Strength - - - - 652

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS from different DISEASES.

Class.	Diseases.	Two Years,* 1850 and 1851.			Five Years, 1852 to 1856.			Total for 7 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES	913	890	11	6,827	6,583	107	7,740	7,473	118	1,757.54	26.79
	CLASSES.											
I.	ZYMOTIC DISEASES	791	766	9	5,326	5,178	57	6,117	5,944	66	1,389.01	14.98
II.	CONSTITUTIONAL	8	7	—	92	69	12	100	76	12	22.71	2.72
III.	LOCAL	92	95	2	1,003	935	35	1,095	1,030	37	248.64	8.4
V.	VIOLENCE	22	22	—	406	401	3	428	423	3	97.18	.68
	ORDERS.											
I.	ORDER 1.—Miasmatic Dis.											
	Small-pox	—	—	—	4	1	3	4,949	4,797	58	1,123.8	13.17
	Measles	—	—	—	1	1	—					
	Quinsy	—	1	—	37	36	—					
	Catarrh and Influenza	8	7	—	174	169	1					
	Ophthalmia	61	60	—	234	236	—					
	Fever (C. C.)	156	154	1	1,596	1,534	17					
	Erysipelas	—	—	—	1	1	—					
	Dysentery	39	37	1	315	288	18					
	Diarrhoea	9	9	—	218	221	—					
	Cholera	2	2	—	8	2	1					
	Ague	348	346	4	1,261	1,227	3					
	Remittent Fever	6	2	1	54	47	6					
	Rheumatism	33	27	2	389	389	—					
	ORDER 2.—Euthetic Dis.											
	Syphilis, &c.	117	114	—	964	955	3	1,112	1,093	5	252.5	1.13
	Stricture of Urethra	7	2	—	24	22	2					
	ORDER 3.—Dietic Dis.											
	Purpura and Scurvy	1	1	—	12	13	—	44	42	3	9.99	.68
	Alcoholism { a. Del. Tremens	2	2	—	11	9	2					
	{ b. Intemperance	2	2	—	16	15	1					
	ORDER 4.—Parasitic Dis.											
	Verues	—	—	—	11	11	—	12	12	—	2.72	—
	Psora	—	—	—	1	1	—					
II.	ORDER 1.—Diathetic Dis.											
	Lumbago	1	1	—	28	27	—	31	30	—	7.04	—
	Dropsy	—	—	—	2	2	—					
	ORDER 2.—Tubercular Dis.											
	Morbus Coxarius	—	—	—	1	1	—	69	46	12	15.67	2.72
	Scrofula	3	2	—	23	22	1					
	Phthisis	2	2	—	29	8	11					
	Hæmoptysis	2	2	—	9	9	—					

No. 37.—Bengal; Sealkote Station; Infantry. Stational Returns. European Troops; H. M. Regts.—*cont.*

Class.	Diseases.	Two Years,* 1850 and 1851.			Five Years, 1852 to 1856.			Total for 7 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
III.	ORDER 1.											
	Cephalitis - - - - -	—	—	—	35	36	—	100	82	14	22·72	3·18
	Apoplexy - - - - -	—	—	—	18	5	13					
	Paralysis - - - - -	—	—	—	3	2	—					
	Odontalgia - - - - -	—	—	—	1	—	—					
	Insanity - - - - -	—	—	—	13	7	—					
	Epilepsy - - - - -	1	2	—	18	17	1					
	Otitis - - - - -	—	—	—	9	10	—					
	Dysecœa - - - - -	—	—	—	2	2	—					
	ORDER 2.											
	Pericarditis - - - - -	2	2	—	23	21	1	57	55	2	12·94	·45
	Aneurism - - - - -	—	—	—	2	1	1					
	Varix - - - - -	—	—	—	3	3	—					
	Heart Disease, &c. - - - - -	—	—	—	27	28	—					
	ORDER 3.											
	Epistaxis - - - - -	1	1	—	7	7	—	105	104	3	23·84	·68
	Bronchitis - - - - -	1	2	—	31	30	1					
	Pleurisy - - - - -	18	20	—	32	31	—					
	Pneumonia - - - - -	1	—	1	13	12	1					
	Asthma - - - - -	—	—	—	1	1	—					
ORDER 4.												
Dyspepsia - - - - -	2	3	—	62	52	—	559	518	17	126·93	3·86	
Gastritis - - - - -	—	—	—	8	8	—						
Peritonitis - - - - -	3	2	1	2	1	1						
Ascites - - - - -	—	—	—	2	1	1						
Prolapsus Ani - - - - -	—	—	—	1	1	—						
Hernia - - - - -	—	—	—	3	3	—						
Ileus and Colic - - - - -	11	11	—	107	108	—						
Hæmorrhoids - - - - -	1	1	—	36	37	—						
Obstipatio - - - - -	2	2	—	35	35	—						
Hepatitis - - - - -	25	25	—	208	179	14						
Jaundice - - - - -	2	2	—	4	3	—						
Spleen Disease, &c. - - - - -	1	1	—	44	43	—						
ORDER 5.												
Nephritis - - - - -	—	—	—	9	9	—	12	12	—	2·72	—	
Hæmaturia - - - - -	—	—	—	3	3	—						
ORDER 6.												
Hydrocele - - - - -	—	—	—	1	1	—	1	1	—	·23	—	
ORDER 7.												
Hydrarthrus - - - - -	3	3	—	—	—	—	8	8	—	1·81	—	
Arthritis - - - - -	3	3	—	2	2	—						
ORDER 8.												
Phlegmon - - - - -	5	5	—	133	135	1	253	250	1	57·45	·23	
Ulcer - - - - -	4	4	—	79	74	—						
Skin Disease, &c. - - - - -	6	6	—	26	26	—						
V.	ORDER 1.— <i>Accident or Negligence.</i>											
Burns or Scalds - - - - -	1	1	—	5	5	—	214	212	1	48·59	·23	
Contusion - - - - -	4	4	—	101	102	—						
Sub-luxation - - - - -	6	6	—	54	51	—						
Luxation - - - - -	—	—	—	2	2	—						
Fracture - - - - -	1	1	—	15	15	—						
Wounds - { Gunshot	1	1	—	1	1	—						
{ Incised	3	3	—	20	17	—						
Found dead - - - - -	—	—	—	—	—	1						
ORDER 4.— <i>Suicide.</i>												
Gunshot - - - - -	—	—	—	—	—	1	—	—	1	—	·23	
ORDER 5.												
Punitus - - - - -	—	—	—	1	1	—	214	211	1	48·59	·23	
Observatio - - - - -	6	6	—	207	204	1						

* No Troops separately accounted for at this Station during the Years 1847, 1848, and 1849.

No. 38.

BENGAL.—AGRA STATION.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS,—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 7 Years - - - - 3,790
 Mean Annual Strength - - - - 541

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Three Years,* 1847 to 1849.			Four Years,* 1852 to 1855.			Total for 7 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES -	3,306	3,198	111	4,631	4,355	50	7,937	7,553	161	2,094.2	42.48
	CLASSES.											
I.	ZYMOTIC DISEASES -	2,719	2,658	62	3,528	3,319	20	6,247	5,977	82	1,648.3	21.63
II.	CONSTITUTIONAL -	41	31	10	49	37	8	90	68	18	23.75	4.75
III.	LOCAL -	444	412	39	952	899	21	1,396	1,311	60	368.34	15.83
V.	VIOLENCE -	102	97	—	102	100	1	204	197	1	53.82	.26
	ORDERS.											
I.	ORDER 1.—Miasmatic Dis.											
	Small-pox -	30	23	7	5	5	—	5,386	5,127	78	1,421.12	20.58
	Quinsy -	20	22	—	25	25	—					
	Catarrh and Influenza -	12	12	—	143	138	—					
	Ophthalmia -	144	144	—	127	118	—					
	Fever (C. C.) -	1,540	1,489	33	275	267	2					
	Erysipelas -	4	3	1	—	—	—					
	Dysentery -	322	317	12	68	64	4					
	Diarrhoea -	37	43	1	194	181	6					
	Cholera -	27	22	5	—	—	—					
	Ague -	45	46	—	2,003	1,863	4					
	Remittent Fever -	5	5	—	22	17	3					
	Rheumatism -	94	91	—	244	232	—					
	ORDER 2.—Enthetic Dis.											
	Syphilia, &c. -	368	372	—	389	378	1	783	774	1	206.6	.26
	Stricture of Urethra -	15	15	—	11	9	—					
	ORDER 3.—Dietic Diseases.											
	Purpura and Scurvy -	6	7	—	9	9	—	65	63	3	17.15	.79
	Alcoholism { a. Del. Tremens	27	24	3	2	2	—					
	{ b. Intemperance	20	20	—	1	1	—					
	ORDER 4.—Parasitic Dis.											
	Verues -	1	1	—	10	10	—	13	13	—	3.43	—
	Psora -	2	2	—	—	—	—					
II.	ORDER 1.—Diathetic Dis.											
	Lumbago -	—	—	—	15	15	—	17	16	1	4.48	.26
	Dropsy -	—	—	—	2	1	1					
	ORDER 2.—Tubercular Dis.											
	Scrofula -	11	11	—	5	4	1	73	52	17	19.27	4.49
	Phtthisis -	23	13	10	23	14	5					
	Hæmoptysis -	7	7	—	4	3	1					

No. 38.—Bengal; Agra Station; Infantry. Stational Return. European Troops; H.M. Regiments—*cont.*

Class.	Diseases.	Three Years,* 1847 to 1847.			Four Years,* 1852 to 1855.			Total for 7 Years.*			Annual Ratio per 10 of Mean Strength:	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
III.	ORDER 1.											
	Cephalitis	2	2	—	14	14	—	119	89	28	31.55	7.3
	Apoplexy	28	3	23	7	6	1					
	Paralysis	1	1	—	8	5	3					
	Insanity	1	1	—	3	2	1					
	Epilepsy	18	18	—	2	2	—					
	Odontalgia	1	1	—	—	—	—					
	Otitis	8	8	—	23	23	—					
	Brain Disease, &c.	1	1	—	—	—	—					
	Dyseecia	—	—	—	2	2	—					
ORDER 2.												
Pericarditis	7	6	1	37	34	3	48	44	5	12.65	1.3	
Aneurism	1	—	1	—	—	—						
Varix	—	—	—	1	1	—						
Heart Disease, &c.	—	1	—	2	2	—						
ORDER 3.												
Epistaxis	3	4	—	—	—	—	42	37	4	11.08	1.0	
Bronchitis	1	1	—	12	10	1						
Pleurisy	1	1	—	3	1	1						
Hydrothorax	—	—	—	1	—	1						
Pneumonia	7	6	1	2	2	—						
Asthma	8	8	—	4	4	—						
ORDER 4.												
Dyspepsia	1	1	—	260	252	—	824	783	23	217.3	6.0	
Gastritis	1	1	1	1	1	—						
Enteritis	—	—	—	7	6	1						
Peritonitis	3	1	2	4	3	1						
Ascites	1	1	1	—	—	—						
Hæmorrhoids	6	6	—	23	23	—						
Ileus and Colic	47	50	—	60	60	—						
Hæmatemesis	—	—	—	1	1	—						
Fistula	1	1	—	2	2	—						
Obstipatio	4	4	—	16	16	—						
Hepatitis	94	84	9	234	213	8						
Jaundice	8	8	—	3	3	—						
Spleen Disease, &c.	11	12	—	36	34	—						
ORDER 5.												
Nephritis	11	11	—	9	8	—	25	24	—	6.09	—	
Ischuria	4	4	—	1	1	—						
ORDER 6.												
Hydrocele	—	—	—	2	2	—	2	2	—	52	—	
ORDER 7.												
Arthritis	—	—	—	1	1	—	1	1	—	26	—	
ORDER 8.												
Phlegmon	74	75	—	117	114	—	335	331	—	88.39	—	
Abscess	73	75	—	45	43	—						
Ulcer	—	—	—	—	—	—						
Skin Diseases, &c.	17	16	—	9	8	—						
V.	ORDER 1.											
<i>Accident or Negligence.</i>												
Burns or Scalds	4	4	—	1	1	—	180	172	1	47.49	26	
Contusion	37	36	—	54	52	1						
Sub-luxation	28	28	—	27	27	—						
Luxation	5	3	—	—	—	—						
Fracture	7	7	—	5	4	—						
Wounds { Gunshot	5	5	—	—	—	—						
{ Incised	6	4	—	1	1	—						
ORDER 5.												
Pannus	4	4	—	—	—	—	24	25	—	6.33	—	
Observatio	6	6	—	14	15	—						

* No Troops separately accounted for at this Station during the Years 1850, 1851, and 1856.

No. 39.

BENGAL.—DUM DUM STATION.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 7 Years 1,528
 Mean Annual Strength 218

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Two Years,* 1848 and 1849.			Five Years, 1852 to 1856.			Total for 7 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
		SPECIFIED CAUSES										
		743	559	43	1,959	1,839	74	2,702	2,398	117	1,768.3	76.57
CLASSES.												
I.	ZYMOTIC DISEASES	640	475	42	1,456	1,370	58	2,096	1,845	100	1,371.74	65.44
II.	CONSTITUTIONAL	1	1	—	18	15	2	19	16	2	12.43	1.31
III.	LOCAL	87	70	1	357	336	13	444	406	14	290.57	9.16
IV.	DEVELOPMENTAL	1	1	—	—	—	1	1	1	—	.65	—
V.	VIOLENCE	14	12	—	128	118	—	142	130	1	92.93	.65
* ORDERS.												
ORDER 1.—Miasmatic Dis.												
	Measles	—	—	—	1	1	—	1,818	1,594	99	1,189.8	64.79
	Quinsy	3	2	—	11	10	—					
	Catarrh and Influenza	37	5	—	34	36	—					
	Ophthalmia	42	25	—	49	44	—					
	Fever (C. C.)	160	154	1	238	218	6					
	Dysentery	24	10	6	147	123	27					
	Diarrhoea	201	161	—	235	214	10					
	Cholera	99	63	35	16	8	13					
	Ague	1	1	—	307	308	—					
	Remittent Fever	—	—	—	110	120	—					
	Rheumatism	27	26	—	76	70	1					
ORDER 2.—Ethereal Dis.												
	Syphilis, &c.	40	26	—	195	186	—	237	214	—	155.11	—
	Stricture of Urethra	1	1	—	1	1	—					
ORDER 3.—Dietic Diseases.												
	Purpura and Scurvy	4	—	—	—	—	—	39	35	1	25.52	.65
	Alcoholism { a. Del. Tremens b. Intemperance	1	1	—	30	30	—					
ORDER 4.—Parasitic Dis.												
	Vermes	—	—	—	2	2	—	2	2	—	1.31	—
II.	ORDER 1.—Diathetic Dis.											
	Lumbago	1	1	—	5	5	—	8	8	—	5.23	—
	Dropsy	—	—	—	2	2	—					
ORDER 2.—Tubercular Dis.												
	Scrofula	—	—	—	2	1	—	11	8	2	7.2	1.31
	Phthisis	—	—	—	9	7	2					
III.	ORDER 1.											
	Cephalitis	—	—	—	11	11	—	42	34	7	27.49	65.44
	Apoplexy	1	—	1	6	6	—					
	Paralysis	—	—	—	4	5	—					
	Odontalgia	—	—	—	1	1	—					
	Insanity	—	—	—	1	1	—					
	Epilepsy	—	—	—	2	2	—					
	Otitis	7	6	—	9	8	—					

No. 39.—Bengal ; Dum Dum Station ; Infantry. Stational Returns. European Troops ; H. M. Regts.—cont.

Class.	Diseases.	Two Years,* 1848 and 1849.			Five Years, 1852 to 1856.			Total for 7 Years.*			Annual Ratio per 1000 of Mean Strength.								
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.							
III.	ORDER 2.																		
	Pericarditis - - -	—	—	—	7	7	—	}	12	12	—	7·85	—						
	Varix - - -	—	—	—	1	1	—												
	Heart Disease, &c. - - -	—	—	—	4	4	—												
	ORDER 3.																		
	Bronchitis - - -	—	—	—	25	20	1	}	31	24	1	20·29	·65						
	Pleurisy - - -	—	—	—	1	1	—												
	Pneumonia - - -	2	1	—	2	1	—												
	Asthma - - -	—	—	—	1	1	—												
	ORDER 4.																		
	Dyspepsia - - -	4	4	—	36	34	—	}	203	193	4	132·85	2·63						
	Gastritis - - -	—	—	—	7	7	—												
	Ascites - - -	—	—	—	1	—	—												
	Hæmorrhoids - - -	7	7	—	12	12	—												
	Hernia - - -	2	—	—	—	—	—												
	Ileus and Colic - - -	6	6	—	36	34	—												
	Prolapsus Ani - - -	—	—	—	1	1	—												
	Fistula - - -	—	—	—	2	3	—												
	Obstipatio - - -	2	2	—	10	10	—												
	Hepatitis - - -	2	1	—	54	52	4												
	Jaundice - - -	—	—	—	5	4	—												
	Spleen Disease, &c. - - -	—	—	—	16	16	—												
	ORDER 5.																		
	Ischuria - - -	—	—	—	2	3	—							2	3	—	1·31	—	
	ORDER 6.																		
	Hydrocele - - -	—	—	—	1	1	1	1	1	1	·65	·65							
	ORDER 7.																		
	Arthritis - - -	—	—	—	2	2	—	}	3	4	—	1·96	—						
	Joint Disease, &c. - - -	—	—	—	1	2	—												
	ORDER 8.																		
	Phlegmon - - -	30	26	—	56	54	1	}	150	135	1	98·17	·65						
	Ulcer - - -	23	17	—	34	32	—												
	Skin Disease, &c. - - -	1	—	—	6	6	—												
IV.	ORDER 4.																		
	Atrophy - - -	1	1	—	—	—	—	1	1	—	·65	—							
V.	ORDER 1.— <i>Accident or Negligence.</i>																		
	Burns or Scalds - - -	—	—	—	1	—	—	}	100	92	1	65·44	·65						
	Contusion - - -	9	8	—	52	46	1												
	Sub-luxation - - -	—	—	—	23	23	—												
	Luxation - - -	—	—	—	2	2	—												
	Fracture - - -	—	—	—	4	4	—												
	Wounds, Incised - - -	4	3	—	6	6	—												
	ORDER 5.																		
	Funitus - - -	—	—	—	2	1	—	}	42	38	—	27·49	—						
	Observatio - - -	1	1	—	39	36	—												

* No Troops separately accounted for at this Station during the Years 1847, 1850, and 1851.

No. 40.

BENGAL.—CAWNPORE STATION.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 7 Years - - - - 4,973
 Mean Annual Strength - - - - - 710

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Three Years,* 1847, 1850, and 1851.			Four Years,* 1852 to 1854, and 1856.			Total for 7 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES -	7,502	7,232	173	5,378	5,126	282	12,950	12,358	455	2,604.03	91.48
	CLASSES.											
I.	ZYMOTIC DISEASES -	5,971	5,778	110	4,506	4,239	252	10,477	10,017	362	2,106.74	72.79
II.	CONSTITUTIONAL -	74	50	20	49	34	12	123	84	32	24.73	6.43
III.	LOCAL - - - -	1,191	1,147	42	716	674	17	1,907	1,821	59	383.48	11.86
V.	VIOLENCE - - -	266	257	1	177	179	1	443	436	2	89.08	.4
	ORDERS.											
I.	ORDER 1.—Miasmatic Dis.											
	Small-pox - - -	4	3	1	7	5	2	8,873	8,364	356	1,784.2	71.58
	Vaccinia - - -	2	2	—	—	—	—					
	Measles - - -	1	1	—	—	—	—					
	Quinsy - - -	30	31	—	23	20	2					
	Catarrh and Influenza -	243	238	3	226	196	3					
	Ophthalmia - - -	380	379	—	117	121	—					
	Fever (C. C.) - - -	1,136	1,113	18	1,161	1,145	16					
	Dysentery - - -	515	479	35	270	251	18					
	Diarrhoea - - -	552	537	14	503	493	4					
	Cholera - - -	39	9	24	266	80	187					
	Ague - - -	1,353	1,349	3	1,170	1,152	16					
	Remittent Fever - - -	305	294	6	36	34	2					
	Rheumatism - - -	297	194	2	237	238	1					
	ORDER 2.—Euthetic Dis.											
	Syphilis, &c. - - -	958	991	2	326	340	—	1,291	1,337	2	259.6	.4
	Stricture of Urethra. -	4	4	—	3	2	—					
	ORDER 3.—Dietic Dis.											
	Purpura and Scurvy - -	2	2	—	4	4	—	268	270	4	53.89	.81
	Alcoholism { a. Del. Tremens	57	59	3	17	17	—					
	{ b. Intemperance	70	70	—	118	118	1					
	ORDER 4.—Parasitic Dis.											
	Vermes - - -	12	12	—	19	20	—	45	46	—	9.05	—
	Psora - - -	11	11	—	3	3	—					
II.	ORDER 1.—Diathetic Dis.											
	Lumbago - - -	20	19	—	10	9	—	39	34	1	7.84	.2
	Dropsy - - -	3	2	1	6	4	—					
	ORDER 2.—Tubercular Dis.											
	Scrofula - - -	15	12	—	6	6	—	84	50	31	16.89	.23
	Phthisis - - -	31	13	18	16	7	10					
	Hæmoptysis - - -	5	4	1	14	8	2					

No. 40.—Bengal; Cawnpore Station; Infantry. Stational Returns. European Troops; H. M. Regts.—*cont.*

Class.	Diseases.	Three Years,* 1847, 1850, and 1851.			Four Years,* 1852 to 1854, and 1856.			Total for 7 Years.			Annual Ratio per 1000 of Mean Strength.						
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.					
		III.	ORDER 1.														
	Cephalitis	1	1	—	4	3	—	173	141	32	34·79	6·43					
	Apoplexy	29	12	21	12	6	6										
	Paralysis	4	3	1	4	2	1										
	Insanity	5	3	2	2	2	—										
	Epilepsy	7	7	—	13	13	—										
	Odontalgia	10	10	—	7	7	—										
	Otitis	51	50	—	18	18	—										
	Brain Disease, &c.	1	—	1	4	4	—										
	Dyseecæ	—	—	—	1	—	—										
	ORDER 2.																
	Pericarditis	5	5	—	28	24	—	41	36	1	8·24	·2					
	Aneurism	1	—	1	—	—	—										
	Varix	—	—	—	4	4	—										
	Heart Disease, &c.	3	3	—	—	—	—										
	ORDER 3.																
	Epistaxis	—	—	—	2	2	—	91	81	5	18·3	1·					
	Bronchitis	21	19	—	8	6	1										
	Pleurisy	6	6	—	—	—	—										
	Pneumonia	22	19	2	26	23	2										
	Asthma	2	1	—	4	5	—										
	ORDER 4.																
	Dyspepsia	46	44	—	36	35	—	895	872	20	179·97	4·03					
	Gastritis	2	3	—	13	13	—										
	Enteritis	1	1	—	6	6	—										
	Peritonitis	1	1	—	1	1	—										
	Ascites	2	1	1	4	2	2										
	Hæmatemesis	1	1	—	3	3	—										
	Hernia	—	—	—	2	1	—										
	Ileus and Colic	220	221	—	91	92	—										
	Prolapsus Ani	—	—	—	2	2	—										
	Hæmorrhoids	31	30	—	32	26	—										
	Fistula	4	4	—	15	13	—										
	Obstipatio	85	90	—	34	34	—										
	Hepatitis	133	121	11	76	71	5										
	Jaundice	6	5	1	7	8	—										
	Spleen Disease, &c.	23	25	—	18	18	—										
	ORDER 5.																
	Nephritis	6	5	—	—	—	—						17	15	—	3·42	—
	Ischuria	6	6	—	2	2	—										
	Diabetes	2	2	—	—	—	—										
	Cystitis	1	—	—	—	—	—										
	ORDER 6.																
	Hydrocele	4	4	—	2	2	—	6	6	1	1·2	—					
	ORDER 7.																
	Joint Disease, &c.	1	1	—	—	—	—	1	1	—	·22	—					
	ORDER 8.																
	Phlegmon	303	296	—	153	148	—	683	669	1	137·34	·2					
	Abscess																
	Ulcer																
	Tumor																
	Skin Disease, &c.	34	36	—	11	11	—										
V.	ORDER 1.— <i>Accident or Negligence.</i>																
	Burns or Scalds	4	4	—	1	1	—	403	397	2	81·04	·4					
	Contusion	143	139	—	127	128	—										
	Sub-luxation	49	49	—	20	20	—										
	Fracture	13	12	—	1	1	—										
	Wounds { Gunshot	5	4	—	—	—	—										
	{ Incised	21	19	—	19	20	1										
	Drowned	—	—	1	—	—	—										
	ORDER 5.																
	Punitus	3	2	—	4	4	—	40	39	—	8·04	—					
	Observatio	28	28	—	5	5	—										

* No Troops separately accounted for at this Station during the Years 1848, 1849, and 1855.

No. 41.

BENGAL.—ALLAHABAD STATION.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 7 Years - - - - - 668
 Mean Annual Strength - - - - - 95

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (D.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Four Years,* 1847 to 1850.			Three Years,* 1854 to 1856.			Total for 7 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(D.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(D.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(D.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES -	838	768	74	163	184	8	1,001	952	82	1,498.54	122.75
	CLASSES.											
I.	ZYMOTIC DISEASES -	658	609	50	127	143	6	785	752	56	1,175.2	83.83
II.	CONSTITUTIONAL -	6	3	3	1	—	2	7	3	5	10.47	7.48
III.	LOCAL -	138	117	21	24	25	—	162	142	21	242.52	31.44
IV.	DEVELOPMENTAL -	1	1	—	—	—	—	1	1	—	1.49	—
V.	VIOLENCE -	35	38	—	11	16	—	46	54	—	68.86	—
	ORDERS.											
I.	ORDER 1.—Miasmatic Dis.											
	Small-pox -	1	—	1	1	1	—					
	Quinsy -	4	4	—	3	3	—					
	Catarrh and Influenza -	10	10	—	5	6	—					
	Ophthalmia -	96	97	—	6	8	—					
	Fever (C. C.) -	292	264	28	4	4	—					
	Erysipelas -	—	—	—	1	1	—	719	688	55	1,076.4	82.34
	Dysentery -	115	101	14	7	5	—					
	Diarrhoea -	51	47	2	44	60	6					
	Cholera -	7	5	2	1	2	—					
	Ague -	14	15	—	17	18	—					
	Remittent Fever -	14	7	2	—	—	—					
	Rheumatism -	20	23	—	6	7	—					
	ORDER 2.—Ethereal Dis.											
	Syphilis, &c. -	23	24	—	31	28	—	54	52	—	80.84	—
	ORDER 3.—Dietic Dis.											
	Alcoholism { a. Del. Tremens b. Intemperance	10 1	11 1	1 —	— 1	— —	— —	12	12	—	17.96	1.49
II.	ORDER 1.—Diathetic Dis.											
	Dropsy -	1	1	—	—	—	—	1	1	—	1.49	—
	ORDER 2.—Tubercular Dis.											
	Phthisis -	5	2	3	—	—	1	6	2	5	8.98	7.48
	Hæmoptysis -	—	—	—	1	—	1					
III.	ORDER I.											
	Cephalitis -	3	3	—	2	2	—					
	Apoplexy -	12	—	12	—	—	—					
	Insanity -	2	2	—	1	1	—	30	17	12	44.91	17.97
	Epilepsy -	3	3	—	—	—	—					
	Otitis -	7	6	—	—	—	—					

No. 41.—Bengal ; Allahabad Station ; Infantry. Stational Returns. European Troops ; H. M. Regts.—cont.

Class.	Diseases.	Four Years,* 1847 to 1850.			Three Years,* 1854 to 1856.			Total for 7 Years.*			Annual Ratio per 1000 of Mean Strength.		
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.	
III.	ORDER 2.												
	Heart Disease, &c.	—	—	—	—	1	—	—	1	—	—	—	
	ORDER 3.												
	Bronchitis	5	5	—	—	—	—	}	16	14	2	23·95	2·99
	Pleurisy	—	—	—	1	1	—						
	Pneumonia	6	4	2	4	4	—						
	ORDER 4.												
	Dyspepsia	22	22	—	1	—	—	}	78	73	6	116·77	8·99
	Enteritis	1	—	1	—	—	—						
	Ascites	—	—	—	1	1	—						
	Hæmatemesis	2	2	—	—	—	—						
	Hernia	2	2	—	—	—	—						
	Ileus and Colic	—	—	—	1	1	—						
	Hæmorrhoids	2	2	—	1	1	—						
	Obstipatio	—	—	—	1	1	—						
	Hepatitis	29	25	5	3	3	—						
	Jaundice	1	1	—	—	—	—						
	Spleen Disease, &c.	11	12	—	—	—	—						
	ORDER 5.												
	Nephritis	2	2	—	—	—	—	}	4	4	—	5·99	—
Ischuria	—	—	—	2	1	—							
Cystitis	—	1	—	—	—	—							
ORDER 7.													
Arthritis	—	—	—	1	1	—	1	1	—	1·49	—	—	
ORDER 8.													
Phlegmon	18	17	1	3	3	—	}	33	32	1	49·41	1·49	
Ulcer	10	8	—	1	4	—							
Skin Disease, &c.	—	—	—	1	—	—							
IV.	ORDER 4.												
Atrophy	1	1	—	—	—	—	1	1	—	1·49	—	—	
V.	ORDER 1.— <i>Accident or Negligence.</i>												
Burns or Scalds	—	—	—	2	2	—	}	38	42	—	56·88	—	
Contusion	28	29	—	5	6	—							
Sub-luxation	—	—	—	1	1	—							
Fracture	1	1	—	—	1	—							
Wounds, Incised	—	1	—	1	1	—							
ORDER 5.													
Punitus	2	2	—	—	—	—	}	8	12	—	11·98	—	
Observatio	4	5	—	2	5	—							

* No Troops separately accounted for at this Station during the Years 1851 to 1853.

No. 42.

BENGAL.—CHINSURAH STATION.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 6 Years - - - - - 692
 Mean Annual Strength - - - - - 115

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by Different DISEASES.

Class.	Diseases.	Three Years,* 1847, 1849, and 1851.			Three Years,* 1852 to 1854.			Total for 6 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES -	297	231	18	536	553	11	833	784	29	1,203.76	41.91
	CLASSES.											
I.	ZYMOTIC DISEASES -	229	175	15	382	398	5	611	573	20	882.95	28.90
II.	CONSTITUTIONAL -	6	2	2	14	12	3	20	14	5	28.90	7.22
III.	LOCAL - - - -	46	41	—	99	100	3	145	141	3	209.54	4.34
V.	VIOLENCE - - -	16	13	1	41	43	—	57	56	1	82.37	1.45
	ORDERS.											
I.	ORDER 1.—Miasmatic Dis.											
	Quinsy - - - -	—	—	—	3	3	—	492	461	20	710.98	28.90
	Catarrh and Influenza - -	17	15	—	23	23	—					
	Ophthalmia - - - -	41	28	—	13	16	—					
	Fever (C. C.) - - - -	37	41	1	16	15	1					
	Dysentery - - - -	20	16	1	39	38	2					
	Diarrhœa - - - -	40	34	—	49	42	1					
	Cholera - - - -	16	4	11	3	1	1					
	Ague - - - -	4	4	—	45	47	—					
	Remittent Fever - - - -	1	1	2	49	55	—					
	Rheumatism - - - -	12	9	—	64	69	—					
	ORDER 2.—Euthetic Dis.											
	Syphilis, &c. - - - -	37	20	—	51	62	—	89	82	—	128.62	—
	Stricture of Urethra - -	1	—	—	—	—	—					
	ORDER 3.—Dietic Dis.											
	Purpura and Scurvy - -	1	1	—	16	17	—	27	28	—	39.02	—
	Alcoholism { a. Del. Tremens	1	1	—	4	4	—					
	{ b. Intemperance	1	1	—	4	4	—					
	ORDER 4.—Parasitic Dis.											
	Verues - - - -	—	—	—	3	2	—	3	2	—	4.33	—
II.	ORDER 1.—Diathetic Dis.											
	Lumbago - - - -	—	—	—	1	—	—	2	1	—	2.89	—
	Droopy - - - -	1	1	—	—	—	—					
	ORDER 2.—Tubercular Dis.											
	Scrofula - - - -	—	—	—	1	2	—	18	13	5	26.01	7.22
	Phthisis - - - -	4	1	2	9	8	2					
	Hæmoptysis - - - -	1	—	—	3	2	1					
III.	ORDER 1.											
	Cephalitis - - - -	1	1	—	2	2	—	9	9	—	13.	—
	Insanity - - - -	1	1	—	1	1	—					
	Epilepsy - - - -	—	—	—	2	2	—					
	Otitis - - - -	2	2	—	—	—	—					

No. 42.—Bengal ; Chinsurah Station ; Infantry. Stational Returns. European Troops ; H.M. Regts.—*cont.*

Class.	Diseases.	Three Years,* 1847, 1849, and 1851.			Three Years,* 1852 to 1854.			Total for 6 Years.*			Annual Ratio per 1000 of Mean Strength.		
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.	
III.	ORDER 2.												
	Pericarditis - - -	—	—	—	2	1	2	}	3	1	2	4.33	2.89
	Aneurysm - - -	—	—	—	1	—	—						
	ORDER 3.												
	Bronchitis - - -	1	1	—	—	—	—	}	4	6	—	5.79	—
	Pneumonia - - -	—	—	—	2	3	—						
	Asthma - - -	—	1	—	1	1	—						
	ORDER 4.												
	Dyspepsia - - -	10	7	—	6	5	—	}	67	66	—	96.83	—
	Enteritis - - -	1	1	—	—	—	—						
	Ileus and Colic - - -	2	2	—	14	16	—						
	Hæmorrhoids - - -	3	4	—	5	4	—						
	Fistula - - -	—	—	—	2	2	—						
	Obstipatis - - -	—	—	—	4	4	—						
	Hepatitis - - -	3	3	—	15	16	—						
	Jaundice - - -	1	1	—	—	—	—						
	Spleen Disease, &c. - - -	—	—	—	1	1	—						
	ORDER 5.												
	Nephritis - - -	—	—	—	1	1	—	}	3	2	1	4.33	1.45
Ischuria - - -	—	—	—	2	1	1							
ORDER 6.													
Hydrocele - - -	1	—	—	—	—	—		1	—	—	1.45	—	
ORDER 7.													
Joint Disease, &c. - - -	—	—	—	—	1	—		—	1	—	—	—	
ORDER 8.													
Phlegmon - - -	11	9	—	29	34	—	}	58	56	—	83.81	—	
Ulcer - - -	8	7	—	9	4	—							
Skin Disease, &c. - - -	1	1	—	—	1	—							
V.	ORDER 1.— <i>Accident or Negligence.</i>												
Contusion - - -	8	6	—	25	25	—	}	46	45	1	66.47	1.45	
Sub-luxation - - -	3	2	—	2	3	—							
Fracture - - -	—	—	—	5	5	—							
Wounds { Gunshot - - -	1	1	—	—	—	—							
{ Incised - - -	1	1	—	1	2	—							
Drowned - - -	—	—	1	—	—	—							
ORDER 5.													
Observatio - - -	3	3	—	8	8	—		11	11	—	15.90	—	

* No Troops separately accounted for at this Station during the Years 1848, 1850, 1855, and 1856.

BENGAL.—DUGSHAI STATION.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 6 Years - - - - - 4,311
Mean Annual Strength - - - - - 719

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Two Years,* 1850 and 1851.			Four Years,* 1852 to 1855.			Total for 6 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES -	2,227	2,266	34	5,232	4,992	121	7,459	7,258	155	1,730.29	35.95
	CLASSES.											
I.	ZYMOTIC DISEASES -	1,452	1,477	18	4,055	3,880	94	5,507	5,357	112	1,277.5	25.98
II.	CONSTITUTIONAL -	18	18	2	38	34	4	56	52	6	12.99	1.39
III.	LOCAL - - - - -	602	606	10	841	788	17	1,443	1,394	27	334.72	6.26
V.	VIOLENCE - - - - -	155	165	4	298	290	6	453	455	10	105.08	2.32
	ORDERS.											
I.	ORDER 1.—Miasmatic Dis.											
	Quinsy - - - - -	26	27	—	47	41	—	4,841	4,667	107	1,122.91	24.83
	Catarrh and Influenza - - - - -	77	86	—	291	285	3					
	Ophthalmia - - - - -	42	44	—	164	158	—					
	Fever (C. C.) - - - - -	354	362	—	477	303	13					
	Erysipelas - - - - -	6	2	—	3	2	1					
	Dysentery - - - - -	82	82	10	107	86	17					
	Diarrhoea - - - - -	244	245	3	1,173	1,168	50					
	Cholera - - - - -	—	—	—	14	12	1					
	Ague - - - - -	185	190	1	903	927	5					
	Remittent Fever - - - - -	6	7	—	19	20	2					
	Rheumatism - - - - -	187	183	1	434	437	—					
	ORDER 2.—Euthetic Dis.											
	Syphilis, &c. - - - - -	231	238	1	366	393	1	615	643	2	142.76	.46
	Stricture of Urethra - - - - -	1	1	—	17	11	—					
	ORDER 3.—Dietic Dis.											
	Purpura and Scurvy - - - - -	1	—	1	5	4	1	39	35	3	9.05	.69
	Alcoholism { a. Del. Tremens	4	4	—	3	2	—					
	{ b. Intemperance	—	—	1	26	25	—					
	ORDER 4.—Parasitic Dis.											
	Vermes - - - - -	6	6	—	5	5	—	12	12	—	2.78	—
	Psora - - - - -	—	—	—	1	1	—					
II.	ORDER 1.—Diathetic Dis.											
	Lumbago - - - - -	14	15	—	15	16	—	36	37	1	8.35	.23
	Dropsy - - - - -	2	2	—	5	4	1					
	ORDER 2.—Tubercular Dis.											
	Scrofula - - - - -	—	—	—	6	6	—	20	15	5	4.64	1.16
	Phthisis - - - - -	1	—	2	7	5	1					
	Hæmoptysis - - - - -	1	1	—	5	3	2					
III.	ORDER I.											
	Cephalitis - - - - -	15	15	—	42	43	—	132	127	3	30.62	.69
	Apoplexy - - - - -	2	2	—	1	1	—					
	Paralysis - - - - -	13	11	1	4	3	1					
	Insanity - - - - -	5	3	1	2	—	—					
	Odontalgia - - - - -	—	—	—	1	1	—					
	Epilepsy - - - - -	14	16	—	13	13	—					
	Otitis - - - - -	10	9	—	9	9	—					
	Brain Disease, &c. - - - - -	—	—	—	1	1	—					

No. 43.—Bengal; Dugshai Station; Infantry. Stational Returns. European Troops; H. M. Regts.—*cont.*

Class.	Diseases.	Two Years,* 1850 and 1851.			Four Years,* 1852 to 1855.			Total for 6 Years.*			Annual Ratio per 1000 of Mean Strength.							
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.						
III.	ORDER 2.																	
	Pericarditis	6	4	1	10	7	—	}	39	32	1	9·05	·23					
	Varix	3	3	—	3	2	—											
	Heart Disease, &c.	—	—	—	17	16	—											
	ORDER 3.	Bronchitis	3	3	—	17	13	1	}	87	67	7	20·18	1·62				
		Pleurisy	—	—	—	17	8	1										
		Pneumonia	2	2	—	12	7	4										
		Asthma	33	33	—	3	1	1										
	ORDER 4.																	
	Dyspepsia	51	54	—	89	92	1	}	857	847	16	198·8	3·72					
	Gastritis	1	1	—	12	11	1											
	Enteritis	1	1	—	—	—	—											
	Peritonitis	—	—	—	4	1	3											
	Ascites	—	—	—	1	2	—											
	Hæmatemesis	—	—	—	2	2	—											
	Hernia	1	1	—	4	4	—											
	Heus and Colic	36	36	—	105	106	—											
	Hæmorrhoids	60	62	—	26	24	—											
	Prolapsus Ani	1	1	—	—	—	—											
Fistula	—	—	—	3	3	—												
Obstipatio	6	6	—	16	16	—												
Hepatitis	171	169	7	119	115	3												
Jaundice	6	6	—	7	4	—												
Spleen Disease, &c.	48	49	—	87	81	1												
ORDER 5.																		
Nephritis	—	1	—	9	8	—	}							21	22	—	4·87	—
Ischuria	8	8	—	2	3	—												
Enuresis	—	—	—	2	2	—												
ORDER 6																		
Hydrocele	—	—	—	1	1	—	}	2	2	—	·46	—						
Testis Disease, &c.	—	—	—	1	1	—												
ORDER 7.																		
Contractura	3	3	—	—	—	—	3	3	—	·69	—							
ORDER 8.																		
Phlegmon	}	48	48	—	101	91	—	}	302	294	—	70·05	—					
Abscess		49	53	—	83	82	—											
Ulcer		—	—	—	1	1	—											
Tumor		7	7	—	13	12	—											
Skin Disease, &c.																		
V.	ORDER 1.— <i>Accident or Negligence.</i>																	
	Burns or Scalds	3	3	—	1	2	—	}	376	382	4	87·22	·93					
	Contusion	88	97	—	179	176	—											
	Sub-luxation	38	38	—	24	22	—											
	Luxation	2	3	—	1	1	—											
	Fracture	1	1	—	6	6	—											
	Wounds { Gunshot	2	1	1	2	2	—											
	{ Incised	16	17	—	13	13	—											
	Drowned	—	—	2	—	—	—											
	Found dead	—	—	1	—	—	—											
	ORDER 4.— <i>Suicide.</i>																	
	Gunshot Wound	—	—	—	—	—	1	—	—	1	—	·23						
	ORDER 5.																	
	Punitus	5	5	—	3	3	—	}	77	73	5	17·86	1·16					
	Observatio	—	—	—	69	65	5											

* No Troops separately accounted for at this Station during the Years 1847, 1848, 1849, and 1856.

No. 44.

BENGAL.—MURREE STATION.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 6 Years - - - - 425
 Mean Annual Strength - - - - 71

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	One Year,* 1851.			Five Years, 1852 to 1856.			Total for 6 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES -	92	89	3	872	822	36	964	911	39	2,268.3	91.76
	CLASSES.											
I.	ZYMOTIC DISEASES -	59	58	1	585	568	21	644	626	22	1,515.31	51.76
II.	CONSTITUTIONAL -	4	4	—	13	9	3	17	13	3	40.0	7.06
III.	LOCAL -	26	24	2	241	213	12	267	237	14	628.24	32.94
V.	VIOLENCE -	3	3	—	33	32	—	36	35	—	84.7	—
	ORDERS.											
I.	ORDER 1.—Miasmatic Dis.											
	Quinsy -	—	—	—	8	8	—	589	576	20	1,385.9	47.06
	Catarrh and Influenza -	5	5	—	27	26	1					
	Ophthalmia -	8	8	—	20	20	—					
	Fever (C. C.) -	—	—	—	10	10	—					
	Erysipelas -	—	—	—	1	1	—					
	Dysentery -	4	4	—	71	61	12					
	Diarrhoea -	4	3	1	113	107	2					
	Ague -	6	9	—	211	210	1					
	Remittent Fever -	21	18	—	13	11	2					
	Rheumatism -	6	6	—	61	69	1					
	ORDER 2.—Ethetic Dis.											
	Syphilis, &c. -	3	3	—	33	31	2	36	36	2	89.41	4.7
	Stricture of Urethra -	—	—	—	2	2	—					
	ORDER 3.—Dietic Dis.											
	Purpura and Scurvy -	—	—	—	6	4	—	17	14	—	40.0	—
	Alcoholism { a. Del. Tremens	1	1	—	4	4	—					
	{ b. Intemperance	1	1	—	5	4	—					
II.	ORDER 1.—Diathetic Dis.											
	Lumbago -	—	—	—	1	1	—	7	6	—	16.47	—
	Droopy -	1	1	—	5	4	—					
	ORDER 2.—Tubercular Dis.											
	Scrofula -	2	2	—	2	2	—	10	7	3	23.53	7.06
	Phthisis -	1	1	—	3	—	3					
	Hemoptysis -	—	—	—	2	2	—					

No. 44.—Bengal; Murree Station; Infantry. Stational Returns. European Troops; H. M. Regts.—*cont.*

Class.	Diseases.	One Year,* 1851.			Five Years, 1852 to 1856.			Total for 6 Years.*			Annual Ratio per 100 of Mean Strength.		
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.	
III.	ORDER 1.												
	Cephalitis - - - - -	—	—	—	5	5	—	}	21	20	1	49·41	2·3:
	Apoplexy - - - - -	—	—	—	1	—	1						
	Paralysis - - - - -	—	—	—	2	2	—						
	Epilepsy - - - - -	—	—	—	11	11	—						
	Otitis - - - - -	1	1	—	1	1	—						
	ORDER 2.												
	Pericarditis - - - - -	—	—	—	1	1	—	}	3	2	1	7·06	2·3:
	Hydrothorax - - - - -	1	—	1	—	—	—						
	Heart Disease, &c. - - - - -	—	—	—	1	1	—						
	ORDER 3.												
	Bronchitis - - - - -	—	—	—	1	1	—	}	6	6	1	14·12	2·3:
	Pleurisy - - - - -	1	1	—	1	1	—						
	Pneumonia - - - - -	—	—	—	3	3	1						
	ORDER 4.												
	Dyspepsia - - - - -	1	1	—	15	5	—	}	218	191	11	512·94	25·8:
	Gastritis - - - - -	1	—	1	1	1	—						
	Enteritis - - - - -	1	1	—	1	1	—						
	Peritonitis - - - - -	—	—	—	1	—	1						
	Hæmorrhoids - - - - -	1	1	—	1	1	—						
	Ileus and Colic - - - - -	—	—	—	8	8	—						
Fistula - - - - -	3	3	—	—	—	—							
Obstipatio - - - - -	2	2	—	1	1	—							
Hepatitis - - - - -	8	8	—	137	110	9							
Jaundice - - - - -	—	—	—	2	2	—							
Spleen Disease - - - - -	5	5	—	29	31	—							
ORDER 8.													
Phlegmon - - - - -	—	—	—	6	6	—	}	19	18	—	44·71	—	
Ulcer - - - - -	1	1	—	9	9	—							
Skin Disease, &c. - - - - -	—	—	—	3	2	—							
V. ORDER 1.— <i>Accident or Negligence.</i>													
Burns or Scalds - - - - -	—	—	—	2	2	—	}	19	19	—	44·71	—	
Contusion - - - - -	2	2	—	8	8	—							
Sub-luxation - - - - -	—	—	—	3	3	—							
Fracture - - - - -	—	—	—	1	1	—							
Wounds { Gunshot Incised - - - - -	1	1	—	2	2	—							
ORDER 5.													
Observatio - - - - -	—	—	—	17	16	—	17	16	—	40·	—		

* No Troops separately accounted for at this Station during the Years 1847 to 1850.

No. 45.

BENGAL—KURRACHEE.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 4 Years - - - - 416
 Mean Annual Strength - - - - 104

RETURN showing (G.) the Number of ATTACKS of SICKNESS ; (E.) the Number DISCHARGED to DUTY ; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Four Years,* 1853 to 1856.			Total for 4 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(G.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(G.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES - - -	573	591	17	573	591	17	1,377.5	40.86
	CLASSES.								
I.	ZYMOTIC DISEASES - - -	432	448	15	432	448	15	1,038.56	36.06
II.	CONSTITUTIONAL - - -	9	9	1	9	9	1	21.63	2.4
III.	LOCAL - - - - -	107	108	1	107	108	1	257.22	2.4
V.	VIOLENCE - - - - -	25	26	—	25	26	—	60.09	—
	ORDERS.								
I.	ORDER 1.— <i>Miasmatic Dis.</i>								
	Quincy - - - - -	4	4	—	366	376	15	879.81	36.06
	Catarrh and Influenza - - -	47	48	—					
	Ophthalmia - - - - -	12	12	—					
	Fever (C. C.) - - - - -	12	13	—					
	Dysentery - - - - -	33	35	4					
	Diarrhoea - - - - -	176	175	8					
	Ague - - - - -	29	37	—					
	Remittent Fever - - - - -	6	5	2					
	Rheumatism - - - - -	47	47	1					
	ORDER 2.— <i>Enthetic Dis.</i>								
	Syphilis, &c. - - - - -	57	62	—	57	62	—	137.02	—
	ORDER 3.— <i>Dietic Dis.</i>								
	Purpura and Scurvy - - - - -	8	9	—	8	9	—	19.23	—
	ORDER 4.— <i>Parasitic Dis.</i>								
	Psora - - - - -	1	1	—	1	1	—	2.4	—
II.	ORDER 2.— <i>Tubercular Dis.</i>								
	Scrofula - - - - -	4	5	—	9	9	1	21.63	2.4
	Hæmoptysis - - - - -	5	4	1					

No. 45.—Bengal; Kurrachee Station; Infantry. Stational Returns. European Troops; H. M. Regts.—*cont.*

Class.	Diseases.	Four Years,* 1853 to 1856.			Total for 4 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
III.	ORDER 1.								
	Cephalgias	4	4	—	} 28	28	—	67·31	—
	Paralysis	3	3	—					
	Insanity	15	15	—					
	Epilepsy	5	5	—					
	Otitis	1	1	—					
	ORDER 2.								
	Pericarditis	12	11	1	12	11	1	28·84	2·4
	ORDER 3.								
	Bronchitis	3	3	—	} 4	6	—	9·62	—
	Pneumonia	1	3	—					
	ORDER 4.								
	Dyspepsia	8	8	—	} 30	30	—	72·12	—
	Ascites	1	1	—					
	Hæmorrhoids	2	2	—					
	Fistula	1	1	—					
	Hepatitis	17	17	—					
	Spleen Disease, &c.	1	1	—					
ORDER 6.									
Hydrocele	1	1	—	} 2	2	—	4·81	—	
Testis Disease, &c.	1	1	—						
ORDER 8.									
Phlegmon	15	15	—	} 31	31	—	74·52	—	
Ulcer	15	15	—						
Skin Disease, &c.	1	1	—						
V.	ORDER 1.— <i>Accident or Negligence.</i>								
	Burns or Scalds	1	1	—	} 24	24	—	57·68	—
	Contusion	16	16	—					
	Sub-luxation	2	2	—					
	Fracture	1	1	—					
	Wounds, Incised	4	4	—					
	ORDER 5.								
	Punitus	1	1	—	} 1	2	—	2·41	—
Observatio	—	1	—						

* No Troops separately accounted for at this Station during the Years 1847 to 1852.

N.B.—Invalids are included in these Numbers, but the Returns do not enable them to be distinguished.

No. 46.

BENGAL.—SUBATHOO STATION.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 3 Years - - - - 439
 Mean Annual Strength - - - - 146

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Three Years,* 1853 to 1855.			Total for 3 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES - -	674	640	23	674	640	23	1,535.3	52.39
	CLASSES.								
I.	ZYMOTIC DISEASES - -	520	491	20	520	491	20	1,184.5	45.55
II.	CONSTITUTIONAL - -	5	4	2	5	4	2	11.39	4.56
III.	LOCAL - - - -	126	122	1	126	122	1	287.02	2.28
V.	VIOLENCE - - - -	23	23	—	23	23	—	52.39	—
	ORDERS.								
I.	ORDER 1.—Miasmatic Dis.								
	Quinsy - - - -	12	12	1	446	418	20	1,015.93	45.55
	Catarrh and Influenza - - -	34	33	1					
	Ophthalmia - - - -	57	61	—					
	Fever (C. C.) - - - -	100	87	3					
	Erysipelas - - - -	2	2	—					
	Dysentery - - - -	12	12	2					
	Diarrhoea - - - -	80	67	12					
	Ague - - - -	107	103	—					
	Remittent Fever - - - -	2	1	1					
	Rheumatism - - - -	40	40	—					
	ORDER 2.—Enthetic Dis.								
	Syphilia, &c. - - - -	71	70	—	71	70	—	161.79	—
	ORDER 3.—Dietic Dis.								
	Purpura and Scurvy - - - -	1	1	—	1	1	—	2.28	—
	ORDER 4.—Parasitic Dis.								
	Vermes - - - -	1	1	—	2	2	—	4.56	—
	Psora - - - -	1	1	—					

No. 46.—Bengal ; Subathoo Station ; Infantry. Stational Returns. European Troops ; H.M. Regts.—*cont.*

Class.	Diseases.	Three Years* 1853 to 1855.			Total for 3 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
II.	ORDER 2.— <i>Tubercular Dis.</i>								
	Phthisis	5	4	2	5	4	2	11.39	4.56
III.	ORDER 1.								
	Cephalitis	2	2	—	16	19	—	36.45	—
	Paralysis	5	5	—					
	Epilepsy	6	9	—					
	Otitis	3	3	—					
	ORDER 2.								
	Pericarditis	3	2	—	4	3	—	9.11	—
	Heart Disease, &c.	1	1	—					
	ORDER 3.								
	Bronchitis	3	3	—	6	6	—	13.67	—
	Pneumonia	3	3	—					
	ORDER 4.								
	Dyspepsia	29	25	—	58	52	1	132.12	2.28
	Ileus and Colic	8	7	—					
	Obstipatio	2	2	—					
	Hepatitis	13	12	1					
	Spleen Disease, &c.	6	6	—					
	ORDER 8.								
	Phlegmon	29	29	—	42	42	—	95.67	—
	Ulcer	11	11	—					
	Tumor	2	2	—					
V.	ORDER 1.— <i>Accident or Negligence.</i>								
	Contusion	5	5	—	20	20	—	45.55	—
	Sub-luxation	13	13	—					
	Wound, Incised	2	2	—					
	ORDER 5.								
	Observatio	3	3	—	3	3	—	6.84	—

* No Troops separately accounted for at this Station during the Years 1847 to 1853 and 1856.

No. 47.

BENGAL.—GOVINGHUR STATION.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 2 Years - - - - - 107
 Mean Annual Strength - - - - - 54

RETURN showing (G.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	One Year, 1851.*			One Year, 1852.*			Total for 2 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(G.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(G.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(G.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Diad.
	SPECIFIED CAUSES -	185	181	—	2	5	—	187	186	—	1,747·7	—
	CLASSES.											
I.	ZYMOTIC DISEASES -	158	157	—	2	3	—	160	160	—	1,495·3	—
II.	CONSTITUTIONAL -	—	—	—	—	—	—	—	—	—	—	—
III.	LOCAL - - - - -	14	11	—	—	2	—	14	13	—	130·84	—
V.	VIOLENCE - - - - -	13	13	—	—	—	—	13	13	—	121·49	—
	ORDERS.											
I.	ORDER 1.— <i>Miasmatic Dis.</i>											
	Ophthalmia - - - - -	4	4	—	—	—	—	152	152	—	1,420·53	—
	Fever (C. C.) - - - - -	1	1	—	1	1						
	Dysentery - - - - -	1	1	—	—	—						
	Diarrhoea - - - - -	2	2	—	—	—						
	Ague - - - - -	138	136	—	1	2						
	Remittent Fever - - - - -	1	2	—	—	—						
	Rheumatism - - - - -	3	3	—	—	—						
	ORDER 2.— <i>Ethetic Dis.</i>											
	Syphilis, &c. - - - - -	7	7	—	—	—	7	7	—	65·42	—	
	ORDER 3.— <i>Dietic Dis.</i>											
	Alcoholism, Intemperance - - - - -	1	1	—	—	—	1	1	—	9·35	—	
III.	ORDER 1.											
	Cephalitis - - - - -	1	—	—	—	1	4	4	—	37·38	—	
	Odontalgia - - - - -	2	2	—	—	—						
	Otitis - - - - -	1	1	—	—	—						
	ORDER 4.											
	Dyspepsia - - - - -	1	1	—	—	—	8	7	—	74·76	—	
	Hæmorrhoids - - - - -	1	—	—	—	—						
	Hepatitis - - - - -	4	4	—	—	—						
	Jaundice - - - - -	1	1	—	—	—						
	Spleen Disease, &c. - - - - -	1	1	—	—	—						
	ORDER 6.											
	Hydrocele - - - - -	1	1	—	—	—	1	1	—	9·35	—	
	ORDER 8.											
	Ulcer - - - - -	1	—	—	—	1	1	1	—	9·35	—	
V.	ORDER 1.— <i>Accident or Negligence.</i>	3	—	—	—	—						
	Contusion - - - - -	13	13	—	—	—	13	13	—	121·94	—	

* No Troops separately accounted for at this Station during the Years 1847 to 1850, and 1853 to 1856.

No. 48.

BENGAL.—BERHAMPORE STATION.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 2 Years - - - - 146
 Mean Annual Strength - - - - 73

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (D.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	One Year,* 1849.			One Year,* 1855.			Total for 2 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(D.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(D.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(D.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES -	62	31	9	78	86	—	140	117	9	958·91	61·66
	CLASSES.											
I.	ZYMOTIC DISEASES -	51	22	8	63	68	—	114	90	8	780·83	54·81
II.	CONSTITUTIONAL -	—	—	—	—	—	—	—	—	—	—	—
III.	LOCAL - - - -	10	8	1	10	13	—	20	21	1	136·99	6·85
V.	VIOLENCE - - - -	1	1	—	5	5	—	6	6	—	41·09	—
	ORDERS.											
I.	ORDER 1.— <i>Miasmatic Dis.</i>											
	Ophthalmia - - - -	1	1	—	—	—	—					
	Fever (C. C.) - - - -	2	—	—	4	4	—					
	Dysentery - - - -	19	6	3	10	10	—					
	Diarrhœa - - - -	9	6	—	1	1	—					
	Cholera - - - -	16	5	5	1	1	—	100	73	8	684·94	54·81
	Ague - - - -	—	—	—	1	3	—					
	Remittent Fever - - - -	—	—	—	29	29	—					
	Rheumatism - - - -	—	—	—	7	7	—					
	ORDER 2.— <i>Enthetic Dis.</i>											
	Syphilis, &c. - - - -	2	2	—	9	12	—	11	14	—	75·34	—
	ORDER 3.— <i>Dietic Dis.</i>											
	Purpura and Scurvy - - - -	1	1	—	—	—	—	2	2	—	13·7	—
	Alcoholism—Intemperance - - - -	—	—	—	1	1	—					
	ORDER 4.— <i>Parasitic Dis.</i>											
	Psora - - - -	1	1	—	—	—	—	1	1	—	6·85	—
III.	ORDER 1.											
	Cephalitis - - - -	1	1	—	—	—	—	4	3	1	27·41	6·85
	Apoplexy - - - -	1	—	1	—	—	—					
	Otitis - - - -	—	—	—	2	2	—					
	ORDER 4.											
	Dyspepsia - - - -	1	—	—	1	1	—					
	Ileus and Colic - - - -	—	1	—	—	—	—					
	Hæmorrhoids - - - -	—	—	—	1	2	—	10	12	—	68·49	—
	Obstipatio - - - -	5	4	—	—	—	—					
	Hepatitis - - - -	—	—	—	1	2	—					
	Spleen Disease, &c. - - - -	—	—	—	1	2	—					
	ORDER 8.											
	Phlegmon - - - -	2	2	—	1	1	—	6	6	—	41·09	—
	Ulcer - - - -	—	—	—	3	3	—					
V.	ORDER 1.— <i>Accident or Negligence.</i>											
	Burns or Scalds - - - -	1	1	—	—	—	—					
	Contusion - - - -	—	—	—	2	2	—	5	5	—	34·24	—
	Sub-luxation - - - -	—	—	—	1	1	—					
	Luxation - - - -	—	—	—	1	1	—					
	ORDER 5.											
	Punitus - - - -	—	—	—	1	1	—	1	1	—	6·85	—

* No Troops separately accounted for at this Station during the Years 1847, 1848, 1850, 1851, 1852, 1853, 1854, and 1856.

No. 49.

BENGAL.—BAZID KHAIL STATION.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Mean Annual Strength - - - - 43

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	One Year, 1854.*			Total for 1 Year.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES - - -	8	10	—	8	10	—	186·05	—
	CLASSES.								
I.	ZYMOTIC DISEASES - - -	7	9	—	7	9	—	162·79	—
II.	CONSTITUTIONAL - - -	—	—	—	—	—	—	—	—
III.	LOCAL - - - - -	1	1	—	1	1	—	23·26	—
V.	VIOLENCE - - - - -	—	—	—	—	—	—	—	—
	ORDERS.								
I.	ORDER 1.— <i>Miasmatic Dis.</i>								
	Catarrh and Influenza - - -	1	2	—	} 6	7	—	139·53	—
	Fever (C. C.) - - - - -	2	2	—					
	Dysentery - - - - -	1	1	—					
	Ague - - - - -	2	2	—					
	ORDER 2.— <i>Enthetic Dis.</i>								
	Syphilis, &c. - - - - -	1	2	—	1	2	—	23·26	—
III.	ORDER 6.								
	Hydrocele - - - - -	1	1	—	1	1	—	23·26	—

* No Troops separately accounted for at this Station except during the Year 1854.

No. 50.

BENGAL.—GHAZEEPORE STATION.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Mean Annual Strength - - - - - 404

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	One Year, 1849.*			Total for 1 Year.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES - - -	722	666	19	722	666	19	1,787·12	47·03
	CLASSES.								
I.	ZYMOTIC DISEASES - - -	592	537	18	592	537	18	1,465·35	44·55
II.	CONSTITUTIONAL - - -	1	3	—	1	3	—	2·47	—
III.	LOCAL - - -	112	110	1	112	110	1	277·23	2·47
IV.	DEVELOPMENTAL - - -	1	1	—	1	1	—	2·47	—
V.	VIOLENCE - - -	16	15	—	16	15	—	39·6	—
	ORDERS.								
I.	ORDER 1.— <i>Miasmatic Dis.</i>								
	Quinsy - - -	3	3	—	356	344	17	881·19	42·08
	Catarrh and Influenza - - -	10	11	—					
	Ophthalmia - - -	63	65	—					
	Fever - - -	77	71	3					
	Erysipelas - - -	3	3	—					
	Dysentery - - -	63	61	2					
	Diarrhoea - - -	32	32	2					
	Cholera - - -	10	7	4					
	Ague - - -	18	18	—					
	Remittent Fever - - -	56	51	5					
	Rheumatism - - -	21	22	1					
	ORDER 2.— <i>Enthetic Dis.</i>				236	193	1	584·16	2·47
	Syphilis, &c. - - -	235	192	—					
	Stricture of Urethra - - -	1	1	1					
II.	ORDER 1.— <i>Diathetic Dis.</i>								
	Lumbago - - -	1	1	—	1	1	—	2·47	—
	ORDER 2.— <i>Tubercular Dis.</i>								
	Phthisis - - -	—	1	—	—	2	—	—	—
	Hæmoptysis - - -	—	1	—					

No. 50.—Bengal; Ghazepore Station; Infantry. Stational Returns. European Troops; H.M. Regts.—cont.

Class.	Diseases.	One Year, 1849.*			Total for 1 Year.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
III.	ORDER 1.								
	Apoplexy	1	—	1	13	12	1	32·18	2·47
	Paralysis	2	2	—					
	Otitis	10	10	—					
	ORDER 3.								
	Bronchitis	4	4	—	6	6	—	14·85	
	Pneumonia	2	2	—					
	ORDER 4.								
	Dyspepsia	8	8	—	32	31	—	79·21	—
	Peritonitis	1	1	—					
	Ascites	1	—	—					
	Ileus and Colic	15	15	—					
	Obstipatio	4	4	—					
	Hepatitis	3	3	—					
	ORDER 5.								
Ischuria	2	2	—	2	2	—	4·94	—	
ORDER 6.									
Hydrocele	—	2	—	—	2	—	—	—	
ORDER 8.									
Phlegmon	19	20	—	59	57	—	146·05	—	
Ulcer	24	23	—						
Skin Disease, &c.	16	14	—						
IV.	ORDER 4.								
	Atrophy	1	1	—	1	1	—	2·47	—
V.	ORDER 1.— <i>Accident or Negligence.</i>								
	Contusion	14	15	—	15	14	—	37·13	—
	Fracture	1	1	—					
	ORDER 5.								
	Punitus	1	1	—	1	1	—	2·47	—

* No Troops separately accounted for at this Station except during the Year 1849.

No. 51.

BENGAL.—LUCKNOW.—INFANTRY.

STATIONAL RETURNS—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Mean Annual Strength 629

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	One Year, 1856.*			Total for 1 Year.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES	736	740	81	836	741	81	1,329·08	128·78
	CLASSES.								
I.	ZYMOTIC DISEASES	716	635	71	716	635	71	1,138·3	112·88
II.	CONSTITUTIONAL	5	4	1	5	4	1	7·95	1·59
III.	LOCAL	107	95	8	107	95	8	170·11	12·72
V.	VIOLENCE	8	6	1	8	6	1	12·72	1·59
	ORDERS.								
I.	ORDER 1.— <i>Miasmatic Dis.</i>								
	Small pox	7	6	1	605	528	71	961·84	112·88
	Quinsy	12	12	—					
	Catarrh and Influenza	50	51	1					
	Ophthalmia	70	66	—					
	Fever (C. C.)	94	86	7					
	Dysentery	16	11	6					
	Diarrhœa	81	62	10					
	Cholera	66	21	45					
	Ague	171	178	1					
	Remittent Fever	2	2	—					
	Rheumatism	36	33	—					
	ORDER 2.— <i>Enthetic Dis.</i>								
	Syphilis, &c.	108	105	—	108	105	—	171·70	—
	ORDER 3.— <i>Dietic Dis.</i>								
	Purpura and Scurvy	2	2	—	2	2	—	3·18	—
	ORDER 4.— <i>Parasitic Dis.</i>								
	Vermes	1	—	—	1	—	—	1·59	—
II.	ORDER 1.— <i>Diathetic Dis.</i>								
	Lunbago	1	1	—	1	1	—	1·59	—

No. 51.—Bengal ; Lucknow ; Infantry. Stational Returns. European Troops ; H.M. Regts.—cont.

Class.	Diseases.	One Year, 1856.*			Total for 1 Year.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
II.	ORDER 2.— <i>Tubercular Dis.</i>								
	Scrofula - - - -	—	1	—	4	3	1	6·36	1·59
	Phthisis - - - -	2	—	1					
	Hæmoptysis - - - -	2	2	—					
III.	ORDER 1.								
	Apoplexy - - - -	9	4	5	15	9	5	23·85	7·95
	Paralysis - - - -	1	—	—					
	Insanity - - - -	1	1	—					
	Epilepsy - - - -	4	4	—					
	ORDER 2.								
	Pericarditis - - - -	5	4	—	7	6	—	11·13	—
	Heart Disease, &c. - - - -	2	2	—					
	ORDER 3.								
	Epistaxis - - - -	2	1	—	9	9	—	14·31	—
	Bronchitis - - - -	—	1	—					
	Pleurisy - - - -	3	3	—					
	Pneumonia - - - -	4	4	—					
	ORDER 4.								
	Dyspepsia - - - -	6	6	—	48	41	3	76·31	4·77
	Hæmorrhoids - - - -	2	1	—					
	Fistula - - - -	1	—	—					
	Hepatitis - - - -	22	17	3					
	Jaundice - - - -	10	10	—					
	Spleen Disease, &c. - - - -	7	7	—					
	ORDER 5.								
	Nephritis - - - -	2	4	—	2	4	—	3·18	—
	ORDER 8.								
	Phlegmon - - - -	22	21	—	26	26	—	41·33	—
	Ulcer - - - -	4	5	—					
V.	ORDER 1.— <i>Accident or Negligence.</i>								
	Burns or Scalds - - - -	1	2	—	7	6	—	11·13	—
	Contusion - - - -	2	2	—					
	Sub-luxation - - - -	3	1	—					
	Wounds, incised - - - -	1	1	—					
	ORDER 4.— <i>Suicide.</i>								
	Suspendium - - - -	—	—	1	—	—	1	—	1·59
	ORDER 5.								
	Obsarvatio - - - -	1	—	—	1	—	—	1·59	—

* No Troops separately accounted for at this Station except during the Year 1856.

No. 52.

BENGAL.—MEERUT.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

(B.)—RETURN showing for each YEAR the REGIMENTS at the STATION, MEAN STRENGTH, NUMBER constantly SICK, ADMISSIONS, DISCHARGES, and DEATHS.

Year.	Regiments or Detachments at the Station.		Mean Strength during the Year.	Mean Number constantly sick in Hospital.	Admissions into Hospital during the Year.	Discharged from Hospital.	Deaths.
	Names.	Strength.					
1847	9th Lancers - -	694·75	2,701	42·25	664	659	12
1847	32nd Foot - -	1,037·75		75·25	2,039	1,970	61
1847	80th Foot - -	811·50		69·75	1,295	1,283	14
1847	Detachments - -	157·25		3·5	83	103	1
1848	9th Lancers - -	360·25	366	20	308	291	2
1848	Detachments - -	5·5		·25	3	4	—
1849	Detachments - -	84	84	9·75	277	234	14
1850	18th Foot - -	804·25	1,613	56·50	901	751	25
1850	29th Foot - -	807·25		100·25	1,567	1,513	49
1850	Detachments - -	1·5		1	4	2	2
1851	14th Dragoons - -	653·5	1,616	62	1,103	1,110	26
1851	29th Foot - -	940·5		118·75	2,512	2,448	39
1851	Detachments - -	22·25	5	77	81	1	
1852	14th Dragoons - -	668·25	673	48·5	908	878	13
1852	Detachments - -	5		·25	7	7	—
1853	14th Dragoons - -	709·25	712	39·5	790	801	11
1853	Detachments - -	2·75		·25	5	4	1
1854	14th Dragoons - -	695·25	1,786	41·25	789	777	11
1854	81st Foot - -	1,011·25		96·25	2,297	2,194	75
1854	Detachments - -	70·5		5·25	162	162	1
1855	52nd Foot - -	670·5	1,403	55·5	1,280	1,253	22
1855	81st Foot - -	728·75		64·75	1,284	1,234	16
1855	Detachments - -	4		·25	11	11	—
1856	52nd Foot - -	110·25	982	18·5	353	311	11
1856	60th Foot - -	872·5		68·25	1,950	1,908	43
	Total - - -	11,937·5	11,936	1,002·75	20,674	19,989	450
	Mean - - -	—	1,194	100·27	2,067	1,999	45

No. 53.

BENGAL.—UMBALLA STATION.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

(B).—RETURN showing for each YEAR the REGIMENTS at the STATION, MEAN STRENGTH, NUMBER constantly SICK, ADMISSION, DISCHARGES, and DEATHS.

Year.	Regiments or Detachments at the Station.		Mean Strength during the Year.	Mean Number constantly sick in Hospital.	Admissions into Hospital during the Year.	Discharged from Hospital.	Deaths.
	Names.	Strength.					
1847	3rd Dragoons	658	2,188	78·25	981	951	18
1847	14th Dragoons	570		54·75	829	795	34
1847	61st Foot	959		91	1,496	1,472	47
1847	Detachment	1·25		—	5	3	2
1848	3rd Dragoons	334·25	1,071	28·5	380	359	5
1848	98th Foot	731·75		93·25	1,588	1,551	44
1848.	Detachment	5·25		·75	7	7	—
1849	3rd Dragoons	294·25	808	15·5	236	237	9
1849	18th Foot	461·5		51	822	844	30
1849	Detachment	51·75		15	83	63	9
1850	3rd Dragoons	475·25	1,399	28	538	477	7
1850	75th Foot	917·25		73·25	1,418	1,395	43
1850	Detachments	6·25		1·25	13	13	1
1851	9th Lancers	637·75	1,635	46·75	872	839	10
1851	75th Foot	988·75		54·75	979	957	27
1851	Detachments	8·25		·25	13	13	1
1852	9th Lancers	615·75	1,555	47·5	928	904	23
1852	75th Foot	939·25		68·25	1,575	1,468	111
1853	9th Lancers	600·25	1,032	28·25	739	745	12
1853	75th Foot	425		27·75	976	680	5
1853	Detachment	7·25		2·5	38	25	1
1854	9th Lancers	579·5	2,066	29·75	840	826	9
1854	32nd Foot	218·75		17·5	422	427	9
1854	52nd Foot	750·75		53·75	1,080	1,048	39
1854	53rd Foot	217·25	719	20	474	523	17
1854	60th Foot	205·5		20	625	692	3
1854	Detachments	93·75	6·5	95	128	—	
1855	9th Lancers	716	627	32·5	796	786	11
1855	Detachments	3·5		·75	6	5	1
1856	9th Lancers	619·5	627	43·25	1,344	1,331	5
1856	Detachments	7·75		·50	17	17	—
	Total	13,100·25	13,100	1,021	20,215	19,581	533
	Mean	—	1,310	102	2,021	1,958	53

No. 54.

BENGAL.—FEROZEPURE STATION.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

(B.)—RETURN showing for each YEAR the REGIMENTS at the STATION, MEAN STRENGTH, NUMBER constantly SICK, ADMISSIONS, DISCHARGES, and DEATHS.

Year.	Regiments or Detachments at the Station.		Mean Strength during the Year.	Mean Number constantly sick in Hospital.	Admissions into Hospital during the Year.	Discharged from Hospital.	Deaths.	
	Names.	Strength.						
1847	53rd Foot	-	923	923	90·25	1,648	1,602	59
1848	14th Dragoons	-	163·50	464	24	379	313	12
1848	32nd Foot	-	301		25·5	912	841	18
1849	10th Foot	-	726·5	791	69·5	1,161	1,198	41
1849	Detachments	-	64·5		8·	133	122	11
1850	87th Foot	-	575	575	68	1,872	1,827	62
1851	87th Foot	-	890·25	1,044	95	1,779	1,616	61
1851	Recruits	-	153·25		12·25	446	456	10
1852	87th Foot	-	944·75	952	62·5	1,291	1,254	24
1852	Detachments	-	7·25		—	14	14	—
1853	87th Foot	-	716	716	48	808	785	12
1854	70th Foot	-	748	748	66	1,665	1,417	17
1855	70th Foot	-	843·75	860	74·75	1,479	1,630	7
1855	Detachments	-	16·		11·75	53	53	—
1856	61st Foot	-	234·5	868	30·75	1,504	1,551	12
1856	70th Foot	-	633·75		77	1,683	1,576	100
	Total	-	7,941	7,941	763·25	16,827	16,255	446
	Mean	-	—	794	76·32	1,682	1,625	44·6

No. 55.—BENGAL.—LAHORE STATION.

1847	10th Foot	-	894	894	86	1,884	1,795	77
1848	10th Foot	-	480	1,260	47·5	733	693	22
1848	53rd Foot	-	780		66·25	1,340	1,290	71
1849	14th Dragoons	-	437	1,227	49·5	772	761	24
1849	98th Foot	-	701·25		67·25	1,659	1,542	59
1849	Detachments	-	89	16·5	271	223	19	
1850	14th Dragoons	-	622	632	73·75	1,285	1,238	30
1850	98th Foot	-	9·5		5·	12	32	2
1851	Detachments	-	902	902	99·25	3,652	3,535	113
1852	96th Foot	-	836	836	89·5	3,611	3,562	58
1853	96th Foot	-	643	643	48	1,517	1,459	38
1854	10th Foot	-	919	919	83·25	1,621	1,607	27
1855	10th Foot	-	677·75	935	48·75	884	854	15
1855	81st Foot	-	243·75		14·	370	407	—
1855	Detachments	-	14	4·50	69	56	3	
1856	81st Foot	-	956·25	966	102·5	2,887	2,650	162
1856	Detachments	-	9·75		4	64	66	5
	Total	-	9,214·25	9,214	905·50	22,631	21,770	725
	Mean	-	—	921	91·55	2,263	2,177	72

No. 56.

BENGAL.—FORT WILLIAM STATION.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

(B.)—RETURN showing for each YEAR the REGIMENTS at the STATION, MEAN STRENGTH, NUMBER constantly SICK, ADMISSIONS, DISCHARGES, and DEATHS.

Year.	Regiments or Detachments at the Station.		Mean Strength during the Year.	Mean Number constantly sick in Hospital.	Admissions into Hospital during the Year.	Discharged from Hospital.	Deaths.
	Names.	Strength.					
1847	9th Foot	118	805	7.25	150	180	16
1847	39th Foot	75.5		3.75	15	29	2
1847	94th Foot	117		10	145	199	1
1847	50th Foot	247.5		28.25	418	422	17
1847	General Hospital	233.75		10.5	366	301	18
1847	Detachments	13.75		—	22	61	3
1848	18th Foot	375.5	489	50.75	988	897	24
1848	21st Foot	—		—	—	23	—
1848	50th Foot	—		—	—	38	—
1848	General Hospital	113.5		6.25	223	261	9
1849	96th Foot	29.25	769	.25	15	15	—
1849	70th Foot	463.75		55.5	1,381	1,296	86
1849	General Hospital	276.25		10.5	428	377	25
1850	70th Foot	664.75	690	70.75	1,481	1,441	36
1850	Detachments	5.25		2.25	14	12	2
1850	General Hospitals	20.25		6.25	69	85	8
1851	18th Foot	991.5	1,004	107.5	1,456	1,378	97
1851	General Hospital	13		1.75	77	77	1
1852	29th Foot	100	402	11	296	254	3
1852	80th Foot	190.75		21.75	318	290	29
1852	General Hospital	101.5		6.75	232	227	9
1853	General Hospital	86	86	5	179	152	14
1854	98th Foot	832	904	56.75	1,339	1,230	71
1854	Detachments	37		—	81	75	6
1854	General Hospital	35		5.75	132	126	15
1855	35th Foot	96.75	355	9.25	167	216	4
1855	98th Foot	165.50		15.5	86	158	4
1855	General Hospital	92.75		4.5	165	155	13
1856	53rd Foot	557.25	573	35.25	1,179	1,103	57
1856	General Hospital	15.5		1	37	27	8
	Total	6,077.5	6,077	543.80	11,453	11,105	577
	Mean	—	608	54.	1,145	1,110	53

No. 57.

BENGAL.—LANDOUR.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS
AND MEN.(B.)—RETURN showing for each YEAR the REGIMENTS at the STATION, MEAN STRENGTH, NUMBER constantly
SICK, ADMISSIONS, DISCHARGES, and DEATHS.

Year.	Regiments or Detachments at the Station.		Mean Strength during the Year.	Mean Number constantly sick in Hospital.	Admissions into Hospital during the Year.	Discharged from Hospital.	Deaths.
	Names.	Strength.					
1847	H. M. Troops (Invalids) -	115	115	11.75	202	187	13
1848	Sanitary Depôt -	10	10	1.5	29	16	—
1849	" " -	115	115	21.25	162	147	13
1850	" " -	84	84	10.	98	90	8
1851	" " -	87	87	27.75	201	187	14
1852	" " -	97	97	31.75	245	243	4
1853	" " -	157	157	12.5	370	359	10
1854	" " -	128	128	14.	322	316	5
1855	" " -	144	144	14.25	293	290	6
1856	" " -	166	166	10.	266	258	7
	Total -	1,103	1,103	154.75	2,188	2,093	80
	Mean -	—	110	15.47	219	209	8

No. 58.

BENGAL.—TROOPS EN ROUTE, &c.

1847	Sundry -	1,385	1,385	124.75	2,179	2,208	60
1848	" -	3,763	3,763	276.75	6,704	6,823	240
1849	" -	2,918	2,198	234.25	5,742	5,236	360
1850	" -	3,106	3,106	269.25	4,930	5,027	145
1851	" -	2,614	2,614	137	3,133	3,183	76
1852	" -	2,531	2,531	139	3,493	3,475	72
1853	" -	2,856	2,856	189.25	4,588	4,591	105
1854	" -	1,561	1,561	113	3,682	3,814	79
1855	" -	3,393	3,393	240.	5,052	5,044	154
1856	" -	1,200	1,200	92.	2,111	2,086	108
	Total -	25,426	25,426	1,815.25	41,614	41,498	1,399
	Mean -	—	2,542	181.52	4,161	4,149	140

No. 59.

BENGAL.—DINAPORE STATION.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

(B).—RETURN showing for each YEAR the Regiments at the STATION, MEAN STRENGTH, NUMBER constantly SICK, ADMISSIONS, DISCHARGES, and DEATHS.

Year.	Regiments or Detachments at the Station.		Mean Strength during the Year.	Mean Number constantly sick in Hospital.	Admissions into Hospital during the Year.	Discharged from Hospital.	Deaths.
	Names.	Strength.					
1847	80th Foot	257·75	951	14	361	366	5
1847	98th Foot	693·25		91·75	2,264	2,070	124
1848	80th Foot	792	792	85·75	1,318	1,190	37
1849	80th Foot	696	696	46·5	878	849	42
1850	80th Foot	849	849	68·5	1,075	1,025	28
1851	80th Foot	814	814	67·25	1,242	1,214	52
1852	29th Foot	530·75	554	44	1,268	1,202	32
1852	80th Foot	22·75		75	20	18	2
1852	Detachments	1		—	4	3	1
1853	29th Foot	869	870	97	1,918	1,895	62
1853	Detachments	1·25		—	6	6	—
1854	96th Foot	600	601	56	1,281	1,207	31
1854	Detachments	1		25	4	4	—
1856	10th Foot	891	891	76·75	1,767	1,724	30
	Total	7,018·75	7,018	648·5	13,406	12,773	446
	Mean	—	779	72	1,601	1,419	49

No. 60.

BENGAL.—JULLUNDUR STATION.

1848	68th Foot	257	257	22·25	488	437	10
1849	32nd Foot	716·5	774	50·25	1,162	1,042	36
1849	Detachments	57		13·5	263	229	7
1850	32nd Foot	786	786	57	1,187	1,156	28
1851	32nd Foot	723	723	53	1,236	1,205	22
1852	60th Foot	899	899	95	1,781	1,719	45
1853	60th Foot	825	825	60·25	1,578	1,571	26
1854	60th Foot	649	649	52·25	1,132	1,380	15
1855	8th Foot	213	664	18	484	531	3
1855	60th Foot	451·5		38·25	1,004	979	2
1856	8th Foot	895	895	94·25	2,473	2,435	36
	Total	6,472	6,472	555	12,788	12,684	230
	Mean	—	719	61·77	1,421	1,409	25

No. 61.

BENGAL.—DARJEELING STATION.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

(B.)—RETURN showing for each YEAR the REGIMENTS at the STATION, MEAN STRENGTH, NUMBER constantly SICK, ADMISSIONS, DISCHARGES, and DEATHS.

Year.	Regiments or Detachments at the Stations.		Mean Strength during the Year.	Mean Number constantly sick in Hospital.	Admissions into Hospital during the Year.	Discharged from Hospital.	Deaths.
	Names.	Strength.					
1848	Convalescent Depôt	- 21	21	3.5	32	21	1
1849	Convalescent Depôt	- 34	34	5	75	66	7
1850	80th Foot	- 103.5	146	4	104	99	4
1850	Convalescent Depôt	- 42.5					
1851	80th Foot	- 91.25	173	3.5	90	86	1
1851	Convalescent Depôt	- 82					
1852	Convalescent Depôt	- 67	67	4.25	69	66	3
1853	Convalescent Depôt	- 51	51	5.75	79	74	2
1854	Convalescent Depôt	- 100	100	10.25	113	113	3
1855	Convalescent Depôt	- 17	17	1.75	33	38	—
1856	Convalescent Depôt	- 33	33	2.75	81	81	—
	Total	- 642.25	642	50.25	837	798	26
	Mean	- —	71	5.58	93	88	3

No. 62.

BENGAL.—WUZEERABAD STATION.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

(B.)—RETURN showing for each YEAR the REGIMENTS at the STATION, MEAN STRENGTH, NUMBER constantly SICK, ADMISSIONS, DISCHARGES, and DEATHS.

Year.	Regiments or Detachments at the Station.		Mean Strength during the Year.	Mean Number constantly sick in Hospital.	Admissions into Hospital during the Year.	Discharged from Hospital.	Deaths.
	Names.	Strength.					
1849	9th Lancers	485·25	1,655	41	529	474	55
1849	24th Foot	567·25		34·5	1,026	1,045	24
1849	29th Foot	599·5		111	980	1,033	60
1849	Detachments	3·5		1	15	14	3
1850	9th Lancers	617	2,033	44·25	935	931	23
1850	24th Foot	666·25		60	1,417	1,384	38
1850	29th Foot	746·25		77	2,069	2,029	52
1850	Detachments	3·25		·75	11	9	2
1851	3rd Dragoons	685	2,059	50·25	795	752	21
1851	10th Foot	667·75		57·25	1,125	1,126	26
1851	24th Foot	706		75·5	1,262	1,252	5
1851	Detachments	1·5		·25	5	1	2
1852	3rd Dragoons	507·75	1,573	32·5	560	553	11
1852	10th Foot	919·5		78·75	1,305	1,242	35
1852	24th Foot	146		9	243	250	—
1853	10th Foot	719·75	912	54·75	941	862	18
1853	61st Foot	192·5		8·75	306	310	4
1854	61st Foot	945	945	56·5	1,158	1,278	30
1855	61st Foot	990	990	48	1,092	1,082	11
1856	61st Foot	741	741	41·75	1,573	1,457	8
	Total -	10,910	10,908	882·75	17,349	17,084	428
	Mean -	—	1,363	110·32	2,169	2,136	53

No. 63.

BENGAL.—RAWUL PINDI STATION.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

(B.)—RETURN showing for each YEAR the REGIMENTS at the STATION, MEAN STRENGTH, Number constantly SICK, ADMISSIONS, DISCHARGES, AND DEATHS.

Year.	Regiments or Detachments at the Station.		Mean Strength during the Year.	Mean Number constantly sick in Hospital.	Admissions into Hospital during the Year.	Discharged from Hospital.	Deaths.
	Names.	Strength.					
1849	53rd Foot	- - 690	690	62·25	1,699	1,676	51
1850	53rd Foot	- - 863	863	51	1,381	1,373	28
1851	10th Foot	- - 20·75	698	2	8	8	—
1851	53rd Foot	- - 676		33·25	890	846	11
1851	Detachments	- - 1·5		·5	6	3	1
1852	22nd Foot	- - 991·75	995	79·25	1,855	1,802	29
1852	Detachments	- - 3·75		25	4	5	—
1853	22nd Foot	- - 554	786	50·25	821	741	15
1853	87th Foot	- - 232·5		14·25	227	239	4
1854	87th Foot	- - 959	959	60·25	1,777	1,692	18
1855	75th Foot	- - 316·25	1,027	32·75	1,683	1,766	10
1855	87th Foot	- - 710·75		38·25	1,316	1,312	1
1856	24th Foot	- - 243·25	1,118	55·25	3,137	3,057	24
1856	75th Foot	- - 873		58·5	2,507	2,526	22
1856	Detachments	- - 2		·75	6	7	1
	Total	- - - 7,137·5	7,136	563·5	17,317	17,073	215
	Mean	- - - —	892	70	2,164	2,134	27

No. 64.

BENGAL.—PESHAWUR STATION.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

(B.)—RETURN showing for each YEAR the REGIMENTS at the STATION, MEAN STRENGTH, NUMBER constantly SICK, ADMISSIONS, DISCHARGES, and DEATHS.

Year.	Regiments or Detachments at the Station.		Mean Strength during the Year.	Mean Number constantly sick in Hospital.	Admissions into Hospital during the Year.	Discharged from Hospital.	Deaths.	
	Names.	Strength.						
1849	60th Foot	-	207.75	829	30.50	782	637	11
1849	61st Foot	-	621.25		36.	874	861	37
1850	61st Foot	-	1,008.5	1,864	109.5	3,348	3,160	97
1850	98th Foot	-	855.5		112.25	3,056	2,861	89
1851	61st Foot	-	957.25	1,668	103.5	2,831	2,831	51
1851	98th Foot	-	711.25		81.75	2,059	2,098	57
1852	32nd Foot	-	1,002	1,815	128	3,882	3,761	78
1852	53rd Foot	-	813.5		115	3,301	3,199	60
1853	22nd Foot	-	159.25	1,916	15.75	785	704	10
1853	32nd Foot	-	846		104.50	3,697	3,746	25
1853	53rd Foot	-	911.25	1,544	106.25	3,505	3,481	58
1854	22nd Foot	-	639.5		69.25	1,894	1,787	33
1854	75th Foot	-	848.5	1,937	122.75	3,727	3,598	81
1854	Detachments	-	56.25		1.25	23	23	—
1855	24th Foot	-	960.25	1,820	98	3,158	3,106	24
1855	75th Foot	-	616.75		71.25	2,503	2,497	37
1855	87th Foot	-	243	1,937	14.25	972	912	5
1856	24th Foot	-	753.75		65	3,306	3,219	32
1856	27th Foot	-	219	1,937	18.75	793	807	9
1856	87th Foot	-	961.75		137.25	6,475	6,471	48
1856	Detachments	-	3	1,937	50	15	14	1
	Total	-	13,395.25		13,393	1,541.25	50,986	49,773	843
	Mean	-	—	1,674	193	6,373	6,221	105

No. 65.

BENGAL.—KUSSOWLIE STATION.

1847	29th Foot	-	881	881	57.5	871	833	47
1848	29th Foot	-	534	534	30.5	483	424	30
1850	61st Foot	-	208	208	37.75	534	503	—
1852	61st Foot	-	252	252	13.5	284	313	5
1853	61st Foot	-	246	246	10.75	437	460	4
1854	32nd Foot	-	598.25	715	61.5	2,123	2,073	15
1854	Detachments	-	116.75		7.75	157	156	1
1855	32nd Foot	-	227	227	17.85	341	326	14
1856	32nd Foot	-	446.75	458	37.75	691	644	19
1856	Detachments	-	11		1.25	7	7	—
	Total	-	8,520.75	8,521	276.1	5,928	5,739	135
	Mean	-	—	440	34.5	741	717	17

No. 66.

BENGAL.—SEALKOTE STATION.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS
AND MEN.(B.)—RETURN showing for each YEAR the REGIMENTS at the STATION, MEAN STRENGTH, NUMBER constantly
SICK, ADMISSIONS, DISCHARGES, and DEATHS.

Year.	Regiments or Detachments at the Station.		Mean Strength during the Year.	Mean Number constantly sick in Hospital.	Admissions into Hospital during the Year.	Discharged from Hospital.	Deaths.
	Names.	Strength.					
1850	3rd Dragoons - -	158·25	462	9·25	165	214	2
1850	24th Foot - -	304		17·75	464	446	4
1851	24th Foot - -	240	240	14·75	454	444	8
1852	24th Foot - -	847	847	66·25	1,455	1,405	16
1853	24th Foot - -	874	874	77·75	1,527	1,546	22
1854	24th Foot - -	716	716	45·75	906	846	15
1855	27th Foot - -	679	731	44·25	1,351	1,300	37
1855	Detachment - -	51·75		6	184	188	3
1856	27th Foot - -	692	692	48·25	1,375	1,317	13
	Total - - -	4,562	4,562	330	7,881	7,706	120
	Mean - - -	—	652	47·14	1,126	1,101	17

No. 67.

BENGAL.—AGRA STATION.

1847	24th Foot - -	953	953	65·75	2,316	2,267	84
1848	24th Foot - -	872	872	26·75	916	877	26
1849	Depôt - - -	23	23	3·75	61	57	—
1852	75th Foot - -	85	85	7·25	184	162	1
1853	75th Foot - -	252	252	24·5	575	549	14
1854	8th Foot - - -	907	918	77·25	1,928	1,865	19
1854	Detachments - -	11·25		2·75	29	27	2
1855	8th Foot - - -	687	687	70·5	1,827	1,755	14
	Total - - -	3,790·25	3,790	278·5	7,836	7,559	160
	Mean - - -	—	541	39·78	1,119	1,079	23

No. 68.

BENGAL.—DUM DUM STATION.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

(B.)—RETURN showing for each YEAR the REGIMENTS at the STATION, MEAN STRENGTH, NUMBER constantly SICK, ADMISSIONS, DISCHARGES, and DEATHS.

Year.	Regiments or Detachments at the Station.		Mean Strength during the Year.	Mean Number constantly sick in Hospital.	Admissions into Hospital during the Year.	Discharged from Hospital.	Deaths.
	Names.	Strength.					
1848	18th Foot	91	91	4.25	69	46	—
1849	70th Foot	246.25	415	11	412	312	29
1849	Detachment	169		12.25	228	214	14
1852	Detachment	11	11	2.75	43	40	2
1853	Detachment	4	4	.25	1	2	—
1854	80th Foot	164	396	12.75	181	230	2
1854	35th Foot	174.5		12.25	275	206	1
1854	Detachment	57		—	9	9	—
1855	35th Foot	99	99	11.75	156	137	5
1856	53rd Foot	512	512	51.50	1,295	1,201	66
1856	Detachment	.25		—	2	15	1
	Total	1,528	1,528	118.75	2,671	2,412	120
	Mean	—	218	16.96	381	344	17

No. 69.

BENGAL.—CAWNPORE STATION.

1847	21st Foot	775.75	800	67.25	2,882	2,814	52
1847	62nd Foot	24.25		.5	1	—	1
1850	10th Foot	114.75	1,159	12.5	263	271	—
1850	96th Foot	935.25		82	1,712	1,699	50
1850	Detachments	109	.5	41	29	2	
1851	70th Foot	918	1,030	114	2,090	2,031	57
1851	Detachments	112		17.5	526	499	13
1852	70th Foot	937.75	942	110	2,386	2,300	46
1852	Detachments	4.5		.5	13	12	1
1853	70th Foot	833	833	96.5	2,670	2,502	230
1854	Detachments	177	177	10.75	323	306	3
1856	Depôt	22	22	3.75	25	10	—
	Total	4,973.25	4,973	514.75	12,932	12,473	455
	Mean	—	710	73.63	1,847	1,782	65

No. 70.

BENGAL.—ALLAHABAD STATION.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS
AND MEN.(B.)—RETURN showing for each YEAR the REGIMENTS at the STATION, MEAN STRENGTH, NUMBER constantly
SICK, ADMISSIONS, DISCHARGES, and DEATHS.

Year.	Regiments or Detachments at the Station.		Mean Strength during the Year.	Mean Number constantly sick in Hospital.	Admissions into Hospital during the Year.	Discharged from Hospital.	Deaths.
	Names.	Strength.					
1847	H. M. Troops (Det.)	41	41	—	23	39	1
1848	H. M. Troops	38	38	1·25	35	21	2
1849	Recruit Depôt	18	18	4·75	63	57	8
1850	Recruit Depôt	288	288	34	761	701	63
1854	96th Foot	41	41	2·25	25	25	—
1855	53rd Foot	242	242	6·25	138	159	8
1856	6th Dragoon Guards	148	148	2·25	72	76	1
	Total	816	816	50·75	1,122	1,078	83
	Mean	—	102	7·25	160	154	12

No. 71.

BENGAL.—CHINSURAH STATION.

1847	H. M. Troops, Depôt	143	143	·75	43	43	—
1849	96th Foot	184·5	184	6·25	185	133	13
1851	Recruits ; Detachments	103	103	2	63	58	1
1852	29th Foot	77	161	6·25	176	203	3
1852	Detachment	84·25						4	138	145	2
1853	Recruits ; Detachment	72	72	7·75	189	181	6
1854	Detachments	29	29	1·5	35	42	—
	Total	692·75	692	28·50	829	805	25
	Mean	—	115	4·6	138	134	4

No. 72.

BENGAL.—DUGSHAI STATION.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

(B.)—RETURN showing for each YEAR the REGIMENTS at the STATION, MEAN STRENGTH, NUMBER constantly SICK, ADMISSIONS, DISCHARGES, and DEATHS.

Year.	Regiments or Detachments at the Station.		Mean Strength during the Year.	Mean Number constantly sick in Hospital.	Admissions into Hospital during the Year.	Discharged from Hospital.	Deaths.
	Names.	Strength.					
1850	22nd Foot - -	688	688	49·75	1,281	1,286	19
1851	22nd Foot - -	762·25	763	42·25	953	967	11
1851	60th Foot. - -	·75		—	3	3	—
1852	98th Foot - -	908	960	82·75	1,580	1,540	30
1852	Detachments - -	52·5		11·5	129	126	3
1853	98th Foot - -	725·5	758	50·25	885	772	20
1853	Detachments - -	32·5		6	74	70	4
1854.	53rd Foot - -	518·75	575	59·75	1,810	1,309	31
1854	Detachments - -	56·25		4	111	86	2
1855	53rd Foot - -	840·5	567	39·5	760	759	35
1855	Detachments - -	27		4·5	34	42	10
	Total - - -	4,312.	4,311	350·25	7,620	6,960	165
	Mean - - -	—	719	58	1,270	1,160	27

No. 73.

BENGAL.—MURREE STATION.

1851	Convalescent Depôt - -	60	60	9·25	92	89	3
1852	Invalid Depôt - -	47	47	10·75	127	123	6
1853	Invalid Depôt - -	53	53	9·5	181	177	4
1854	Invalid Depôt - -	99·25	99	12	142	129	8
1855	Invalid Depôt - -	100	100	35·5	245	236	9
1856	Invalid Depôt - -	66	66	12·5	171	168	8
	Total - - -	425·25	425	78·5	958	922	38
	Mean - - -	—	71	13	159	154	5

No. 74.

BENGAL.—KURRACHEE STATION.

1853	3rd Dragoons - -	156·5	321	3·25	29	43	—
1853	Recruits' Detachment - -	165		3	74	45	
1854	Detachments - -	85·75	86	7	133	145	2
1855	Detachments - -	94	94	10·25	257	253	9
1856	Depôt - -	71	71	10·25	187	190	7
	Total - - -	571·75	572	33·75	680	676	19
	Mean - - -	—	143	8·43	170	169	5

No. 75.

BENGAL.—SUBATHOO STATION.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

(B.)—RETURN showing for each YEAR the REGIMENTS at the STATION, MEAN STRENGTH, NUMBER constantly SICK, ADMISSIONS, DISCHARGES, and DEATHS.

Year.	Regiments or Detachments at the Station.		Mean Strength during the Year.	Mean Number constantly sick in Hospital.	Admission into Hospital during the Year.	Discharged from Hospital.	Deaths.
	Names.	Strength.					
1853	Detachments - -	4	4	·5	10	5	—
1854	Detachments - -	318	318	23·25	458	427	4
1855	Detachments - -	117	117	18·25	213	210	18
	Total - - -	439	439	42	681	642	22
	Mean - - -	—	146	14	227	214	7

No. 76.

BENGAL.—GOVINDGHUR STATION.

1851	Detachments - -	81	81	3·75	185	181	—
1852	Detachments - -	26	26	·5	2	5	1
	Total - - -	107	107	4·25	187	186	1
	Mean - - -	—	53	2·12	93	93	·5.

No. 77.

BENGAL.—BERHAMPORE STATION.

1849	87th Foot - -	105	105	5	62	80	9
1855	Detachments - -	41	41	2·75	78	86	—
	Total - - -	146	146	7·75	140	116	9
	Mean - - -	—	73	3·87	75	58	4·5

No. 78.

BENGAL.—BASID KHAIL STATION.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

(B.)—RETURN showing for each YEAR the REGIMENTS at the STATION, MEAN STRENGTH, NUMBER constantly SICK, ADMISSIONS, DISCHARGES, and DEATHS.

Year.	Regiments or Detachments at the Station.		Mean Strength during the Year.	Mean Number constantly sick in Hospital.	Admissions into Hospital during the Year.	Discharged from Hospital.	Deaths.
	Names.	Strength.					
1854	75th Foot - -	43	43	'25	8	10	—
	Total and Mean -	—	43	'25	8	10	—

No. 79.

BENGAL.—GHAZEEPORE STATION.

1849	96th Foot - -	404	404	31·25	722	668	19
	Total and Mean -	—	404	31·25	722	668	19

No. 80.

BENGAL.—LUCKNOW.

1856	52nd Foot - -	628·75	628·75	39·25	836	840	81
	Total and Mean -	—	628	39·25	836	840	81

No. 81.

BOMBAY.—KIRKEE STATION.—CAVALRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS
AND MEN.

Aggregate Strength for 10 Years - - - - - 6,559
 Mean Annual Strength - - - - - 656.

RETURN showing (C.) the Number of ATTACKS of SICKNESS ; (E.) the Number DISCHARGED to DUTY ; and
 (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Five Years, 1847 to 1851.			Five Years, 1852 to 1856.			Total for 10 Years.			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES -	7,660	7,580	86	6,060	5,947	40	13,720	13,527	126	2,091.78	19.20
	CLASSES.											
I.	ZYMOTIC DISEASES -	4,905	4,879	56	4,165	4,084	27	9,070	8,963	83	1,382.84	12.65
II.	CONSTITUTIONAL -	27	18	11	31	29	3	58	47	14	8.84	2.13
III.	LOCAL - - - - -	2,079	2,033	19	1,367	1,346	10	3,446	3,379	29	525.38	4.42
V.	VIOLENCE - - - - -	649	650	—	497	488	—	1,146	1,138	—	174.72	—
	ORDERS.											
I.	ORDER 1.—Miasmatic Dis.											
	Small-pox - - - - -	—	—	—	3	5	—					
	Measles - - - - -	—	—	—	3	3	—					
	Quinsy - - - - -	57	50	1	73	72	—					
	Catarrh and Influenza -	424	426	—	174	177	1					
	Ophthalmia - - - - -	125	125	—	68	61	—					
	Fever (C. C.) - - - - -	1,285	1,287	16	388	378	6					
	Erysipelas - - - - -	10	10	—	8	7	—	7,107	7,028	82	1,083.56	12.5
	Dysentery - - - - -	171	179	14	68	63	3					
	Diarrhœa - - - - -	727	727	—	290	289	—					
	Cholera - - - - -	59	39	20	24	11	13					
	Ague - - - - -	418	409	—	1,682	1,670	1					
	Remittent Fever - - -	32	28	4	198	195	2					
	Rheumatism - - - - -	550	552	—	270	265	1					
	ORDER 2.—Euthetic Dis.											
	Syphilis, &c. - - - - -	984	985	1	829	810	—	1,848	1,826	1	281.75	.15
	Stricture of Urethra -	13	12	—	22	19	—					
	ORDER 3.—Dietic Dis.											
	Alcoholism { a. Del. Tremens	7	7	—	9	9	—	25	25	—	3.81	—
	{ b. Intemperance - - -	—	—	—	9	9	—					
	ORDER 4.—Parasitic Dis.											
	Vermes - - - - -	19	19	—	47	41	—					
	Psora - - - - -	5	5	—	—	—	—	90	84	—	13.72	—
	Dracunculus - - - - -	19	19	—	—	—	—					
II.	ORDER 1.—Diathetic Dis.											
	Lumbago - - - - -	2	2	—	6	6	—					
	Gout - - - - -	—	—	—	2	2	—	18	18	3	2.74	.46
	Dropsy - - - - -	2	2	1	6	6	1					
	Cancer - - - - -	—	—	1	—	—	—					
	ORDER 2.—Tubercular Dis.											
	Scrofula - - - - -	6	6	—	11	11	—					
	Phthisis - - - - -	9	1	8	3	1	2	40	29	11	6.1	1.68
	Hæmoptysis - - - - -	8	7	1	3	3	—					

No. 81.—Bombay ; Kirkee Station ; Cavalry. Stational Returns. European Troops ; H.M. Regts.—*cont.*

Class.	Diseases.	Five Years, 1847 to 1851.			Five Years, 1852 to 1856.			Total for 10 Years.			Annual Ratio per 1000 of Mean Strength.					
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.				
III.	ORDER 1.															
	Cephalitis	49	—	1	20	18	—	135	79	6	20.58	.92				
	Apoplexy	4	2	4	—	—	—									
	Paralysis	8	8	—	8	7	—									
	Odontalgia	9	6	—	2	2	—									
	Insanity	—	1	—	2	2	—									
	Neuralgia	—	—	—	3	3	—									
	Epilepsy	3	3	—	6	5	1									
	Otitis	5	5	—	8	8	—									
	Dyseæcia	4	5	—	3	3	—									
	Brain Disease, &c.	—	—	—	1	1	—									
	ORDER 2.															
	Pericarditis	12	10	—	23	24	—	116	114	1	17.68	.15				
	Aneurism	—	—	—	6	5	1									
	Varix	6	6	—	8	8	—									
	Heart Disease, &c.	60	60	—	1	1	—									
	ORDER 3.															
	Bronchitis	7	7	—	11	11	—	61	58	3	9.31	.46				
	Pleurisy	—	—	—	15	15	—									
	Pneumonia	22	20	2	3	2	1									
	Asthma	2	2	—	—	—	—									
	Epistaxis	1	1	—	—	—	—									
	ORDER 4.															
	Obstipatio	59	59	—	25	25	—	1,477	1,478	19	225.19	2.89				
	Gastritis	3	3	—	4	4	—									
	Enteritis	2	2	—	9	7	2									
	Peritonitis	—	—	—	1	1	—									
	Ascites	1	—	1	2	—	2									
	Prolapsus Ani	1	1	—	—	—	—									
	Hernia	10	10	—	2	1	1									
	Ileus and Colic	230	230	—	166	165	—									
	Hæmorrhoids	48	48	—	26	26	—									
	Fistula	7	7	—	5	5	—									
	Hepatitis	211	222	10	122	119	1									
	Jaundice	28	28	—	16	14	1									
	Spleen Disease, &c.	17	17	1	16	16	—									
	Dyspepsia	312	310	—	154	158	—									
	ORDER 5.															
	Nephritis	—	—	—	5	4	—	14	13	—	2.13	—				
	Ischuria	—	—	—	1	1	—									
	Hæmaturia	—	—	—	1	1	—									
	Dysuria	5	5	—	—	—	—									
	Stone	1	1	—	—	—	—									
	Cystitis	—	—	—	1	1	—									
	ORDER 6.															
Hydrocele	2	2	—	2	2	—	5	5	—	.76	—					
Sarcocoele	1	1	—	—	—	—										
ORDER 7.																
Joint Disease, &c.	4	4	—	3	3	—	8	8	—	1.22	—					
Contractura	—	—	—	1	1	—										
ORDER 8.																
Phlegmon	571	575	—	487	482	—	1,630	1,624	—	248.51	—					
Abscess																
Ulcer																
Tumor																
Skin Disease, &c.	2	2	—	20	20	—										
V.																
ORDER 1.— <i>Accident or Negligence.</i>																
Burns or Scalds	2	2	—	2	1	—	1,113	1,113	—	169.69	—					
Contusion	393	394	—	284	284	—										
Sub-luxation	109	113	—	90	89	—										
Luxation	2	1	—	2	3	—										
Fracture	14	14	—	5	4	—										
Wounds { Gunshot	1	—	—	1	2	—										
{ Incised	127	125	—	80	80	—										
Amputatio	—	—	—	1	1	—										
ORDER 5.																
Punitus	1	1	—	7	6	—						33	25	—	5.03	—
Observatio	—	—	—	25	18	—										

BOMBAY.—DEESA STATION.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 10 Years - - - - - 8,930
 Mean Annual Strength - - - - - 893

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Five Years, 1847 to 1851.			Five Years, 1852 to 1856.			Total for 10 Years.			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES -	8,506	8,302	166	5,853	5,696	70	14,359	13,998	236	1,608	26.41
	CLASSES.											
I.	ZYMOTIC DISEASES -	6,039	5,910	103	4,089	4,002	26	10,128	9,912	129	1,134.21	14.44
II.	CONSTITUTIONAL -	126	116	13	106	91	13	232	207	26	25.98	2.91
III.	LOCAL - - - -	2,021	1,952	46	1,464	1,404	29	3,485	3,356	75	390.26	8.39
IV.	DEVELOPMENTAL -	—	—	—	7	7	—	7	7	—	.78	—
V.	VIOLENCE - - -	320	324	4	87	192	2	507	516	6	56.77	.67
	ORDERS.											
I.	ORDER 1.—Miasmatic Dis.											
	Small-pox - - -	6	5	—	6	5	1	7,677	7,525	118	859.69	13.21
	Measles - - - -	—	—	—	7	7	—					
	Erythema - - -	1	1	—	—	—	—					
	Quinsy - - - -	59	55	1	41	40	—					
	Cutarrh and Influenza -	294	293	5	260	261	1					
	Ophthalmia - - -	217	215	—	194	193	—					
	Fever (C. C.) - - -	773	766	5	456	470	1					
	Typhus - - - -	2	—	2	—	—	—					
	Erysipelas - - -	4	5	—	3	3	—					
	Dysentery - - -	296	278	25	80	73	7					
	Diarrhoea - - -	502	492	15	252	233	2					
	Cholera - - - -	50	27	23	3	1	2					
	Ague - - - - -	1,078	1,079	1	1,415	1,398	—					
	Remittent Fever -	633	592	18	106	98	8					
	Rheumatism - - -	595	589	—	344	346	1					
	ORDER 2.—Euthetic Dis.											
	Syphilis, &c. - - -	1,402	1,398	4	832	787	1	2,266	2,220	5	253.75	.56
	Stricture of Urethra -	15	17	—	15	16	—					
	Lepra - - - - -	2	2	—	—	—	—					
	ORDER 3.—Dietic Dis.											
	Purpura and Scurvy -	66	63	4	39	40	—	126	124	6	14.16	.67
	Alcoholism, Del. Tremens -	9	9	—	12	12	2					
	ORDER 4.—Parasitic Dis.											
	Vermes - - - - -	13	12	—	24	19	—	59	53	—	6.61	—
	Dracunculus - - -	22	22	—	—	—	—					
II.	ORDER 1.—Diathetic Dis.											
	Lumbago - - - -	46	44	—	40	41	—	106	101	3	11.87	.33
	Dropsy - - - - -	13	10	2	7	6	1					
	ORDER 2.—Tubercular Dis.											
	Morbus Coxarius - -	4	6	—	2	2	—	126	106	23	14.11	2.58
	Scrofula - - - -	36	41	—	26	22	1					
	Phthisis - - - -	21	9	11	29	18	11					
	Hæmoptysis - - -	6	6	—	2	2	—					
III.	ORDER 1.											
	Cephalitis - - - -	18	18	—	69	68	—	342	318	18	38.3	2.01
	Apoplexy - - - -	8	5	4	20	12	8					
	Paralysis - - - -	17	11	4	14	10	2					
	Odontalgia - - - -	1	2	—	2	2	—					
	Insanity - - - -	10	10	—	26	25	—					
	Neuralgia - - - -	5	5	—	2	2	—					
	Epilepsy - - - -	10	10	—	9	9	—					
	Chorea - - - - -	—	—	—	1	—	—					
	Otitis - - - - -	78	76	—	47	47	—					
	Brain Disease, &c. -	1	1	—	—	—	—					
	Dysecœa - - - - -	1	2	—	3	3	—					

No. 82.—Bombay ; Deesa Station; Infantry. Stational Returns. European Troops ; H.M. Regts.—cont.

Class.	Diseases.	Five Years, 1847 to 1851.			Five Years, 1852 to 1856.			Total for 10 Years.			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
III.	ORDER 2.											
	Pericarditis	12	12	1	55	53	3	117	118	6	13.10	.67
	Aneurism	—	—	—	1	1	—					
	Varix	2	2	—	6	7	—					
	Heart Disease, &c.	22	18	2	25	25	—					
	ORDER 3.											
	Epistaxis	4	4	—	1	1	—	195	185	8	21.83	.89
	Laryngitis	—	—	—	1	1	—					
	Bronchitis	52	47	1	38	38	1					
	Pleurisy	2	2	—	14	14	1					
	Pneumonia	45	40	4	20	19	—					
	Asthma	6	6	1	12	13	—					
	ORDER 4.											
	Dyspepsia	347	345	1	169	144	—	1,943	1,865	33	217.59	4.26
	Gastritis	4	4	—	10	9	1					
	Enteritis	5	4	—	3	2	1					
	Peritonitis	6	7	1	3	1	2					
	Ascites	1	—	1	5	2	1					
Prolapsus Ani.	1	1	—	4	5	—						
Hernia	7	6	—	9	10	—						
Ileus and Colic	118	119	—	79	68	—						
Hæmatemesis	5	4	—	1	1	1						
Stricture of Rectum	3	3	—	1	2	—						
Fistula	—	—	—	8	5	—						
Hæmorrhoids	60	61	—	39	40	—						
Obstipatio	140	141	—	34	35	—						
Hepatitis	407	378	24	282	279	4						
Jaundice	33	33	—	32	28	1						
Spleen Disease, &c.	54	55	—	73	73	—						
ORDER 5.												
Nephritis	9	8	1	3	2	1	34	34	2	3.81	.22	
Ischuria	—	—	—	8	10	—						
Enuresis	1	1	—	—	—	—						
Dysuria	12	12	—	—	—	—						
Diabetes	—	—	—	1	1	—						
ORDER 6.												
Hydrocele	9	9	—	11	8	1	20	17	2	2.24	.22	
ORDER 7.												
Contractura	—	—	—	2	2	—	20	19	—	2.24	—	
Arthritis	2	2	—	—	—	—						
Joint Disease, &c.	1	—	—	15	15	—						
ORDER 8.												
Phlegmon	277	273	—	165	162	—	814	780	1	91.15	.12	
Abscess												
Ulcer												
Tumor												
Skin Disease, &c.	24	20	—	15	16	—						
IV.	ORDER 4.											
	Atrophy	—	—	—	7	7	—	7	7	—	.78	—
V.	ORDER 1.—Accident or Negligence.											
	Burns or Scalds	4	4	—	7	4	—	452	463	6	50.61	.67
	Contusion	133	140	—	98	104	—					
	Sub-luxation	71	70	—	41	42	—					
	Luxation	6	6	—	12	12	—					
	Fracture	7	9	—	9	9	—					
	Wounds { Gunshot	2	2	—	2	2	—					
	{ Incised	43	41	—	16	17	—					
	Morsus Serpentis	1	1	—	—	—	—					
	Drowning	—	—	2	—	—	2					
	Sudden	—	—	2	—	—	—					
	ORDER 5.											
	Punitus	4	4	—	1	1	—	55	53	—	6.16	—
Observatio	49	47	—	1	1	—						

No. 83.

BOMBAY.—POONA STATION.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 10 Years - - - - 12,863
 Mean Annual Strength - - - - 1,286

RETURN showing (C.) the Number of ATTACKS of SICKNESS ; (E.) the Number DISCHARGED to DUTY ; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Five Years, 1847 to 1851.			Five Years, 1852 to 1856.			Total for 10 Years.			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES -	13,315	13,182	247	9,164	8,904	93	22,479	22,086	340	1,747.6	26.43
	CLASSES.											
I.	ZYMOTIC DISEASES -	10,095	9,954	176	6,143	5,980	27	16,238	15,934	203	1,262.4	15.78
II.	CONSTITUTIONAL -	148	123	15	118	110	6	266	233	21	20.69	1.63
III.	LOCAL - - - -	2,467	2,498	53	2,424	2,363	49	4,891	4,861	102	380.24	7.93
V.	VIOLENCE - - - -	605	607	3	479	451	11	1,084	1,058	14	84.27	1.09
	ORDERS.											
I.	ORDER 1.—Miasmatic Dis.											
	Small-pox - - - -	4	3	1	17	14	3	12,894	12,597	196	1,002.43	15.24
	Vaccinia - - - -	9	9	—	3	3	—					
	Parotitis - - - -	4	4	—	—	—	—					
	Quinsy - - - -	95	92	—	68	69	—					
	Catarrh and Influenza - -	368	366	1	290	291	1					
	Ophthalmia - - - -	501	492	—	200	194	—					
	Fever (C.C.) - - - -	1,803	1,742	19	247	249	2					
	Erysipelas - - - -	15	13	2	8	8	—					
	Dysentery - - - -	583	511	72	78	72	8					
	Diarrhœa - - - -	1,036	1,027	7	250	255	1					
	Cholera - - - -	98	80	46	12	7	5					
	Ague - - - -	1,932	1,971	6	2,997	2,839	2					
	Remittent Fever - - - -	419	440	15	213	216	3					
	Rheumatism - - - -	994	981	2	650	649	—					
	ORDER 2.—Ethetic Dis.											
	Syphilis, &c. - - - -	2,057	2,049	1	991	989	—	3,101	3,096	2	241.08	-15
	Stricture of Urethra - -	11	11	1	42	47	—					
	ORDER 3.—Dietic Dis.											
	Purpura and Scurvy - -	32	32	1	17	17	—	106	100	5	8.24	.39
	Alcoholism, Del. Tremens -	40	36	2	17	15	2					
	ORDER 4.—Parasitic Dis.											
	Vermes - - - -	30	36	—	43	46	—	137	141	—	10.65	—
	Psora - - - -	3	4	—	—	—	—					
	Dracunculus - - - -	61	55	—	—	—	—					
II.	ORDER 1.—Diathetic Dis.											
	Gout - - - -	—	—	—	1	1	—	115	106	3	8.95	.23
	Lambago - - - -	29	23	—	65	65	—					
	Dropsy - - - -	9	8	2	11	9	1					
	ORDER 2.—Tubercular Dis.											
	Morbus Coxarius - - - -	1	1	—	—	—	—	151	127	18	11.74	1.4
	Scrofula - - - -	80	74	—	18	18	—					
	Phthisis - - - -	27	15	13	15	11	4					
	Hæmoptysis - - - -	2	2	—	8	6	1					

No. 83.—Bombay; Poona Station; Infantry. Stational Returns. European Troops H. M. Regts.—cont.

Class.	Diseases.	Five Years, 1847 to 1851.			Five Years, 1852 to 1856.			Total for 10 Years.			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
III.	ORDER 1.											
	Cephalitis	13	12	—	82	80	—	266	252	19	20.68	1.48
	Odontalgia	14	16	—	7	7	—					
	Apoplexy	13	2	13	3	3	—					
	Paralysis	19	18	2	18	16	2					
	Neuralgia	2	1	—	1	1	—					
	Insanity	25	23	1	13	11	—					
	Dysecœa	1	—	—	3	3	—					
	Epilepsy	37	37	—	32	31	1					
	Vertigo	2	2	—	—	—	—					
	Otitis	49	53	—	26	28	—					
	Brain Disease, &c.	5	7	—	—	—	—					
	Nostalgia	1	1	—	—	—	—					
	ORDER 2.											
	Pericarditis	28	24	—	82	66	13	179	154	21	13.92	1.63
	Aneurism	—	—	—	12	7	6					
	Varix	8	9	—	6	6	—					
	Heart Disease, &c.	40	39	1	3	3	1					
	ORDER 3.											
	Epistaxis	2	2	—	3	3	—	220	214	10	17.10	.78
	Bronchitis	53	52	4	40	38	2					
	Pleurisy	27	28	—	3	3	—					
	Hydrothorax	1	1	—	1	1	—					
	Pneumonia	38	33	1	26	25	3					
	Asthma	16	18	—	10	10	—					
	ORDER 4.											
	Dyspepsia	356	363	1	540	543	—	2,983	-2,928	50	231.92	3.9
	Gastritis	7	8	—	13	13	—					
	Enteritis	10	7	3	1	1	—					
	Peritonitis	8	4	1	4	2	2					
	Ascites	1	1	1	3	2	—					
	Hernia	8	6	—	11	13	—					
	Ileus and Colic	294	293	—	224	224	—					
	Hæmatemesis	2	2	—	1	—	1					
	Fistula	3	3	—	2	4	—					
	Hæmorrhoids	70	70	—	52	52	—					
	Obstipatio	120	119	1	29	29	—					
	Hepatitis	449	408	22	457	445	15					
	Jaundice	41	44	—	25	23	2					
	Prolapsus Ani	1	1	—	—	—	—					
	Spleen Disease, &c.	77	74	1	174	174	—					
	ORDER 5.											
	Nephritis	6	6	—	11	10	1	34	34	1	2.64	.07
	Ischuria	—	—	—	9	9	—					
	Dysuria	4	5	—	—	—	—					
	Stone	1	1	—	—	—	—					
	Cystitis	1	1	—	2	2	—					
	ORDER 6.											
	Hydrocele	8	7	—	12	13	—	20	20	—	1.55	—
	ORDER 7.											
	Contractura	1	—	—	—	—	—	14	10	—	1.09	—
	Periostitis	2	3	—	—	—	—					
	Joint Disease, &c.	7	3	—	4	4	—					
	ORDER 8.											
	Phlegmon	442	433	1	239	235	—	1,175	1,150	1	91.34	.07
	Ulcer	202	204	—	200	184	—					
	Tumor	3	4	—	6	7	—					
	Skin Disease, &c.	49	51	—	34	32	—					
V.	ORDER 1.—Accident or Negligence.											
	Burns or Scalds	13	13	—	5	3	—	970	945	14	75.41	1.09
	Contusion	313	319	—	232	213	—					
	Sub-luxation	138	138	—	95	90	—					
	Luxation	3	3	—	5	5	—					
	Fracture	21	20	—	12	11	1					
	Wounds { Gunshot	3	3	—	2	1	—					
	Wounds { Incised	86	83	—	41	41	—					
	Amputatio	—	—	—	1	2	—					
	Drowning	—	—	1	—	—	4					
	Found Dead	—	—	2	—	—	4					
	Sudden	—	—	—	—	—	1					
	Venenatio	—	—	—	—	—	1					
	ORDER 5.											
	Punitus	3	3	—	4	3	—	114	113	—	8.86	—
	Observatio	25	25	—	82	82	—					

No. 84.

BOMBAY.—KURRACHEE STATION.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 9 Years - - - - 10,604
 Mean Annual Strength - - - - 1,178

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Five Years, 1847 to 1851.			Four Years,* 1852 to 1855.			Total for 9 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES -	9,230	9,026	219	10,118	9,867	141	19,348	18,893	360	1,824.74	33.94
	CLASSES.											
I.	ZYMOTIC DISEASES -	6,496	6,358	148	7,860	7,720	86	14,356	14,078	234	1,353.04	22.07
II.	CONSTITUTIONAL -	171	149	26	135	116	19	306	265	45	28.86	4.24
III.	LOCAL - - - -	2,203	2,171	40	1,764	1,675	33	3,967	3,846	73	374.11	6.88
IV.	DEVELOPMENTAL -	1	1	—	6	5	1	7	6	1	.66	.09
V.	VIOLENCE - - - -	359	347	5	353	351	2	712	698	7	67.14	.66
	ORDERS.											
I.	ORDER 1.—Miasmatic Dis.											
	Small-pox - - - -	3	2	1	—	—	—					
	Vaccinia - - - -	—	—	—	1	1	—					
	Quinsy - - - -	98	94	—	46	49	—					
	Catarrh and Influenza -	494	492	1	364	323	2					
	Ophthalmia - - - -	458	462	—	170	176	—					
	Fever (C. C.) - - - -	879	873	9	346	374	—					
	Typhus - - - -	—	—	—	1	1	—					
	Erysipelas - - - -	16	13	—	3	1	1	12,226	12,022	226	1,153.	21.32
	Dysentery - - - -	762	707	54	225	200	23					
	Diarrhœa - - - -	777	773	3	449	438	5					
	Cholera - - - -	66	30	55	18	10	8					
	Ague - - - -	720	686	3	4,369	4,351	6					
	Remittent Fever - - -	403	413	19	520	500	36					
	Rheumatism - - - -	614	638	—	424	415	—					
	ORDER 2.—Ethetic Dis.											
	Syphilis, &c. - - - -	1,104	1,064	—	789	755	—	1,940	1,860	—	182.95	—
	Stricture of Urethra -	17	15	—	30	26	—					
	ORDER 3.—Dietic Dis.											
	Purpura and Scurvy -	14	18	—	17	16	1	127	124	8	11.98	.75
	Alcoholism, Del. Tremens -	38	35	3	58	55	4					
	ORDER 4.—Parasitic Dis.											
	Vermes - - - -	23	29	—	30	29	—					
	Psora - - - -	—	2	—	—	—	—	63	72	—	6.04	—
	Dracunculus - - - -	12	12	—	—	—	—					
II.	ORDER 1.—Diathetic Dis.											
	Lumbago - - - -	15	19	1	26	27	—	88	86	7	8.3	.66
	Dropsy - - - -	23	21	2	24	19	4					

No. 84.—Bombay; Kurrachee Station; Infantry. Stational Returns. European Troops; H.M. Regts.—cont.

Class.	Diseases.	Five Years, 1847 to 1851.			Four Years,* 1852 to 1855.			Total for 9 Years.*			Annual Ratio per 1000 of Mean Strength.						
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.					
II.	ORDER 2.— <i>Tubercular Dis.</i>																
	Scrofula - - -	86	85	1	45	46	1	} 218	179	38	20.56	3.58					
	Phthisis - - -	37	16	21	31	17	13										
	Hæmoptysis - - -	10	8	1	9	7	1										
III.	ORDER 1.																
	Cephalitis - - -	34	34	—	80	76	—	} 385	360	23	36.31	2.17					
	Apoplexy - - -	19	6	12	8	2	6										
	Odontalgia - - -	2	2	—	3	3	—										
	Paralysis - - -	9	8	—	27	20	3										
	Dyseecœa - - -	10	12	—	4	4	—										
	Insanity - - -	35	42	—	15	14	—										
	Neuralgia - - -	5	5	—	3	3	—										
	Epilepsy - - -	27	28	—	16	19	—										
	Otitis - - -	46	47	—	38	33	—										
	Brain Disease, &c. - - -	1	—	1	3	2	1										
	ORDER 2.																
	Pericarditis - - -	73	70	1	46	39	3	} 242	233	7	22.82	.66					
	Aneurism - - -	1	1	—	11	7	3										
	Varix - - -	12	12	—	32	36	—										
	Heart Disease, &c. - - -	51	51	—	16	17	—										
	ORDER 3.																
	Epistaxis - - -	1	1	—	3	3	—	} 166	162	8	15.65	.75					
	Hydrothorax - - -	1	1	—	—	—	—										
	Bronchitis - - -	27	28	1	27	27	1										
	Pleurisy - - -	10	11	—	15	16	—										
	Pneumonia - - -	36	31	3	7	7	1										
	Asthma - - -	10	9	1	30	29	1										
	ORDER 4.																
	Dyspepsia - - -	187	189	—	293	287	—	} 2,112	2,009	34	199.18	3.21					
	Gastritis - - -	11	11	—	12	12	—										
	Prolapsus Ani - - -	3	2	—	1	—	—										
	Enteritis - - -	2	2	—	6	5	1										
	Peritonitis - - -	5	4	—	—	—	—										
	Ascites - - -	4	3	—	19	15	1										
	Hernia - - -	12	12	—	13	13	—										
	Ileus and Colic - - -	119	91	—	87	89	—										
	Colonitis - - -	1	1	—	—	—	—										
	Stricture of Rectum - - -	2	1	—	—	—	—										
	Fistula - - -	13	13	—	2	2	—										
	Obstipatio - - -	147	147	—	98	98	—										
	Hepatitis - - -	385	362	20	283	232	11										
	Jaundice - - -	74	79	—	24	23	1										
	Hæmorrhoids - - -	75	88	—	41	39	—										
	Spleen Disease, &c. - - -	84	80	—	103	102	—										
	Hæmatemesia - - -	2	4	—	1	—	—										
	Physconia - - -	3	3	—	—	—	—										
	ORDER 5.																
	Nephritis - - -	9	10	—	13	13	—						} 52	52	—	4.91	—
	Enuresis - - -	10	10	—	7	6	—										
	Ichuria - - -	—	—	—	5	5	—										
	Dysuria - - -	6	6	—	—	—	—										
	Diabetes - - -	—	—	—	1	1	—										
	Cystitis - - -	1	1	—	—	—	—										
	ORDER 6.																
	Sarcocœle - - -	2	1	—	—	—	—	} 12	12	—	1.13	—					
	Hydrocœle - - -	4	2	—	6	9	—										
	ORDER 7.																
	Arthritis - - -	1	—	1	—	—	—	} 10	9	1	.94	.09					
	Joint Disease, &c. - - -	5	5	—	2	2	—										
	Contractura - - -	—	—	—	2	2	—										

No. 84.—Bombay; Kurrachee Station; Infantry. Stational Returns. European Troops; H.M. Regts.—*cont.*

Class.	Diseases.	Five Years, 1847 to 1851.			Four Years,* 1852 to 1855.			Total for 9 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
III.	ORDER 8.											
	Phlegmon - - - - }	381	399	—	239	235	—	} 988	1,009	—	93·17	—
	Abscess - - - - }	200	201	—	88	96	—					
	Ulcer - - - - }	8	8	—	9	8	—					
	Tumor - - - - }	37	37	—	26	25	—					
	Skin Disease, &c. - - -											
IV.	ORDER 4.											
	Atrophy - - - -	1	1	—	6	5	1	7	6	1	·66	·09
V.	ORDER 1.— <i>Accident or Negligence.</i>											
	Burns or Scalds - - -	8	9	—	4	4	—	} 672	662	6	63·37	·57
	Contusion - - - -	198	195	—	188	188	—					
	Sub-luxation - - - -	80	77	—	74	74	—					
	Luxation - - - -	9	7	—	3	4	—					
	Fracture - - - -	13	14	—	10	10	—					
	Amputatio - - - -	1	—	1	—	—	—					
	Wounds { Gunshot - - -	1	—	1	—	—	—					
	{ Incised - - - -	32	31	—	48	48	—					
	{ Otherwise - - - -	—	—	—	1	—	1					
	Found dead - - - -	—	—	2	—	—	—					
	Concussio Cerebri - - -	1	—	1	1	1	—					
	ORDER 4.— <i>Suicide (attempted or accomplished).</i>											
	Wounds, Gunshot - - -	—	—	—	—	—	1	—	—	1	—	·09
	ORDER 5.											
	Punitus - - - -	7	7	—	11	10	—	} 40	36	—	3·77	—
	Observatio - - - -	9	7	—	13	12	—					

* No Troops separately accounted for at this Station during the Year 1856.

N.B.—Invalids are included in these Numbers, but the Returns do not enable them to be distinguished.

No. 85.

BOMBAY.—COLABA.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 8 Years - - - - - 3,174
 Mean Annual Strength - - - - - 397

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Five Years, 1847 to 1851.			Three Years,* 1852, 1855, 1856.			Total for 8 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES	3,562	3,736	97	2,967	2,869	48	6,529	6,605	145	2,057·08	45·68
	CLASSES.											
I.	ZYMOTIC DISEASES	2,264	2,336	63	1,816	1,747	22	4,080	4,083	85	1,285·5	26·78
II.	CONSTITUTIONAL	22	16	4	28	23	2	50	39	6	15·75	1·89
III.	LOCAL	1,043	1,041	27	941	919	22	1,984	1,960	49	625·08	15·44
IV.	DEVELOPMENTAL	—	—	—	3	3	—	3	3	—	·94	—
V.	VIOLENCE	233	343	3	179	177	2	412	520	5	129·81	1·57
	ORDERS.											
	ORDER 1.—Miasmatic Dis.											
	Small-pox	1	—	1	—	—	—					
	Quinsy	8	7	—	16	14	—					
	Catarrh and Influenza	45	46	—	64	61	1					
	Ophthalmia	67	72	—	41	42	—					
	Fever (C. C.)	429	428	4	285	287	—					
	Erysipelas	3	3	—	1	1	—					
	Dysentery	377	354	31	91	80	13	3,431	3,390	82	1,081·03	25·83
	Diarrhœa	322	328	1	176	171	—					
	Cholera	47	30	17	6	1	4					
	Agne	317	322	1	422	403	—					
	Remittent Fever	104	110	8	199	185	1					
	Rheumatism	196	235	—	214	209	—					
	ORDER 2.—Euthetic Dis.											
	Syphilis, &c.	302	354	—	252	247	2	568	614	2	178·95	·63
	Stricture of Urethra	1	1	—	13	12	—					
	ORDER 3.—Dietic Diseases.											
	Purpura and Scurvy	8	8	—	5	5	—					
	Alcoholism { a. Del. Tremens	10	10	—	12	11	1	37	36	1	11·66	·83
	{ b. Intemperance	—	—	—	2	2	—					
	ORDER 4.—Parasitic Dis.											
	Vermea	9	8	—	17	16	—					
	Psora	8	9	—	—	—	—	44	43	—	13·86	—
	Dracunculus	10	10	—	—	—	—					
II.	ORDER 1.—Diathetic Dis.											
	Lumbago	4	4	—	5	5	—	14	14	2	4·41	·63
	Dropy	1	1	1	4	4	1					
	ORDER 2.—Tubercular Dis.											
	Morbus Coxarius	—	—	—	1	1	—					
	Scrofula	12	10	—	11	8	—	36	25	4	11·34	1·26
	Phthisis	4	—	3	5	3	1					
	Hæmoptysis	1	1	—	2	2	—					

No 85.—Bombay; Colaba Station; Infantry. Stational Return. European Troops; H. M. Regts.—cont.

Class.	Diseases.	Five Years, 1847 to 1851.			Three Years,* 1852, 1855, 1856.			Total for 8 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
III.	ORDER 1.											
	Cephalitis	2	2	—	30	28	1	136	132	9	42.85	2.83
	Apoplexy	11	7	4	2	—	1					
	Phrenitis	1	1	—	—	—	—					
	Paralysis	7	9	1	3	4	1					
	Insanity	14	16	—	5	5	—					
	Odontalgia	2	2	—	1	1	—					
	Epilepsy	8	8	1	12	10	—					
	Neuralgia	—	—	—	6	7	—					
	Otitis	17	19	—	11	11	—					
	Dysecœa	3	1	—	1	1	—					
	ORDER 2.											
	Pericarditis	5	6	1	50	50	2	75	75	4	23.63	1.26
	Aneurism	—	—	—	5	4	1					
	Varix-	4	3	—	8	8	—					
	Heart Disease, &c.	3	4	—	—	—	—					
	ORDER 3.											
	Bronchitis	16	18	—	25	25	—	79	77	2	24.89	.63
	Pleurisy	1	1	—	7	7	—					
	Pneumonia	2	3	—	3	3	—					
	Asthma	11	9	—	14	11	2					
	ORDER 4.											
	Dyspepsia	289	239	—	337	332	1	1,264	1,223	34	398.25	10.72
	Gastritis	—	—	—	5	4	1					
	Prolapsus Ani	2	2	—	—	—	—					
	Peritonitis	4	1	2	2	1	—					
	Ascites	5	3	2	5	5	1					
	Hæmatemesis	—	—	—	5	5	—					
	Ileus and Colic	33	40	—	37	37	—					
	Hæmorrhoids	37	39	—	9	9	—					
	Fistula	5	4	—	2	3	—					
Obstipatio	18	20	—	23	21	—						
Hepatitis	267	237	16	128	121	11						
Jaundice	10	11	—	8	9	—						
Spleen Disease, &c.	12	11	—	20	18	—						
Enteritis	1	1	—	—	—	—						
ORDER 5.												
Nephritis	1	1	—	4	4	—	15	15	—	4.72	—	
Ischuria	1	1	—	3	3	—						
Enuresis	1	1	—	—	—	—						
Dysuria	4	4	—	—	—	—						
Cystitis	—	—	—	1	1	—						
ORDER 6.												
Hydrocele	5	4	—	2	2	—	7	6	—	2.20	—	
ORDER 7.												
Joint Disease, &c.	—	1	—	4	3	—	4	4	—	1.26	—	
ORDER 8.												
Phlegmon	133	139	—	93	93	—	404	428	—	127.28	—	
Abscess												
Ulcer												
Tumor												
Skin Disease, &c.	14	17	—	12	13	—						
IV. ORDER 4.												
Atrophy	—	—	—	3	3	—	3	8	—	.94	—	
V. ORDER 1.—Accident or Negligence.												
Burns or Scalds	3	3	—	1	1	—	390	398	5	122.87	1.57	
Contusion	135	142	—	103	102	—						
Sub-luxation	53	53	—	35	34	—						
Fracture	8	9	—	7	7	—						
Wounds { Gunshot	—	1	—	—	—	—						
{ Incised	24	25	—	21	21	—						
Found dead	—	—	2	—	—	—						
Sudden	—	—	1	—	—	1						
Drowned	—	—	—	—	—	1						
ORDER 5.												
Punitus	9	9	—	4	4	—	22	22	—	6.94	—	
Observatio	1	1	—	8	8	—						

* No Troops separately accounted for at this Station during the Years 1853 and 1854.

BOMBAY.—EN ROUTE, &c.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 6 Years - - - 2,866
 Mean Annual Strength - - - 478

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (D.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Four Years,* 1847 to 1850.			Two Years,* 1853 and 1855.			Total for 6 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(D.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(D.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(D.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES -	4,092	3,345	81	1,736	1,855	22	5,828	6,200	103	2,033.53	35.92
	CLASSES.											
I.	ZYMOTIC DISEASES -	3,124	3,327	57	1,256	1,341	15	4,380	4,668	72	1,528.3	25.12
II.	CONSTITUTIONAL -	46	40	5	34	44	2	80	84	7	27.91	2.44
III.	LOCAL - - - -	777	830	15	330	410	3	1,157	1,240	18	493.7	6.28
V.	VIOLENCE - - - -	145	148	4	66	60	2	211	208	6	73.62	2.08
	ORDERS.											
I.	ORDER 1.—Miasmatic Dis.											
	Varicella - - - -	3	3	—	—	—	—					
	Quinsy - - - - -	25	32	—	14	14	—					
	Catarrh and Influenza - -	88	95	2	79	82	—					
	Ophthalmia - - - -	106	142	—	27	31	—					
	Fever (C. C.) - - - -	452	517	5	47	50	1					
	Ephemeral - - - -	1	1	—	—	—	—					
	Erysipelas - - - -	1	1	—	1	1	—	3,537	3,783	64	1,234.16	22.35
	Dysentery - - - - -	189	193	20	52	47	6					
	Diarrhoea - - - - -	249	257	1	82	100	1					
	Cholera - - - - -	24	17	17	1	—	1					
	Ague - - - - -	884	926	1	539	583	1					
	Remittent Fever - - - -	391	378	5	20	20	2					
	Rheumatism - - - - -	152	171	1	110	122	—					
	ORDER 2.—Euthetic Dis.											
	Syphilis, &c. - - - -	498	539	2	236	242	—	742	792	2	258.9	.69
	Stricture of Urethra - -	3	4	—	5	7	—					
	ORDER 3.—Dietic Dis.											
	Purpura and Scurvy - -	8	6	—	27	27	—	69	62	6	24.08	2.08
	Alcoholism, Del. Tremens -	21	19	3	13	10	3					
	ORDER 4.—Parasitic Dis.											
	Psora - - - - -	15	12	—	—	—	—	32	1	—	11.16	—
	Vermes - - - - -	5	5	—	3	5	—					
	Dracunculus - - - - -	9	9	—	—	—	—					
II.	ORDER 1.—Diathetic Dis.											
	Lumbago - - - - -	3	2	—	10	11	—	19	18	1	6.63	.36
	Dropsy - - - - -	3	2	1	2	2	—					
	Fungus Hæmatodes - - -	1	1	—	—	—	—					
	ORDER 2.—Tubercular Dis.											
	Morbus Coxarius - - -	1	1	—	—	—	—	61	66	6	21.28	2.18
	Scrofula - - - - -	20	19	—	5	11	—					
	Phthisis - - - - -	11	8	4	17	18	2					
	Hæmoptysis - - - - -	7	7	—	—	2	—					

No. 86.—Bombay; Troops en Route, &c.; Infantry. Stational Returns. European Troops; H. M. Regts.—*cont.*

Class.	Diseases.	Four Years,* 1847 to 1850.			Two Years,* 1853 and 1855.			Total for 6 Years.*			Annual Ratio per 1000 of Mean Strength.						
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.					
III.	ORDER 1.																
	Cephalitis - - - - -	12	13	—	25	30	—	116	128	3	40·47	1·04					
	Vertigo - - - - -	1	1	—	1	2	—										
	Apoplexy - - - - -	4	2	1	1	—	1										
	Paralysis - - - - -	8	10	—	12	14	—										
	Insanity - - - - -	10	18	—	3	3	—										
	Neuralgia - - - - -	4	3	—	1	—	—										
	Epilepsy - - - - -	3	3	—	3	4	—										
	Otitis - - - - -	19	15	—	5	7	—										
	Dyseæa - - - - -	3	3	—	—	—	—										
	Brain Disease, &c. - - -	1	—	1	—	—	—										
	ORDER 2.																
	Trismus Idiopathicus - -	1	—	1	—	—	—	46	49	1	16·06	·36					
	Pericarditis - - - - -	15	18	—	17	17	—										
	Varix - - - - -	—	—	—	6	5	—										
	Heart Disease, &c. - - -	—	1	—	7	8	—										
	ORDER 3.																
	Epistaxis - - - - -	2	2	—	—	—	—	63	66	3	21·99	1·04					
	Bronchitis - - - - -	19	16	1	8	8	—										
	Pleurisy - - - - -	3	3	1	3	9	—										
	Pneumonia - - - - -	6	7	1	3	2	—										
	Asthma - - - - -	11	13	—	5	6	—										
	ORDER 4.																
	Dyspepsia - - - - -	75	80	—	45	51	1	634	680	11	221·23	3·84					
	Gastritis - - - - -	3	1	—	—	—	—										
	Enteritis - - - - -	3	3	—	—	—	—										
	Peritonitis - - - - -	1	1	1	1	1	—										
	Ascites - - - - -	—	—	—	3	2	—										
	Hernia - - - - -	1	1	—	4	3	—										
	Heus and Colic - - - - -	78	80	—	21	19	—										
	Prolapsus Ani - - - - -	2	3	—	1	1	—										
	Fistula - - - - -	1	—	—	—	—	—										
	Obstipatio - - - - -	35	30	—	21	21	—										
	Hepatitis - - - - -	198	226	7	53	63	1										
	Jaundice - - - - -	17	17	—	2	2	—										
	Hæmorrhoids - - - - -	27	23	—	13	12	—										
	Spleen Disease, &c. - - -	22	32	1	4	5	—										
	Hæmatemesis - - - - -	3	3	—	—	—	—										
	ORDER 5.																
	Nephritis - - - - -	2	3	—	2	2	—						10	11	—	3·49	—
	Ischuria - - - - -	—	—	—	3	2	—										
	Enuresis - - - - -	—	—	—	3	4	—										
ORDER 6.																	
Sarcocele - - - - -	—	1	—	—	1	—	2	4	—	·69	—						
Hydrocele - - - - -	2	2	—	—	—	—											
ORDER 7.																	
Joint Disease, &c. - - -	2	2	—	4	4	—	6	6	—	2·08	—						
ORDER 8.																	
Phlegmon - - - - -	92	99	—	59	64	—	280	296	—	97·69	—						
Abscess - - - - -																	
Ulcer - - - - -																	
Skin Disease, &c. - - -																	
ORDER 1.—Accident or Negligence.																	
Contusion - - - - -	71	70	—	42	39	—	198	196	5	69·09	1·72						
Sub-luxation - - - - -	36	40	—	18	17	—											
Luxation - - - - -	2	3	—	—	—	—											
Fracture - - - - -	4	1	—	3	2	—											
Wounds, Incised - - - -	20	22	—	2	2	—											
Drowning - - - - -	—	—	1	—	—	1											
Found dead - - - - -	—	—	2	—	—	1											
ORDER 5.																	
Punitus - - - - -	3	3	—	—	—	—	13	12	1	4·53	·36						
Observatio - - - - -	9	9	1	1	—	—											

* No Troops accounted for under this heading during the Years 1851, 1852, 1854, and 1856.

N.B.—Invalids are included in these Numbers, but the Returns do not enable them to be distinguished.

No. 87.

BOMBAY.—BELGAUM STATION.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 6 Years - - - - - 5,915.
 Mean Annual Strength - - - - - 986.

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Three Years,* 1847 to 1849.			Three Years,* 1854 to 1856.			Total for 6 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES -	5,008	5,008	51	4,282	4,260	58	9,290	9,268	109	1,570·6	18·43
	CLASSES.											
I.	ZYMOTIC DISEASES -	3,658	3,701	30	3,046	3,040	35	6,704	6,741	65	1,133·41	10·99
II.	CONSTITUTIONAL -	61	60	3	99	90	3	160	150	6	27·05	1·01
III.	LOCAL - - - -	1,006	964	14	890	885	15	1,896	1,849	29	320·54	4·9
V.	VIOLENCE - - -	283	283	4	247	245	5	530	528	9	89·6	1·52
	ORDERS.											
I.	ORDER 1.—Miasmatic Dis.											
	Small-pox - - -	5	5	—	7	3	2	3,565	3,537	60	602·72	10·15
	Quinsy - - - -	44	42	—	45	47	—					
	Catarrh and Influenza - -	93	100	3	165	167	—					
	Ophthalmia - - -	156	158	—	153	156	—					
	Fever (C. C.) - - -	245	249	—	25	25	—					
	Erysipelas - - -	6	6	—	3	3	—					
	Dysentery - - - -	215	188	19	285	256	29					
	Diarrhoea - - - -	218	215	2	186	185	—					
	Cholera - - - - -	11	9	—	3	3	—					
	Ague - - - - -	234	230	—	564	569	1					
	Remittent Fever - - -	53	60	1	58	55	1					
	Rheumatism - - -	471	476	2	320	330	—					
	ORDER 2.—Ethereic Dis.											
	Syphilis, &c. - - -	1,821	1,886	3	1,195	1,204	1	3,037	3,103	4	513·44	·67
	Stricture of Urethra - -	9	1	—	12	12	—					
	ORDER 3.—Dietic Dis.											
	Purpura and Scurvy - -	2	2	—	4	4	—	31	30	1	5·24	·17
	Alcoholism, Del. Tremens -	7	6	—	18	18	1					
	ORDER 4.—Parasitic Dis.											
	Vermes - - - - -	4	4	—	3	3	—	71	71	—	12·01	—
	Psora - - - - -	63	63	—	—	—	—					
	Dracunculus - - -	1	1	—	—	—	—					
II.	ORDER 1.—Diathetic Dis.											
	Lumbago - - - - -	14	13	—	43	43	—	62	60	2	10·48	·34
	Dropsy - - - - -	3	3	1	2	1	1					
	ORDER 2.—Tubercular Dis.											
	Scrofula - - - - -	39	39	—	43	37	—	98	90	4	16·57	·67
	Phthisis - - - - -	3	3	2	6	4	2					
	Hæmoptysis - - - -	2	2	—	5	5	—					

No. 87.—Bombay; Belgaum Station; Infantry. Stational Returns. European Troops; H.M. Regts.—*cont.*

Class.	Diseases.	Three Years,* 1847 to 1849.			Three Years,* 1854 to 1856.			Total for 6 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
III.	ORDER 1.											
	Cephalitis	—	—	—	72	71	—	163	152	9	27·56	1·52
	Apoplexy	2	1	3	5	5	1					
	Paralysis	2	—	1	16	14	2					
	Odontalgia	—	—	—	1	1	—					
	Insanity	4	3	—	19	15	1					
	Neuralgia	—	—	—	1	1	—					
	Epilepsy	—	—	—	3	3	—					
	Otitis	14	14	—	20	20	—					
	Brain Disease, &c.	—	—	—	1	1	1					
	Dysecœa	—	—	—	3	3	—					
	ORDER 2.											
	Pericarditis	51	48	1	13	11	1	66	60	3	11·16	·51
	Aneurism	—	—	—	2	1	1					
	ORDER 3.											
	Bronchitis	17	15	1	18	15	—	132	123	3	22·31	·51
	Pleurisy	—	—	—	26	26	—					
	Pneumonia	8	3	—	10	10	1					
	Asthma	8	8	—	42	41	—					
	Epistaxis	2	1	1	1	1	—					
	ORDER 4.											
	Dyspepsia	208	205	—	72	68	—	987	968	13	166·87	2·19
	Enteritis	4	4	—	2	1	1					
	Peritonitis	—	—	—	2	1	1					
	Prolapsus Ani	1	1	—	5	5	—					
	Ascites	1	—	—	1	—	—					
	Hernia	1	2	—	7	8	—					
	Ileus and Colic	35	38	—	50	51	—					
	Hæmorrhoids	12	11	—	32	34	—					
	Fistula	1	1	—	1	1	—					
	Obstipatio	18	18	—	10	11	—					
	Hepatitis	192	178	6	225	229	4					
	Jaundice	18	18	—	10	9	1					
	Spleen Disease, &c.	45	40	—	32	32	—					
	Hæmatemesis	2	2	—	—	—	—					
	ORDER 5.											
	Nephritis	—	—	—	5	5	—	11	11	—	1·86	—
	Enuresis	2	2	—	3	3	—					
	Cystitis	1	1	—	—	—	—					
	ORDER 6.											
Hydrocele	6	6	—	9	9	—	15	15	—	2·53	—	
ORDER 7.												
Hydrarthrus	2	2	—	—	—	—	7	7	—	1·18	—	
Joint Disease, &c.	1	1	—	4	4	—						
ORDER 8.												
Phlegmon	157	156	1	84	86	—	515	513	1	87·07	·17	
Abscess												
Ulcer												
Tumor												
Skin Disease, &c.												
V.												
ORDER 1.— <i>Accident or Negligence.</i>												
Burns or Scalds	4	4	—	5	5	—	516	514	6	87·23	1·02	
Contusion	168	169	—	144	145	—						
Sub-luxation	70	70	—	28	28	—						
Luxation	1	1	—	2	2	—						
Fracture	5	4	—	13	13	—						
Wounds { Gunshot	—	—	1	2	2	—						
{ Incised	31	31	—	43	39	—						
Amputatio	—	—	—	1	1	—						
Drowned	—	—	3	—	—	—						
Found dead	—	—	—	—	—	2						
ORDER 4.— <i>Suicide (attempted or accomplished).</i>												
Wounds, Cut, Stab	—	—	—	—	—	3	—	—	3	—	·51	
ORDER 5.												
Punitus	4	4	—	9	9	—	14	14	—	2·37	—	
Observatio	—	—	—	1	1	—						

* No Troops separately accounted for at this Station during the Years 1850, 1851, 1852, and 1853.

BOMBAY.—ADEN STATION.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 5 Years - - - - 2103
 Mean Annual Strength - - - - 420

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Two Years,* 1850 and 1851.			Three Years,* 1852, 1855, and 1856.			Total for 5 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES	878	862	20	1,562	1,509	14	2,440	2,371	34	1,160·25	16·17
I.	ZYMOTIC DISEASES	448	450	6	776	750	4	1,224	1,200	10	582·03	4·75
II.	CONSTITUTIONAL	5	1	2	35	34	—	40	35	2	19·02	·96
III.	LOCAL	378	361	10	649	626	10	1,027	987	20	488·35	9·5
V.	VIOLENCE	47	50	2	102	99	—	149	149	2	70·85	·96
	ORDERS.											
I.	ORDER 1.— <i>Miasmatic Dis.</i>											
	Quinsy	2	2	—	8	8	—	993	973	9	472·18	4·28
	Catarrh and Influenza	6	6	—	146	131	—					
	Ophthalmia	26	26	—	23	26	—					
	Fever (C. C.)	150	153	3	119	119	—					
	Dysentery	4	3	1	24	23	1					
	Diarrhoea	52	51	—	79	80	—					
	Ague	72	70	1	111	112	—					
	Remittent Fever	13	12	1	58	49	2					
	Rheumatism	36	41	—	64	61	—					
	ORDER 2.— <i>Ethetic Dis.</i>											
	Syphilis, &c.	69	65	—	77	76	—	152	147	—	72·28	—
	Stricture of Urethra	3	3	—	3	3	—					
	ORDER 3.— <i>Dietic Dis.</i>											
	Purpura and Scurvy	10	11	—	41	40	1	53	53	1	25·2	·47
	Alcoholism, Del. Tremens	—	—	—	2	2	—					
	ORDER 4.— <i>Parasitic Dis.</i>											
	Vermes	2	2	—	21	20	—	26	27	—	12·37	—
	Dracunculus	2	2	—	—	—	—					
	Psora	1	3	—	—	—	—					
II.	ORDER 1.— <i>Diathetic Dis.</i>											
	Lumbago	—	—	—	23	22	—	25	24	—	11·89	—
	Dropsy	1	1	—	1	1	—					
	ORDER 2.— <i>Tubercular Dis.</i>											
	Morbus Coxarius	—	—	—	1	1	—	15	11	2	7·13	·96
	Scrofula	—	—	—	2	2	—					
	Phthisis	4	—	2	5	6	—					
	Hæmoptysis	—	—	—	3	2	—					
III.	ORDER 1.											
	Cephalitis	4	3	—	3	3	—	52	46	4	24·73	1·90
	Apoplexy	7	5	3	2	1	1					
	Paralysis	—	—	—	2	2	—					
	Odontalgia	—	—	—	2	2	—					
	Insanity	—	—	—	9	8	—					
	Epilepsy	1	1	—	4	4	—					
	Otitis	7	6	—	11	11	—					

No. 88.—Bombay; Aden Station; Infantry. Stational Returns. European Troops; H.M. Regiments.—cont.

Class.	Diseases.	Two Years,* 1850 and 1851.			Three Years,* 1852, 1855, and 1856.			Total for 5 Years.*			Annual Ratio per 1000 of Mean Strength.		
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.	
III	ORDER 2.												
	Pericarditis - - -	7	8	—	27	22	3	}	43	39	3	20·45	1·42
	Aneurism - - -	—	—	—	1	1	—						
	Varix - - -	—	—	—	8	8	—						
	ORDER 3.												
	Bronchitis - - -	5	4	1	14	14	—	}	35	30	4	16·64	1·90
	Pneumonia - - -	2	2	—	5	3	1						
	Asthma - - -	4	2	1	5	5	1						
	ORDER 4.												
	Dyspepsia - - -	88	83	—	178	177	—	}	585	566	9	278·17	4·28
	Gastritis - - -	—	2	—	1	1	—						
	Peritonitis - - -	3	3	—	1	1	—						
	Ascites - - -	1	1	—	1	—	1						
	Hæmatemesis - - -	—	—	—	—	1	—						
	Ileus and Colic - - -	25	21	1	45	45	—						
	Obstipatio - - -	—	—	—	13	13	—						
	Hepatitis - - -	90	88	4	75	68	3						
	Hæmorrhoids - - -	3	1	—	15	15	—						
	Spleen Disease, &c. - - -	19	19	—	26	26	—						
Jaundice - - -	1	1	—	—	—	—							
ORDER 5.													
Nephritis - - -	—	—	—	14	14	—	}	17	14	—	8·08	—	
Enuresis - - -	—	—	—	3	—	—							
ORDER 7.													
Joint Disease, &c. - - -	—	—	—	5	5	—		5	5	—	2·38	—	
ORDER 8.													
Phlegmon - - -	81	80	—	116	115	—	}	290	287	—	137·9	—	
Ulcer - - -	23	24	—	44	44	—							
Tumor - - -	—	—	—	4	3	—							
Skin Disease, &c. - - -	7	7	—	15	14	—							
V.	ORDER 1.— <i>Accident or Negligence.</i>												
Burns or Scalds - - -	—	—	—	2	2	—	}	134	134	1	63·72	·48	
Contusion - - -	18	20	—	64	62	—							
Sub-luxation - - -	10	10	—	12	12	—							
Fracture - - -	2	3	—	—	—	—							
Wounds, Incised - - -	8	8	1	17	16	—							
Suffocation - - -	—	—	—	1	1	—							
ORDER 5.													
Punitus - - -	1	1	—	—	—	—	}	15	15	1	7·13	·48	
Observatio - - -	8	8	1	6	6	—							

* No Troops separately accounted for at this Station during the Years 1847 to 1849, 1853 and 1854.

No. 89.

BOMBAY.—HYDERABAD STATION.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 4 Years - - - - - 1,728
 Mean Annual Strength - - - - - 432

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	One Year, 1850.*			Three Years,* 1852, 1853, and 1854.			Total for 4 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES -	759	741	14	3,299	3,271	48	4,058	4,012	62	2,348.4	35.85
	CLASSES.											
I.	ZYMOTIC DISEASES -	603	585	13	2,727	2,693	37	3,330	3,278	50	1,927.11	28.93
II.	CONSTITUTIONAL -	6	6	—	20	18	3	26	24	3	15.04	1.73
II.	LOCAL -	123	125	1	447	450	8	570	575	9	329.86	5.19
V.	VIOLENCE -	27	25	—	105	110	—	132	135	—	76.39	—
	ORDERS-											
I.	ORDER 1.— <i>Miasmatic Dis.</i>											
	Quinsy -	9	9	—	18	19	—	2,847	2,844	46	1,647.6	
	Catarrh and Influenza -	10	11	—	50	55	—					
	Ophthalmia -	15	16	—	33	32	—					
	Fever (C. C.) -	2	1	1	109	119	—					
	Icteroidea -	—	—	—	3	3	—					
	Erysipelas -	—	—	—	3	3	—					
	Dysentery -	32	29	1	53	54	4					
	Diarrhoea -	51	50	—	91	93	—					
	Cholera -	5	2	3	9	8	1					
	Ague -	44	44	—	947	953	—					
	Remittent Fever -	245	243	7	983	960	29					
	Rheumatism -	17	17	—	118	123	—					
	ORDER 2.— <i>Enthetic Dis.</i>											
	Syphilis, &c. -	155	145	—	278	242	—	438	392	—	253.47	—
	Stricture of Urethra -	1	1	—	4	4	—					
	ORDER 3.— <i>Dietic Dis.</i>											
	Purpura and Scurvy -	2	2	—	1	1	—	41	36	4	23.73	2.31
	Alcoholism, Del. Tremens -	15	15	1	23	20	3					
	ORDER 4.— <i>Parasitic Dis.</i>											
	Vermes -	—	—	—	4	4	—	4	4	—	2.31	—
II.	ORDER 1.— <i>Diathetic Dis.</i>											
	Lumbago -	—	—	—	4	4	—	9	10	—	5.21	—
	Dropsy -	—	—	—	5	6	—					
	ORDER 2.— <i>Tubercular Dis.</i>											
	Scrofula -	4	4	—	4	5	—	17	14	3	9.83	1.73
	Phthisis -	—	—	—	4	—	3					
	Hæmoptysis -	2	2	—	3	3	—					
III.	ORDER I.											
	Cephalitis -	—	—	—	11	12	—	44	44	3	25.46	1.73
	Apoplexy -	—	—	—	2	2	—					
	Paralysis -	—	—	—	5	6	1					
	Insanity -	—	—	—	1	1	—					
	Odontalgia -	1	2	—	2	2	—					
	Epilepsy -	1	1	—	2	2	—					
	Otitis -	3	3	—	16	15	—					

4 X 2

No. 89.—Bombay; Hyderabad Station; Infantry. Stational Returns. European Troops; H.M. Regts.—*cont*

Class.	Diseases.	One Year, 1850.*			Three Years,* 1852, 1853, and 1854.			Total for 4 Years.*			Annual Ratio per 1000 of Mean Strength.		
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.	
		III.	ORDER 2.										
	Pericarditis - - -	3	3	—	8	8	1	}	38	31	3	21.99	1.73
	Aneurism - - -	1	—	1	4	3	1						
	Varix - - -	3	3	—	15	11	—						
	Heart Disease, &c. - -	—	—	—	4	3	—						
	ORDER 3.												
	Epistaxis - - -	—	—	—	1	1	—	}	15	15	—	8.68	—
	Bronchitis - - -	—	—	—	5	4	—						
	Pneumonia - - -	—	1	—	6	6	—						
	Asthma - - -	—	—	—	3	3	—						
	ORDER 4.												
	Dyspepsia - - -	15	15	—	100	109	1	}	293	304	3	169.57	1.73
	Gastritis - - -	2	2	—	1	1	—						
	Enteritis - - -	—	—	—	1	1	—						
	Ascites - - -	—	—	—	3	3	—						
	Hernia - - -	1	1	—	1	2	—						
	Ileus and Colic - - -	4	4	—	9	9	—						
	Fistula - - -	—	—	—	3	3	—						
	Hæmatemesis - - -	1	1	—	1	1	—						
	Obstipatio - - -	—	—	—	33	33	2						
	Hepatitis - - -	45	47	—	51	50	—						
	Hæmorrhoids - - -	3	3	—	7	7	—						
	Jaundice - - -	1	1	—	4	4	—						
	Spleen Disease, &c. - -	—	—	—	7	7	—						
	ORDER 5.												
	Nephritis - - -	2	2	—	2	1	—	}	8	7	—	4.63	—
	Ischuria - - -	—	—	—	2	2	—						
	Enuresis - - -	2	2	—	—	—	—						
	ORDER 6.												
	Hydrocele - - -	—	—	—	1	1	—		1	1	—	.58	—
	ORDER 7.												
	Arthritis - - -	1	1	—	—	—	—	}	3	3	—	1.73	—
	Joint Disease, &c. - -	—	—	—	1	1	—						
	Contractura - - -	—	—	—	1	1	—						
	ORDER 8.												
	Phlegmon - - -	}	25	24	—	73	75	—	168	170	—	97.22	—
	Abscess - - -												
	Ulcer - - -												
	Tumor - - -												
	Skin Disease, &c. - -	—	—	—	23	23	—						
V.	ORDER 1.— <i>Accident or Negligence.</i>												
	Burns or Scalds - - -	—	—	—	2	2	—	}	122	125	—	70.6	—
	Contusion - - -	11	11	—	65	67	—						
	Sub-luxation - - -	2	2	—	10	10	—						
	Luxation - - -	2	2	—	8	2	—						
	Fracture - - -	2	—	—	6	10	—						
	Wounds { Gunshot	—	—	—	10	9	—						
	{ Incised	8	9	—	—	—	—						
	Venenatio - - -	—	—	—	1	1	—						
	ORDER 5.												
	Punitus - - -	—	—	—	2	2	—	}	10	10	—	5.79	—
	Observatio - - -	2	1	—	6	7	—						

* No Troops separately accounted for at this Station during the Years 1847, 1848, 1849, 1851, 1855, and 1856.

BOMBAY.—MOUNT ABOO.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Mean Annual Strength - - - - - 83

RETURN showing (G.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class	Diseases.	One Year, 1851.*			Total for 1 Year.*			Annual Ratio per 1000 of Mean Strength.	
		(G.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(G.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES - - -	101	101	7	101	101	7	1,216·86	84·32
	CLASSES.								
I.	ZYMOTIC DISEASES - - -	61	65	3	61	65	3	734·94	36·14
II.	CONSTITUTIONAL - - -	2	2	—	2	2	—	24·09	—
III.	LOCAL - - -	35	31	4	35	31	4	421·69	48·18
V.	VIOLENCE - - -	3	3	—	3	3	—	36·14	—
	ORDERS.								
I.	ORDER 1.— <i>Miasmatic Dis.</i>								
	Quinsy - - - - -	2	2	—	48	52	3	578·32	36·14
	Catarrh and Influenza - - -	1	—	1					
	Ophthalmia - - - - -	1	1	—					
	Dysentery - - - - -	6	5	1					
	Diarrhœa - - - - -	4	4	—					
	Ague - - - - -	19	19	—					
	Remittent Fever - - - - -	1	1	—					
	Rheumatism - - - - -	14	20	1					
	ORDER 2.— <i>Ethetic Dis.</i>								
	Syphilis, &c. - - - - -	10	10	—	11	11	—	132·53	—
	Stricture of Urethra - - - - -	1	1	—					
	ORDER 3.— <i>Dietic Dis.</i>								
	Alcoholism { <i>a.</i> Del. Tremens - - -	1	1	—	2	2	—	24·09	—
	{ <i>b.</i> Intemperance - - - - -	1	1	—					
II.	ORDER 2.— <i>Tubercular Dis.</i>								
	Scrofula - - - - -	2	2	—	2	2	—	24·09	—
III.	ORDER 1.								
	Epilepsy - - - - -	2	2	—	2	2	—	24·09	—
	ORDER 4.								
	Dyspepsia - - - - -	5	5	—	29	25	4	349·42	48·18
	Gastritis - - - - -	1	—	1					
	Hernia - - - - -	2	2	—					
	Ileus and Colic - - - - -	4	4	—					
	Obstipatio - - - - -	3	3	—					
	Hæmorrhoids - - - - -	1	1	—					
	Hepatitis - - - - -	10	8	2					
	Jaundice - - - - -	1	—	1					
	Spleen Disease, &c. - - - - -	2	2	—					
	ORDER 8.								
	Pblegmon - - - - -	1	1	—	4	4	—	48·18	—
	Ulcer - - - - -	3	3	—					
V.	ORDER 1.— <i>Accident of Negligence.</i>								
	Sub-luxation - - - - -	2	2	—	3	3	—	36·14	—
	Fracture - - - - -	1	1	—					

* Troops only separately accounted for at this Station during the Year 1851.

No. 91.

BOMBAY.—BOMBAY STATION.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS
AND MEN.

Mean Annual Strength - - - - - 273

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and
(F.) the Number of DEATHS by different Diseases.

Class	Diseases.	One Year, 1849.*			Total for 1 Year.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES - - -	641	620	16	641	620	16	2,348·02	58·6
	CLASSES.								
I.	ZYMOTIC DISEASES - - -	458	442	11	458	442	11	1,677·7	40·29
II.	CONSTITUTIONAL - - -	4	5	1	4	5	1	14·65	3·66
III.	LOCAL - - - - -	154	147	4	154	147	4	564·1	14·65
V.	VIOLENCE - - - - -	25	26	—	25	26	—	91·57	—
	ORDERS.								
I.	ORDER 1.— <i>Miasmatic Dis.</i>								
	Quinsy - - - - -	2	2	—	420	402	11	1,538·5	40·29
	Catarrh and Influenza - - -	18	15	—					
	Ophthalmia - - - - -	6	6	—					
	Fever (C. C.) - - - - -	204	204	1					
	Dysentery - - - - -	50	46	8					
	Diarrhœa - - - - -	64	59	—					
	Cholera - - - - -	3	1	2					
	Ague - - - - -	34	35	—					
	Remittent Fever - - - - -	2	4	—					
	Rheumatism - - - - -	37	30	—					
	ORDER 2.— <i>Ethetic Dis.</i>								
	Syphilis, &c. - - - - -	33	34	—	33	34	—	120·88	—
	ORDER 3.— <i>Dietic Dis.</i>								
	Purpura and Scurvy - - - - -	1	1	—	4	4	—	14·65	—
	Alcoholism, Del. Tremens - - -	3	3	—					
	ORDER 4.— <i>Parasitic Dis.</i>								
	Vermes - - - - -	—	1	—	1	2	—	3·66	—
	Dracunculus - - - - -	1	1	—					
II.	ORDER 1.— <i>Diathetic Dis.</i>								
	Lumbago - - - - -	3	3	—	3	3	—	10·99	—
	ORDER 2.— <i>Tubercular Dis.</i>								
	Scrofula - - - - -	1	2	—	1	2	1	3·66	3·66
	Phthisis - - - - -	—	—	1					

No. 91.—Bombay ; Bombay Station ; Infantry. Stational Returns. European Troops; H.M. Regts.—cont.

Class.	Diseases.	One Year, 1849.*			Total for 1 Year.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
III.	ORDER 1.								
	Cephalitis	1	1	—	2	2	1	7.33	3.66
	Apoplexy	—	—	1					
	Insanity	—	—	—					
	Otitis	1	1	—					
	ORDER 2.								
	Pericarditis	1	1	—	1	2	—	3.66	—
	Varix	—	1	—					
	ORDER 3.								
	Asthma	6	6	—	6	6	—	21.98	—
	ORDER 4.								
	Dyspepsia	14	10	—	98	89	3	358.98	10.99
	Prolapsus Ani	1	1	—					
	Heus and Colic	10	10	—					
	Fistula	3	—	—					
	Obstipatio	2	2	—					
	Hepatitis	40	40	3					
Hæmorrhoids	9	9	—						
Jaundice	6	6	—						
Spleen Disease, &c.	13	11	—						
ORDER 5.									
Dysuria	1	1	—	1	1	—	3.66	—	
ORDER 6.									
Hydrocele	1	1	—	1	1	—	3.66	—	
ORDER 8.									
Phlegmon	31	36	—	45	46	—	164.84	—	
Ulcer	14	10	—						
V.	ORDER 1.— <i>Accident or Negligence.</i>								
Contusion	10	10	—	23	24	—	84.24	—	
Sub-luxation	3	3	—						
Luxation	3	3	—						
Fracture	—	1	—						
Wounds, Incised	7	7	—						
ORDER 5.									
Punitus	2	2	—	2	2	—	7.33	—	

* Troops only separately accounted for at this Station during the Year 1849.

No. 92.

BOMBAY.—PESHAWUR STATION.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Mean Annual Strength - - - - - 498

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	One Year, 1849.*			Total for 1 Year.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES - - -	1,470	1,359	30	1,470	1,359	30	2,951·82	60·24
	CLASSES.								
I.	ZYMOTIC DISEASES - - -	1,306	1,216	15	1,306	1,216	15	2,622·5	30·12
II.	CONSTITUTIONAL - - -	6	6	—	6	6	—	12·05	—
III.	LOCAL - - -	139	118	15	139	118	15	279·12	30·12
V.	VIOLENCE - - -	19	19	—	19	19	—	38·15	—
	ORDERS.								
I.	ORDER 1.— <i>Miasmatic Dis.</i>								
	Small-pox - - -	3	1	2	1,201	1,117	15	2,411·55	30·12
	Quinsy - - -	8	7	—					
	Catarrh and Influenza - - -	20	25	—					
	Ophthalmia - - -	88	53	—					
	Fever (C. C.) - - -	772	752	6					
	Dysentery - - -	26	27	2					
	Diarrhœa - - -	60	59	4					
	Ague - - -	190	159	—					
	Remittent Fever - - -	4	2	1					
	Rheumatism - - -	30	32	—					
	ORDER 2.— <i>Enthetic Dis.</i>								
	Syphilis, &c. - - -	100	94	—	103	97	—	206·93	—
	Stricture of Urethra - - -	3	3	—					
	ORDER 3.— <i>Dietic Dis.</i>								
	Purpura and Scurvy - - -	1	1	—	2	2	—	4·02	—
	Alcoholism, Delirium Tremens - - -	1	1	—					
II.	ORDER 1.— <i>Diathetic Dis.</i>								
	Lumbago - - -	1	1	—	2	2	—	4·02	—
	Dropsy - - -	1	1	—					
	ORDER 2.— <i>Tubercular Dis.</i>								
	Scrofula - - -	4	4	—	4	4	—	8·03	—

No. 92.—Bombay; Peahawur Station; Infantry. Stational Returns. European Troops. H. M. Regts.—*cont*

Class.	Diseases.	One Year, 1849.*			Total for 1 Year.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
III.	ORDER 1.								
	Cephalitis - - - -	6	7	—	20	10	9	40·16	18·05
	Apoplexy - - - -	10	2	9					
	Insanity - - - -	3	—	—					
	Otitis - - - -	1	1	—					
	ORDER 2.								
	Pericarditis - - - -	1	—	1	6	4	1	12·05	2·02
	Heart Disease - - - -	5	4	—					
	ORDER 3.								
	Pleurisy - - - -	1	—	—	3	1	1	6·02	2·02
	Pneumonia - - - -	2	1	1					
	ORDER 4.								
	Dyspepsia - - - -	10	9	—	79	77	4	158·63	8·03
	Ileus and Colic - - - -	10	10	—					
	Obstipatio - - - -	6	5	—					
	Hæmorrhoids - - - -	2	3	—					
	Hepatitis - - - -	23	23	4					
	Jaundice - - - -	20	19	—					
	Spleen Disease, &c. - - - -	8	8	—					
	ORDER 5.								
Dysuria - - - -	1	1	—	1	1	—	2·02	—	
ORDER 8.									
Phlegmon - - - -	25	23	—	30	25	—	60·24	—	
Ulcer - - - -	5	2	—						
V.	ORDER 1.— <i>Accident or Negligence.</i>								
	Contusion - - - -	7	8	—	18	18	—	36·13	—
	Sub-luxation - - - -	8	7	—					
	Fracture - - - -	2	2	—					
	Wounds { Gunshot - - - -	—	1	—					
	{ Incised - - - -	1	—	—					
	ORDER 5.								
Funitus - - - -	1	1	—	1	1	—	2·02	—	

* Troops only separately accounted for at this Station during the Year 1849.

No. 93.

BOMBAY.—KIRKEE STATION.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

(B.)—RETURN showing for each YEAR the REGIMENTS at the STATION, MEAN STRENGTH, Number constantly SICK, ADMISSIONS, DISCHARGES, and DEATHS.

Year.	Regiments or Detachments at the Station.		Mean Strength during the Year.	Mean Number constantly sick in Hospital	Admissions into Hospital during the Year.	Discharged from Hospital.	Deaths.
	Names.	Strength.					
1847	10th Hussars	633	633		1,592	1,573	19
1848	10th Hussars	704	704		1,447	1,547	9
1849	10th Hussars	687	687		1,624	1,588	17
1850	10th Hussars	652	652		1,486	1,473	28
1851	10th Hussars	664	664		1,406	1,397	15
1852	10th Hussars	676	676		1,666	1,644	6
1853	10th Hussars	681	681		1,620	1,623	12
1854	10th Hussars	639·75	640		1,298	1,309	11
1855	14th Dragoons	537	537		830	752	6
1856	14th Dragoons	685	685		619	635	8
	Total	6,558·75	6,559		13,588	13,541	131
	Mean	656	656		1,359	1,354	13

No. 94.

BOMBAY.—DEESA STATION.

1847	28th Foot	858	1,057		1,115	1,053	36
1847	86th Foot	199·25			378	358	9
1848	86th Foot	1,158	1,158		1,801	1,760	37
1849	86th Foot	1,141	1,141		1,802	1,757	28
1850	86th Foot	832·50	1,087		1,342	1,329	28
1850	8th Foot	254·25			357	387	3
1851	8th Foot	969·75	970		1,713	1,669	21
1852	8th Foot	1,008	1,008		1,514	1,483	26
1853	8th Foot	733	733		1,141	1,113	10
1854	83rd Foot	432	432		1,003	993	7
1855	83rd Foot	411	411		863	856	8
1856	83rd Foot	933	933		1,360	1,297	19
	Total	8,929·75	8,930		14,379	14,055	232
	Mean	—	893		1,438	1,405	23·2

No. 95.

BOMBAY.—POONA STATION.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

(B.)—RETURN showing for each YEAR the REGIMENTS at the STATION, MEAN STRENGTH, NUMBER constantly SICK, ADMISSIONS, DISCHARGES, and DEATHS.

Year.	Regiments or Detachments at the Station.		Mean Strength during the Year.	Mean Number constantly sick in Hospital	Admissions into Hospital during the Year.	Discharged from Hospital.	Deaths.
	Names.	Strength.					
1847	8th Foot	- - 1,012	} 2,326 {		2,241	2,253	9
1847	22nd Foot	- - 889			2,172	2,199	43
1847	86th Foot	- - 425			720	683	16
1848	8th Foot	- - 542	} 1,695 {		1,020	990	14
1848	22nd Foot	- - 1,153			2,206	2,119	37
1849	64th Foot	- - 397	} 1,060 {		976	881	38
1849	83rd Foot	- - 663			949	848	57
1850	83rd Foot	- - 821	} 1,094 {		1,079	1,048	15
1850	86th Foot	- - 273			457	466	7
1851	86th Foot	- - 1,054	1,054		1,173	1,759	12
1852	86th Foot	- - 1,042	1,042		1,445	1,435	9
1853	78th Foot	- - 955	} 1,888 {		2,242	2,202	21
1853	84th Foot	- - 933			1,422	1,406	11
1854	78th Foot	- - 927	927		1,883	1,864	23
1855	78th Foot	- - 870	870		1,194	1,193	14
1856	78th Foot	- - 907	907		1,051	955	14
Total	- - -	12,863	12,863		22,230	22,301	340
Mean	- - -	—	1,286		2,223	2,230	34

No. 96.—BOMBAY.—KURRACHEE STATION.

1847	60th Foot	- - 929	929		959	948	23
1848	60th Foot	- - 791·75	} 1,060 {		1,046	985	23
1848	8th Foot	- - 268·50			556	543	6
1849	8th Foot	- - 805	805		1,633	1,587	30
1850	64th Foot	- - 1,029·50	} 1,812 {		1,585	1,584	28
1850	8th Foot	- - 512·25			849	834	8
1850	83rd Foot	- - 270			293	290	5
1851	64th Foot	- - 541·50	} 1,575 {		910	889	19
1851	83rd Foot	- - 1,033·50			1,489	1,449	71
1852	64th Foot	- - 542·50	} 1,541 {		1,202	1,154	14
1852	83rd Foot	- - 998·25			2,164	2,021	65
1853	64th Foot	- - 751	} 1,196 {		2,809	2,755	15
1853	83rd Foot	- - 444·75			1,210	1,266	9
1854	83rd Foot	- - 554	} 1,094 {		850	826	12
1854	86th Foot	- - 539·75			954	874	22
1855	83rd Foot	- - 131·75	} 593 {		176	173	2
1855	86th Foot	- - 461·50			730	750	9
Total	- - -	10,604·5	10,605		19,415	18,928	361
Mean	- - -	—	1,178		2,157	2,103	40

No. 97.

BOMBAY.—COLABA STATION.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS—NON-COMMISSIONED OFFICERS AND MEN.

(B.)—RETURN showing for each YEAR the REGIMENTS at the STATION, MEAN STRENGTH, Number constantly SICK, ADMISSIONS, DISCHARGES, and DEATHS.

Year.	Regiments or Detachments at the Station.		Mean Strength during the Year.	Mean Number constantly sick in Hospital.	Admissions into Hospital during the Year.	Discharged from Hospital.	Deaths.
	Names.	Strength.					
1847	17th Foot	- - 114·75	394	394	170	205	4
1847	28th Foot	- - 279·50			456	482	11
1848	28th Foot	- - 41	41	8	58	1	
1849	22nd Foot	- - 570	570	1,327	1,282	37	
1850	78th Foot	- - 399·75	400	771	769	30	
1851	78th Foot	- - 508	508	848	819	16	
1852	78th Foot	- - 525	525	1,218	1,177	28	
1855	83rd Foot	- - 277	277	623	602	8	
1856	86th Foot	- - 459	459	1,157	1,100	16	
	Total	- - 3,174	3,174		6,578	6,494	151
	Mean	- - —	397		822	812	19

No. 98.

BOMBAY.—EN ROUTE, &c.

1847	Sundry	- - - 209	209		396	405	8
1848	Sundry	- - - 269	269		650	665	10
1849	Sundry	- - - 977	977		2,232	2,573	49
1850	Sundry	- - - 520	520		747	716	14
1853	Sundry	- - - 654	654		1,273	1,381	12
1855	Sundry	- - - 237	237		470	469	9
	Total	- - - 2,866	2,866		5,768	6,209	102
	Mean	- - - —	478		961	1,035	17

No. 99.

BOMBAY.—BELGAUM STATION.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

(B.)—RETURN showing for each YEAR the REGIMENTS at the STATION, MEAN STRENGTH, NUMBER constantly SICK, ADMISSIONS, DISCHARGES, and DEATHS.

Year.	Regiments or Detachments at the Station.		Mean Strength during the Year.	Mean Number constantly sick in Hospital.	Admissions into Hospital during the Year.	Discharged from Hospital.	Deaths.	
	Names.	Strength.						
1847	78th Foot	- -	1,094·75	1,095		2,158	2,185	16
1848	78th Foot	- -	1,105	1,105		1,756	1,721	18
1849	78th Foot	- -	806	806		1,099	1,094	22
1854	64th Foot	- -	1,019	1,019		1,886	1,865	18
1855	64th Foot	- -	1,083	1,083		1,413	1,404	21
1856	64th Foot	- -	806·75	807		996	985	20
	Total	- - -	5,914·5	5,915		9,308	9,254	115
	Mean	- - -	—	986		1,551	1,542	19

No. 100.

BOMBAY.—ADEN STATION.

1850	Detachment, 78th Foot	-	369	369		417	408	12
1851	Detachment, 78th Foot	-	476	476		461	463	8
1852	Detachment, 78th Foot	-	469	469		532	517	9
1855	Detachment, 86th Foot	-	328·75	329		465	444	4
1856	Detachment, 86th Foot	-	460	460		561	563	1
	Total	- - -	2,102·75	2,103		2,436	2,395	34
	Mean	- - -	—	421		486	479	6

No. 101.

BOMBAY.—HYDERABAD STATION.

1850	64th Foot	- -	479	479		759	741	13
1852	64th Foot	- -	459	459		1,933	1,923	35
1853	83rd Foot	- -	397	397		602	587	7
1854	86th Foot	- -	393	393		736	785	7
	Total	- - -	1,728	1,728		4,030	4,036	62
	Mean	- - -	—	432		1,007	1,009	15

No. 102.

BOMBAY.—MOUNT ABOO STATION.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

(B).—RETURN showing for each YEAR the REGIMENTS at the STATION, MEAN STRENGTH, NUMBER constantly SICK, ADMISSIONS, DISCHARGES, and DEATHS.

Year.	Regiments or Detachments at the Station.		Mean Strength during the Year.	Mean Number constantly sick in Hospital.	Admissions into Hospital during the Year.	Discharged from Hospital.	Deaths.
	Names.	Strength.					
1851	8th Foot - -	83	83		101	94	7
	Total and Mean - -	—	83		101	94	7

No. 103.

BOMBAY.—BOMBAY STATION.

1849	22nd Foot - -	273	273		636	619	16
	Total and Mean - -	—	273		636	619	16

No. 104.

BOMBAY.—PESHAWUR STATION.

1849	60th Foot - -	498	498		1,470	1,359	30
	Total and Mean - -	—	498		1,470	1,359	30

No. 105.

MADRAS.—BANGALORE STATION.—CAVALRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 8 Years - - - - - 5,153
Mean Annual Strength - - - - - 644

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Five Years, 1847 to 1851.			Three Years,* 1852 to 1854.			Total for 8 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES	4,509	4,451	51	2,579	2,544	38	7,088	6,969	89	1,375.52	17.27
	CLASSES.											
I.	ZYMOTIC DISEASES	2,522	2,489	21	1,482	1,455	18	4,004	3,944	39	777.02	7.57
II.	CONSTITUTIONAL	40	30	5	38	34	2	78	64	7	15.14	1.36
III.	LOCAL	1,342	1,320	20	767	751	15	2,109	2,071	35	409.28	6.79
IV.	DEVELOPMENTAL	—	—	—	4	4	—	4	4	—	.77	—
V.	VIOLENCE	605	612	5	288	274	3	893	886	8	173.3	1.55
	ORDERS.											
I.	ORDER 1.—Miasmatic Dis.											
	Small-pox	3	3	—	2	4	—	2,227	2,183	35	432.18	6.7
	Varicella	1	1	—	—	—						
	Measles	1	1	—	2	2						
	Quinsy	52	51	—	23	25						
	Catarrh and Influenza	156	152	—	79	76						
	Ophthalmia	79	79	—	68	68						
	Fever (C. C.)	278	270	4	158	154	4					
	Erythema	—	—	—	1	1						
	Erysipelas	2	2	—	8	8						
	Dysentery	276	270	9	82	78	2					
	Diarrhoea	152	151	—	153	150	3					
	Cholera	14	12	2	6	2	4					
	Ague	7	3	—	13	12	1					
	Remittent Fever	34	35	3	46	43	3					
	Rheumatism	316	315	—	215	215	—					
	ORDER 2.—Ethetic Dis.							1,688	1,677	2	327.58	.39
	Syphilis, &c.	1,083	1,080	2	589	584	—					
	Stricture of Urethra	11	8	—	5	5	—					
	ORDER 3.—Dietic Dis.							77	72	2	14.94	.39
	Purpura and Scourvy	1	1	—	—	—						
	Alcoholism { a. Del. Tremens- b. Intemperance-	33 16	30 18	1	19 8	15 8	1					
	ORDER 4.—Parasitic Dis.							12	12	—	2.33	—
	Vermes	6	6	—	2	2	—					
	Psora Porrigo, &c.	— 1	— 1	—	3 —	3 —	—					
II.	ORDER 1.—Diathetic Dis.							39	33	2	7.57	.39
	Lumbago	17	14	—	17	17	—					
	Gout Dropsy	— 1	— —	— 1	1 3	1 1	1					
	ORDER 2.—Tubercular Dis.							39	31	5	7.57	.97
	Morbus Coxarius	5	3	—	3	3	—					
	Scrofula	11	11	—	11	10	—					
	Phtthisis	4	1	3	—	—	—					
	Hæmoptysis	2	1	1	3	2	1					

No. 105.—Madras; Bangalore Station; Cavalry. Stational Returns. European Troops; H. M. Regts.—cont.

Class.	Diseases.	Five Years, 1847 to 1851.			Three Years,* 1852 to 1854.			Total for 8 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
III.	ORDER 1.											
	Cephalitis - - - - -	37	37	—	67	66	—	208	191	14	40·36	2·72
	Meningitis - - - - -	2	2	—	—	—	—					
	Apoplexy - - - - -	4	1	3	2	—	3					
	Paralysis - - - - -	20	12	5	15	13	2					
	Odontalgia - - - - -	3	3	—	—	—	—					
	Insanity - - - - -	5	5	—	7	6	1					
	Epilepsy - - - - -	12	12	—	19	19	—					
	Otitis - - - - -	8	8	—	5	5	—					
	Dysecœa - - - - -	1	1	—	—	—	—					
	Brain Disease, &c. - - -	1	1	—	—	—	—					
	ORDER 2.							93	86	4	18·05	·77
	Pericarditis - - - - -	60	58	2	21	21	—					
	Aneurism - - - - -	1	1	—	1	—	1					
	Varix - - - - -	1	1	—	3	2	—					
	Heart Disease, &c. - - -	2	1	—	4	2	1					
	ORDER 3.							46	46	1	8·93	·19
	Pleurisy - - - - -	—	—	—	1	1	—					
	Pneumonia - - - - -	16	16	—	1	1	—					
Asthma - - - - -	21	23	—	7	5	1						
ORDER 4.							771	761	16	149·62	3·11	
Dyspepsia - - - - -	50	50	—	24	25	—						
Gastritis - - - - -	16	16	—	6	6	—						
Enteritis - - - - -	12	11	2	1	1	—						
Hernia - - - - -	4	4	—	—	—	—						
Ileus and Colic - - - - -	75	75	—	15	15	—						
Hæmorrhoids - - - - -	14	16	—	22	23	—						
Fistula - - - - -	2	2	—	6	6	—						
Obstipatio - - - - -	66	63	—	8	8	—						
Hepatitis - - - - -	249	247	7	145	138	5						
Jaundice - - - - -	11	11	1	7	7	—						
Hæmatemesis - - - - -	2	2	—	1	—	1						
Spleen Disease, &c. - - -	19	19	—	16	16	—						
ORDER 5.							36	35	—	6·98	—	
Nephritis - - - - -	3	3	—	8	8	—						
Ischuria - - - - -	19	18	—	2	2	—						
Enuresis - - - - -	—	—	—	1	1	—						
Cystitis - - - - -	2	2	—	1	1	—						
ORDER 6.							2	3	—	·39	—	
Hydrocele - - - - -	2	3	—	—	—	—						
ORDER 7.							14	12	—	2·72	—	
Arthritis - - - - -	2	2	—	—	—	—						
Joint Disease, &c. - - -	12	10	—	—	—	—						
ORDER 8.							939	937	—	182·23	—	
Phlegmon - - - - -	348	349	—	214	215	—						
Ulcer - - - - -	122	122	—	78	77	—						
Tumor - - - - -	2	2	—	—	—	—						
Skin Disease, &c. - - - -	116	111	—	59	61	—						
IV.	ORDER 4.						4	4	—	·77	—	
Atrophy - - - - -	—	—	—	4	4	—						
V.	ORDER 1.— <i>Accident or Negligence.</i>						883	876	8	171·36	1·55	
Drowned - - - - -	—	—	2	—	—	1						
Burns or Scalds - - - - -	5	5	—	4	4	—						
Contusion - - - - -	467	472	—	211	198	—						
Concussio Cerebri - - -	3	3	—	2	2	—						
Sub-luxation - - - - -	55	54	—	14	15	—						
Luxation - - - - -	7	7	—	—	—	—						
Fracture - - - - -	18	18	—	6	5	—						
Wounds, Incised - - - - -	48	51	—	43	42	—						
ORDER 3.— <i>Suicide.</i>												—
Wounds, Gunshot - - - -	—	—	3	—	—	1						
Not stated - - - - -	—	—	—	—	—	1						
ORDER 5.							10	10	—	1·94	—	
Punitus - - - - -	1	1	—	—	—	—						
Observatio - - - - -	1	1	—	8	8	—						

* No Cavalry separately accounted for at this Station during the Years 1855 and 1856.

No. 106.

MADRAS.—EN ROUTE, &c.—CAVALRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 3 Years - - - - 333
Annual Mean Strength - - - - 111

RETURN showing (C.) the Number of ATTACKS of SICKNESS ; (E.) the Number DISCHARGED to DUTY ; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Three Years, 1854 to 1856.*			Total for 3 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES - - -	541	553	9	541	553	9	1,624·65	27·03
	CLASSES.								
I.	ZYMOTIC DISEASES - - -	356	353	6	356	353	6	1,069·1	18·03
II.	CONSTITUTIONAL - - -	10	10	—	10	10	—	30·03	—
III.	LOCAL - - - - -	131	137	2	131	137	2	393·39	6·00
V.	VIOLENCE - - - - -	44	53	1	44	53	1	132·13	3·00
	ORDERS.								
I.	ORDER 1.— <i>Miasmatic Dis.</i>								
	Small-pox - - - - -	1	1	—	200	198	5	600·63	15·02
	Vaccinia - - - - -	1	1	—					
	Quinsy - - - - -	4	4	—					
	Catarrh and Influenza - - - - -	18	20	—					
	Ophthalmia - - - - -	9	8	—					
	Fever (C. C.) - - - - -	39	38	1					
	Erysipelas - - - - -	2	2	—					
	Dysentery - - - - -	22	23	1					
	Diarrhoea - - - - -	47	45	—					
	Cholera - - - - -	9	6	3					
	Ague - - - - -	1	1	—					
	Remittent Fever - - - - -	2	2	—					
	Rheumatism - - - - -	45	47	—					
	ORDER 2.— <i>Enthetic Dis.</i>								
	Syphilis, &c. - - - - -	142	139	1	143	139	1	429·43	3·01
	Stricture of Urethra - - - - -	1	—	—					
	ORDER 3.— <i>Dietic Dis.</i>								
	Alcoholism { a. Del. Tremens - - - - -	9	13	—	11	14	—	33·03	—
	{ b. Intemperance - - - - -	2	2	—					
	ORDER 4.— <i>Parasitic Dis.</i>								
	Vermes - - - - -	2	2	—	2	2	—	6·01	—
II.	ORDER 1.— <i>Diathetic Dis.</i>								
	Lumbago - - - - -	6	5	—	7	6	—	21·03	—
	Dropsy - - - - -	1	1	—					

No. 106.—Madras ; Cavalry ; En Route, &c. Stational Returns. European Troops ; H. M. Regts.—*cont.*

Class.	Diseases.	3 Years, 1854 to 1856.*			Total for 3 Years.*			Annual Ratio per 1000 of Mean Strength.																																																																																																																																																																																																																																																																															
		(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	Attacked.	Died.																																																																																																																																																																																																																																																																														
II.	ORDER 2.— <i>Tubercular Dis.</i>																																																																																																																																																																																																																																																																																						
	Morbus COXAÏIUS - - - -	3	3	—	3	4	—	9·01	—																																																																																																																																																																																																																																																																														
	Scrofula - - - - -	—	1	—						III.	ORDER 1.										Cephalitis - - - - -	10	10	1	18	18	1	54·05	3·00		Apoplexy - - - - -	1	1	—		Paralysis - - - - -	2	2	—		Insanity - - - - -	1	1	—		Epilepsy - - - - -	4	4	—		ORDER 2.										Pericarditis - - - - -	1	2	—	2	5	—	6·01	—		Varix - - - - -	—	1	—		Heart Disease, &c. - - - -	1	2	—		ORDER 3.										Pneumonia - - - - -	2	2	—	2	3	—	6·01	—		Asthma - - - - -	—	1	—		ORDER 4.										Dyspepsia - - - - -	8	7	—	46	46	1	130·14	3·00		Ileus and Colic - - - - -	5	4	—		Hæmorrhoids - - - - -	4	3	—		Fistula - - - - -	1	1	—		Obstipatio - - - - -	11	11	—		Hepatitis - - - - -	11	14	1		Jaundice - - - - -	2	2	—		Spleen Disease, &c. - - - -	4	4	—		ORDER 6.										Hydrocele - - - - -	2	2	—	2	2	—	6·01	—		ORDER 7.										Joint Disease, &c. - - - -	1	1	—	1	1	—	3·00	—		ORDER 8.										Phlegmon - - - - -	32	35	—	60	62	—	180·17	—		Ulcer - - - - -	15	17	—		Skin Disease, &c. - - - - -	13	10	—	V.	ORDER 1.— <i>Accident or Negligence.</i>										Contusion - - - - -	34	43	—	42	51	1	126·12	3·01		Fracture - - - - -	2	2	—		Concussion of Brain - - - -	2	1	1		Wounds, Incised - - - - -	4	5	—		ORDER 5.										Observatio - - - - -	2	2	—
III.	ORDER 1.																																																																																																																																																																																																																																																																																						
	Cephalitis - - - - -	10	10	1	18	18	1	54·05	3·00																																																																																																																																																																																																																																																																														
	Apoplexy - - - - -	1	1	—																																																																																																																																																																																																																																																																																			
	Paralysis - - - - -	2	2	—																																																																																																																																																																																																																																																																																			
	Insanity - - - - -	1	1	—																																																																																																																																																																																																																																																																																			
	Epilepsy - - - - -	4	4	—																																																																																																																																																																																																																																																																																			
	ORDER 2.																																																																																																																																																																																																																																																																																						
	Pericarditis - - - - -	1	2	—	2	5	—	6·01	—																																																																																																																																																																																																																																																																														
	Varix - - - - -	—	1	—																																																																																																																																																																																																																																																																																			
	Heart Disease, &c. - - - -	1	2	—																																																																																																																																																																																																																																																																																			
	ORDER 3.																																																																																																																																																																																																																																																																																						
	Pneumonia - - - - -	2	2	—	2	3	—	6·01	—																																																																																																																																																																																																																																																																														
	Asthma - - - - -	—	1	—																																																																																																																																																																																																																																																																																			
	ORDER 4.																																																																																																																																																																																																																																																																																						
	Dyspepsia - - - - -	8	7	—	46	46	1	130·14	3·00																																																																																																																																																																																																																																																																														
	Ileus and Colic - - - - -	5	4	—																																																																																																																																																																																																																																																																																			
	Hæmorrhoids - - - - -	4	3	—																																																																																																																																																																																																																																																																																			
	Fistula - - - - -	1	1	—																																																																																																																																																																																																																																																																																			
	Obstipatio - - - - -	11	11	—																																																																																																																																																																																																																																																																																			
	Hepatitis - - - - -	11	14	1																																																																																																																																																																																																																																																																																			
	Jaundice - - - - -	2	2	—																																																																																																																																																																																																																																																																																			
	Spleen Disease, &c. - - - -	4	4	—																																																																																																																																																																																																																																																																																			
	ORDER 6.																																																																																																																																																																																																																																																																																						
	Hydrocele - - - - -	2	2	—						2	2	—	6·01	—																																																																																																																																																																																																																																																																									
	ORDER 7.																																																																																																																																																																																																																																																																																						
	Joint Disease, &c. - - - -	1	1	—	1	1	—	3·00	—																																																																																																																																																																																																																																																																														
	ORDER 8.																																																																																																																																																																																																																																																																																						
	Phlegmon - - - - -	32	35	—	60	62	—	180·17	—																																																																																																																																																																																																																																																																														
	Ulcer - - - - -	15	17	—																																																																																																																																																																																																																																																																																			
	Skin Disease, &c. - - - - -	13	10	—																																																																																																																																																																																																																																																																																			
V.	ORDER 1.— <i>Accident or Negligence.</i>																																																																																																																																																																																																																																																																																						
	Contusion - - - - -	34	43	—	42	51	1	126·12	3·01																																																																																																																																																																																																																																																																														
	Fracture - - - - -	2	2	—																																																																																																																																																																																																																																																																																			
	Concussion of Brain - - - -	2	1	1																																																																																																																																																																																																																																																																																			
	Wounds, Incised - - - - -	4	5	—																																																																																																																																																																																																																																																																																			
	ORDER 5.																																																																																																																																																																																																																																																																																						
	Observatio - - - - -	2	2	—	2	—	—	6·01	—																																																																																																																																																																																																																																																																														

* No Cavalry separately accounted for under this heading except during the Years 1854, 1855, and 1856.

No. 107.

MADRAS.—CANNANORE STATION.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 10 Years - - - - 9,032
 Mean Annual Strength - - - - - 903

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

CLASS.	Diseases.	Five Years, 1847 to 1851.			Five Years, 1852 to 1856.			Total for 10 Years.			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES -	7,965	7,869	112	5,298	5,185	80	13,263	13,064	192	1,468.44	21.25
	CLASSES.											
I.	ZYMOTIC DISEASES -	4,666	4,632	58	3,005	2,956	34	7,671	7,588	92	849.31	10.18
II.	CONSTITUTIONAL -	115	102	15	108	99	12	223	201	27	24.69	2.99
II.	LOCAL -	2,610	2,558	32	1,778	1,729	29	4,388	4,287	61	485.83	6.75
V.	DEVELOPMENTAL -	1	—	1	4	4	—	5	4	1	.55	.11
V.	VIOLENCE -	573	577	6	403	397	5	976	974	11	108.06	1.22
	ORDERS.											
I.	ORDER 1.—Miasmatic Dis.											
	Small-pox -	3	3	—	2	2	—					
	Varicella -	1	1	—	2	2	—					
	Measles -	5	5	—	—	—	—					
	Quinsy -	58	60	—	50	58	—					
	Catarrh and Influenza -	704	702	1	335	316	3					
	Ophthalmia -	235	240	—	68	69	—					
	Fever (C. C.) -	267	270	6	249	246	4					
	Ephemeral -	—	—	—	6	6	—	4,744	4,654	80	525.25	8.86
	Erysipelas -	4	3	1	7	7	—					
	Anthrax -	—	—	—	3	3	—					
	Dysentery -	403	360	38	302	282	15					
	Diarrhœa -	565	561	1	386	382	—					
	Cholera -	1	1	—	10	8	3					
	Ague -	36	34	—	224	225	—					
	Remittent Fever -	28	29	—	12	8	3					
	Rheumatism -	427	421	3	351	355	2					
	ORDER 2.—Euthetic Dis.											
	Syphilis, &c. -	1,604	1,611	1	821	817	1	2,471	2,473	2	273.58	.22
	Stricture of Urethra -	16	15	—	30	30	—					
	ORDER 3.—Dietic Dis.											
	Purpura and Scurvy -	36	44	1	10	9	1					
	Alcoholism - { a. Del. Tremens	63	63	2	21	8	2	370	375	10	40.96	1.10
	b. Intemperance	194	194	4	46	57	—					
	ORDER 4.—Parasitic Dis.											
	Vermes -	16	15	—	16	17	—	86	86	—	9.52	—
	Fsora -	—	—	—	54	54	—					
II.	ORDER 1.—Diathetic Dis.											
	Lumbago -	43	42	—	50	52	—					
	Dropsy -	4	4	—	6	4	2	104	103	2	11.51	.22
	Cancer -	—	—	—	1	1	—					
	ORDER 2.—Tubercular Dis.											
	Scrofula -	32	27	1	12	14	—					
	Phthisis -	23	15	14	29	16	10	119	98	25	13.18	2.77
	Hæmoptysis -	13	14	—	10	12	—					
III.	ORDER 1.											
	Cephalitis -	21	19	—	41	41	—					
	Apoplexy -	3	3	—	5	2	3					
	Paralysis -	7	5	2	16	15	2					
	Odontalgia -	24	25	—	2	2	—					
	Ineanty -	27	29	—	5	5	—	326	317	9	36.09	.99
	Tetanus -	1	—	1	—	—	—					
	Epilepsy -	41	40	1	18	19	—					
	Otitis -	68	68	—	44	42	—					
	Brain Disease, &c. -	1	1	—	1	1	—					
	Dysœcœa -	—	—	—	1	—	—					

No. 107.—Madras; Cannanore Station; Infantry. Stational Returns. European Troops; H.M. Regts.—*cont.*

Class.	Diseases.	Five Years, 1847 to 1851.			Five Years, 1852 to 1856.			Total for 10 Years.			Annual Ratio per 1000 of Mean Strength.		
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.	
III.	ORDER 2.												
	Pericarditis - - -	23	21	2	25	19	4	119	98	13	13.18	1.44	
	Aneurism - - -	5	—	5	14	4	2						
	Varix - - -	16	16	—	4	5	—						
	Heart Disease, &c. - - -	—	—	—	31	32	—						
	Phlebitis - - -	1	1	—	—	—	—						
	ORDER 3.												
	Laryngitis - - -	—	—	—	1	1	—	184	173	7	20.37	.77	
	Hydrothorax - - -	2	—	2	—	—	—						
	Bronchitis - - -	—	—	—	104	105	2						
	Pleurisy - - -	—	—	—	1	1	—						
	Pneumonia - - -	23	20	1	9	6	2						
	Asthma - - -	25	21	—	19	19	—						
	ORDER 4.												
	Dyspepsia - - -	272	271	—	274	273	1	2,118	2,066	32	234.5	3.55	
	Gastritis - - -	31	30	—	18	18	—						
	Enteritis - - -	2	1	1	2	2	—						
	Hæmatemesis - - -	2	2	—	—	—	—						
	Ascites - - -	—	—	—	1	1	—						
	Hernia - - -	18	16	—	7	6	—						
	Ileus and Colic - - -	163	163	—	29	26	—						
	Fistula - - -	9	10	—	6	6	—						
	Obstipatio - - -	419	421	—	168	162	—						
	Hæmorrhoids - - -	83	76	—	80	80	1						
	Hepatitis - - -	296	276	13	206	196	12						
Jaundice - - -	10	8	1	9	9	—							
Spleen Disease, &c. - - -	7	7	—	6	6	—							
ORDER 5.													
Nephritis - - -	—	—	—	5	6	—	22	24	—	2.44	—		
Enuresis - - -	2	2	—	—	—	—							
Ischuria - - -	—	—	—	5	5	—							
Cystitis - - -	4	4	—	2	2	—							
Dysuria - - -	4	5	—	—	—	—							
ORDER 6.													
Hydrocele - - -	6	6	—	10	9	—	17	16	—	1.88	—		
Sarcoma - - -	1	1	—	—	—	—							
ORDER 7.													
Hydrarthrus - - -	3	3	—	—	—	—	14	12	—	1.55	—		
Arthritis - - -	4	4	—	1	1	—							
Joint Disease, &c. - - -	3	2	—	2	1	—							
Contractura - - -	—	—	—	1	1	—							
ORDER 8.													
Phlegmon - - -	—	—	—	—	—	—	1,588	1,581	—	175.82	—		
Abscess - - -	416	415	—	315	311	—							
Ulcer - - -	328	328	—	206	208	—							
Tumor - - -	1	1	—	4	4	—							
Skin Disease, &c. - - -	238	237	—	80	77	—							
IV.	ORDER 4.												
	Atrophy - - -	1	—	1	4	4	5	4	1	.55	.11		
V.	ORDER 1.— <i>Accident or Negligence.</i>												
	Cause not known - - -	—	—	—	—	—	1	911	905	6	100.87	.66	
	Burns or Scalds - - -	8	9	—	2	2	—						
	Contusion - - -	292	292	—	212	210	—						
	Sub-luxation - - -	140	140	—	94	88	—						
	Luxation - - -	9	9	—	1	6	—						
	Fracture - - -	12	12	—	9	7	1						
	Wounds - { Gunshot	4	4	—	1	1	—						
	{ Incised	89	90	—	34	31	1						
	Concussio Cerebri - - -	1	1	—	3	3	—						
	Drowned - - -	—	—	2	—	—	1						
	ORDER 2.— <i>Battle.</i>												
	Killed in Action - - -	—	—	4	—	—	—	—	—	4	—	.45	
	ORDER 4.— <i>Suicide.</i>												
	Not stated - - -	—	—	—	—	—	1	—	—	1	—	.11	
	ORDER 5.												
	Punitus - - -	1	1	—	2	2	—	65	69	—	7.19	—	
	Observatio - - -	17	19	—	45	47	—						

No. 103.

MADRAS.—BANGALORE STATION.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 10 Years - - - - 8,271
 Mean Annual Strength - - - - 827

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Five Years, 1847 to 1851.			Five Years, 1852 to 1856.			Total for 10 Years.			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES -	6,952	6,808	146	4,392	4,373	50	11,344	11,181	196	1,371.53	23.69
	CLASSES.											
I.	ZYMOTIC DISEASES -	4,923	4,617	77	3,251	3,256	28	8,174	8,073	105	988.27	12.69
II.	CONSTITUTIONAL -	88	72	17	48	44	3	136	116	20	16.44	2.42
III.	LOCAL - - - -	1,513	1,484	43	886	864	18	2,399	2,348	61	290.05	7.37
IV.	DEVELOPMENTAL -	2	2	—	1	1	—	3	3	—	.36	—
V.	VIOLENCE - - - -	426	433	9	206	208	1	632	641	10	76.41	1.21
	ORDERS.											
I.	ORDER 1.—Miasmatic Dis.											
	Anthrax - - - -	3	3	—	—	—	—					
	Small-pox - - - -	7	4	3	2	2	—					
	Varicella - - - -	2	2	—	3	3	—					
	Measles - - - -	8	8	—	2	2	—					
	Quinsy - - - -	144	142	—	53	52	—					
	Catarrh and Influenza -	579	570	2	208	205	—					
	Ophthalmia - - - -	194	196	—	154	152	—					
	Fever (C. C.) - - - -	439	436	7	318	320	7	4,624	4,548	100	559.06	12.09
	Erysipelas - - - -	4	4	—	1	—	1					
	Dysentery - - - -	426	406	28	162	165	9					
	Diarrhœa - - - -	298	301	2	303	309	—					
	Cholera - - - -	36	9	28	12	7	6					
	Ague - - - -	27	26	—	197	194	—					
	Remittent Fever - - - -	5	2	4	48	45	2					
	Rheumatism - - - -	631	621	—	358	362	1					
	ORDER 2.—Ethereal Dis.											
	Syphilis, &c. - - - -	2,063	2,031	3	1,337	1,348	1	3,438	3,415	4	415.67	.48
	Stricture of Urethra - -	24	24	—	14	12	—					
	ORDER 3.—Dietic Dis.											
	Purpura and Scurvy - - -	6	6	—	—	—	—					
	Alcoholism { a. Del. Tremens -	23	22	—	35	34	1	80	78	1	9.67	.12
	b. Intemperance -	3	3	—	13	13	—					
	ORDER 4.—Parasitic Dis.											
	Vermes - - - -	1	1	—	11	11	—	32	32	—	3.87	—
	Psora - - - -	—	—	—	20	20	—					
II.	ORDER 1.—Diathetic Dis.											
	Lumbago - - - -	11	11	—	3	3	—	25	24	1	3.02	.12
	Dropsy - - - -	8	7	1	3	3	—					
	ORDER 2.—Tubercular Dis.											
	Morbus Coxarius - - - -	1	2	—	—	—	—	111	92	19	13.42	2.30
	Scrofula - - - -	19	19	—	12	11	—					
	Phthisis - - - -	43	27	16	21	20	2					
	Hæmoptysis - - - -	6	6	—	9	7	1					

No. 108.—Madras; Bangalore Station; Infantry. Stational Returns. European Troops; H.M. Regts.—cont.

Class.	Diseases.	Five Years, 1847 to 1851.			Five Years, 1852 to 1856.			Total for 10 Years.			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
III.	ORDER 1											
	Cephalitis	40	40	—	23	23	—	236	230	18	28.53	2.18
	Vertigo	1	1	—	—	—	—					
	Apoplexy	8	—	10	10	9	1					
	Paralysis	26	34	2	9	8	—					
	Insanity	18	20	1	9	10	1					
	Neuralgia	—	—	—	1	1	—					
	Epilepsy	15	15	—	20	17	1					
	Odontalgia	11	10	—	2	2	—					
	Otitis	26	25	—	11	11	—					
	Brain Disease, &c.	2	—	2	—	—	—					
	Dyseecia	1	1	—	3	3	—					
	ORDER 2.							128	110	21	15.48	2.54
	Pericarditis	30	24	8	16	15	1					
	Aneurism	4	—	6	10	8	2					
	Varix	4	3	—	2	3	—					
	Heart Disease, &c.	15	12	2	47	45	2					
	ORDER 3.							109	106	5	13.18	.60
	Bronchitis	—	—	—	7	6	1					
	Pleurisy	—	—	—	9	9	—					
	Pneumonia	32	30	—	10	7	3					
	Asthma	42	42	1	8	11	—					
	Phlebitis	1	1	—	—	—	—					
	ORDER 4.							1,022	991	17	123.57	2.05
	Dyspepsia	31	31	—	115	110	—					
	Gastritis	24	24	—	4	4	—					
	Enteritis	4	2	1	—	—	—					
	Ascites	1	1	—	—	—	—					
	Hæmatemesis	—	—	—	1	—	1					
	Hernia	6	6	—	2	2	—					
	Ileus and Colic	14	14	—	37	37	—					
	Hæmorrhoids	102	102	—	35	36	—					
	Fistula	6	7	—	—	—	—					
	Obstipatio	62	62	—	43	37	—					
	Hepatitis	361	352	10	134	126	5					
	Jaundice	18	18	—	7	4	—					
	Spleen Disease, &c.	8	9	—	7	7	—					
	ORDER 5.							24	23	—	2.90	—
	Nephritis	4	5	—	6	5	—					
	Ischuria	4	4	—	5	5	—					
	Hæmaturia	—	—	—	2	2	—					
	Cystitis	2	1	—	1	1	—					
	ORDER 6.							6	6	—	.72	—
	Sarcocele	1	1	—	—	—	—					
	Hydrocele	3	3	—	2	2	—					
ORDER 7.							9	10	—	1.09	—	
Arthritis	—	—	—	2	2	—						
Joint Disease, &c.	6	7	—	—	—	—						
Contractura	—	—	—	1	1	—						
ORDER 8.							865	872	—	104.58	—	
Phlegmon	291	290	—	164	175	—						
Abscess	—	—	—	—	—	—						
Ulcer	175	176	—	92	92	—						
Tumor	3	3	—	4	4	—						
Skin Disease, &c.	111	108	—	25	24	—						
IV.	ORDER 4.						3	3	—	.36	—	
Atrophy	2	2	—	1	1	—						
V.	ORDER 1.— <i>Accident or Negligence.</i>											
Killed by elephant	—	—	1	—	—	—	533	543	8	64.44	.97	
Not known	—	—	1	—	—	—						
Burns or Scalds	7	7	—	8	7	—						
Contusion	210	217	—	79	83	—						
Sub-luxation	88	87	—	55	58	—						
Luxation	—	—	—	2	2	—						
Fracture	12	11	1	9	8	1						
Concussio Cerebri	3	2	—	—	—	—						
Wounds, Incised	34	36	—	24	23	—						
Amputatio	—	—	—	2	2	—						
Drowned	—	—	4	—	—	—						
ORDER 4.— <i>Suicide.</i>												
Wounds, Gunshot	—	—	2	—	—	—			2	—	.24	
ORDER 5.							99	98	—	11.97	—	
Punitus	8	8	—	4	5	—						
Observatio	64	65	—	23	20	—						

No. 109.

MADRAS.—FORT ST. GEORGE STATION.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS.—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 8 Years - - - 6,601
 Mean Annual Strength - - - 825

RETURN showing (C.) the Number of ATTACKS of SICKNESS ; (E.) the Number DISCHARGED to DUTY ; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Five Years, 1847 to 1851.			Three Years,* 1852 to 1854.			Total for 8 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES -	9,131	8,878	171	3,108	3,245	58	12,239	12,123	229	1,854.11	34.69
	CLASSES.											
I.	ZYMOTIC DISEASES -	5,804	5,680	86	1,983	2,110	35	7,787	7,790	121	1,179.67	18.33
II.	CONSTITUTIONAL -	155	123	30	44	34	6	199	157	36	30.15	5.45
III.	LOCAL -	2,630	2,538	51	898	912	16	3,528	3,450	67	534.46	10.15
V.	VIOLENCE -	542	537	4	183	189	1	725	726	5	109.83	.76
	ORDERS.											
I.	ORDER 1.—Miasmatic Dis.											
	Small-pox -	7	6	—	—	1	—					
	Measles -	1	1	—	6	8	—					
	Scarlatina -	1	1	—	—	—	—					
	Quinsy -	57	58	—	23	23	—					
	Catarrh and Influenza -	572	578	3	189	194	1					
	Ophthalmia -	177	164	—	41	59	—					
	Fever (C. C.) -	1,124	1,108	10	383	381	4					
	Ephemeral -	—	—	—	6	6	—					
	Erysipelas -	—	—	—	3	4	—	5,038	4,976	107	763.22	16.21
	Anthrax -	—	—	—	2	2	—					
	Dysentery -	601	550	43	163	173	13					
	Diarrhœa -	452	444	4	361	359	1					
	Cholera -	18	5	12	24	9	15					
	Ague -	64	68	—	50	31	—					
	Remittent Fever -	10	10	—	40	53	1					
	Rheumatism -	541	540	—	122	140	—					
	ORDER 2.—Enthetic Dis.											
	Syphilis, &c. -	1,932	1,913	3	496	587	—	2,490	2,560	3	377.21	.45
	Stricture of Urethra -	45	39	—	17	21	—					
	ORDER 3.—Dietic Dis.											
	Purpura and Scurvy -	84	38	3	4	4	—					
	Alcoholism { a. Del. Tremens	79	71	8	14	16	—	246	241	11	37.27	1.67
	b. Intemperance	82	79	—	33	33	—					
	ORDER 4.—Parasitic Dis.											
	Verues -	7	7	—	6	6	—	13	13	—	1.97	—
II.	ORDER 1.—Diathetic Dis.											
	Lumbago -	29	25	—	9	9	—	43	38	1	6.51	.15
	Dropsy -	3	2	1	2	2	—					
	ORDER 2.—Tubercular Dis.											
	Morbus Coxarius -	1	—	—	1	1	—					
	Scrofula -	54	55	1	11	11	—	156	119	35	23.65	5.30
	Phthisis -	51	23	28	15	8	6					
	Hæmoptysis -	17	18	—	4	3	—					

No 109.—Madras ; Fort St. George ; Infantry. Stational Returns. European Troops ; H.M. Regts.—cont.

Class.	Diseases.	Five Years, 1847 to 1851.			Three Years,* 1852 to 1854.			Total for 8 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
III.	ORDER 1.											
	Cephalitis - - - - -	76	75	—	19	21	—	319	302	11	43·33	1·67
	Apoplexy - - - - -	6	1	6	3	3	—					
	Paralysis - - - - -	12	10	1	10	10	—					
	Odontalgia - - - - -	13	13	—	1	1	—					
	Insanity - - - - -	13	8	1	7	7	—					
	Epilepsy - - - - -	19	15	2	8	8	—					
	Neuralgia - - - - -	2	2	—	3	3	—					
	Otitis - - - - -	95	95	—	23	23	—					
	Chorea - - - - -	2	1	—	—	—	—					
	Brain Diseases, &c. - - -	1	—	1	—	—	—					
	Dysœcœa - - - - -	5	5	—	1	1	—					
	ORDER 2.											
	Pericarditis - - - - -	14	13	1	9	10	—	79	71	5	11·97	·76
	Aneurism - - - - -	—	—	—	3	—	3					
	Varix - - - - -	9	9	—	2	1	—					
	Heart Disease, &c. - - -	2	2	—	40	36	1					
	ORDER 3.											
	Epistaxis - - - - -	—	—	—	1	1	—	89	83	5	13·48	·76
	Bronchitis - - - - -	—	—	—	2	1	1					
	Pleurisy - - - - -	—	—	—	10	9	—					
	Pneumonia - - - - -	34	33	1	7	4	2					
	Asthma - - - - -	29	27	1	6	8	—					
	ORDER 4.											
	Dyspersia - - - - -	223	220	1	71	73	—	1,675	1,627	39	253·75	5·91
	Gastritis - - - - -	78	78	1	23	23	1					
	Enteritis - - - - -	3	3	—	—	—	—					
	Peritonitis - - - - -	1	1	—	—	—	—					
	Ascites - - - - -	1	—	1	4	3	1					
	Hæmatemesis - - - - -	1	—	—	1	1	—					
	Hernia - - - - -	8	8	—	4	4	—					
	Ileus and Colic - - - - -	51	51	—	40	40	—					
	Hæmorrhoids - - - - -	102	102	—	20	22	—					
	Fistula - - - - -	10	10	—	—	—	—					
	Obstipatio - - - - -	295	295	—	70	70	—					
Hepatitis - - - - -	526	470	31	86	101	3						
Jaundice - - - - -	17	12	—	5	5	—						
Spleen Disease, &c. - - -	29	29	—	6	6	—						
ORDER 5.												
Nephritis - - - - -	14	15	—	3	3	—	35	35	2	5·30	·30	
Ischuria - - - - -	—	—	—	3	2	—						
Dysuria - - - - -	12	12	—	—	—	—						
Hæmaturia - - - - -	—	—	—	—	1	1						
Cystitis - - - - -	3	2	1	—	—	—						
ORDER 6.												
Sarcocœle - - - - -	2	2	—	—	—	—	21	21	—	3·18	—	
Hydrocœle - - - - -	10	10	—	9	9	—						
ORDER 7.												
Hydrarthrus - - - - -	—	—	—	1	1	—	11	9	1	1·67	·15	
Arthritis - - - - -	—	—	—	2	2	—						
Joint Disease, &c. - - -	4	2	1	4	4	—						
ORDER 8.												
Phlegmon - - - - -	501	508	1	249	253	2	1,299	1,302	4	196·78	·60	
Abscess - - - - -												
Ulcer - - - - -												
Tumor - - - - -												
Skin Disease, &c. - - -	150	147	—	33	33	—						
ORDER 1.— <i>Accident or Negligence.</i>												
Burns or Scalds - - - - -	9	9	—	1	2	—	630	631	5	95·44	·76	
Contusion - - - - -	256	256	1	63	68	—						
Sub-luxation - - - - -	111	112	—	51	54	—						
Luxation - - - - -	11	11	—	2	2	—						
Fracture - - - - -	19	19	1	13	9	1						
Wounds, Incised - - - - -	82	78	1	11	11	—						
Concussio Cerebri - - -	1	—	1	—	—	—						
ORDER 5.												
Punitus - - - - -	3	3	—	3	3	—	95	95	—	14·39	—	
Observatio - - - - -	50	49	—	39	40	—						

* No Troops separately accounted for at this Station during the Years 1855 and 1856.

N.B.—Invalids are included in these Numbers, but the Returns do not enable them to be distinguished.

No. 110.

MADRAS.—EN ROUTE, &c.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 7 Years - - - - 3,118
 Mean Annual Strength - - - - 445

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Three Years,* 1847 to 1849.			Four Years,* 1852 to 1855.			Total for 7 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES -	2,108	1,975	49	2,480	2,476	76	4,588	4,451	125	1,471.47	40.08
	CLASSES.											
I.	ZYMOTIC DISEASES -	1,388	1,287	30	1,648	1,627	54	3,036	2,914	84	973.72	26.94
II.	CONSTITUTIONAL -	19	23	4	38	31	3	57	54	7	18.28	2.24
III.	LOCAL - - - -	570	544	14	615	632	17	1,185	1,176	31	380.05	9.94
IV.	DEVELOPMENTAL -	2	1	1	2	2	—	4	3	1	1.28	.32
V.	VIOLENCE - - - -	129	120	—	177	184	2	306	304	2	98.14	.64
	ORDERS.											
I.	ORDER 1.—Miasmatic Dis.											
	Small-pox - - - -	3	3	—	—	—	—					
	Measles - - - - -	—	—	—	4	4	—					
	Quinsy - - - - -	14	12	—	20	22	—					
	Catarrh and Influenza -	141	148	1	172	168	—					
	Ophthalmia - - - -	25	22	—	63	57	—					
	Fever (C. C.) - - - -	158	143	2	190	196	3	2,053	1,958	81	658.44	25.98
	Dysentery - - - - -	85	72	23	195	217	2					
	Diarrhœa - - - - -	187	207	3	143	149	2					
	Cholera - - - - -	76	35	—	1	1	44					
	Ague - - - - -	87	83	—	125	120	—					
	Remittent Fever - - -	27	7	—	3	4	—					
	Rheumatism - - - - -	123	113	—	211	175	1					
	ORDER 2.—Enthetic Dis.											
	Syphilis, &c. - - - -	417	400	1	491	481	—	912	887	1	292.5	.3
	Stricture of Urethra -	3	5	—	1	1	—					
	ORDER 3.—Dietic Dis.											
	Purpura and Scurvy -	—	—	—	9	10	—					
	Alcoholism { a. Del. Tremens	2	1	—	4	5	1	50	51	2	16.04	.64
	{ b. Intemperance	22	21	—	13	14	1					
	ORDER 4.—Parasitic Dis.											
	Vermes - - - - -	15	13	—	3	3	—	21	18	—	6.74	—
	Psora - - - - -	3	2	—	—	—	—					
II.	ORDER 1.—Diathetic Dis.											
	Lumbago - - - - -	7	7	—	6	6	—	16	17	—	5.13	—
	Dropsy - - - - -	2	3	—	1	1	—					
	ORDER 2.—Tubercular Dis.											
	Morbus Coxarius - - -	—	1	—	2	2	—					
	Scrofula - - - - -	3	3	—	16	15	—	41	37	7	13.15	2.24
	Phthisis - - - - -	4	8	4	8	3	3					
	Hæmoptysis - - - - -	3	1	—	5	4	—					

No. 110.—Madras; Infantry; En Route, &c. Stational Returns. European Troops; H. M. Regts.—cont.

Class.	Diseases.	Three Years,* 1847 to 1849.			Four Years,* 1852 to 1855.			Total for 7 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
III.	ORDER 1.											
	Cephalitis	27	25	—	23	25	—	143	139	8	45·86	2·57
	Apoplexy	5	—	3	2	—	5					
	Vertigo	—	—	—	1	1	—					
	Paralysis	4	2	—	6	10	—					
	Neuralgia	1	1	—	4	4	—					
	Insanity	9	9	—	9	8	—					
	Odontalgia	2	2	—	11	11	—					
	Epilepsy	8	8	—	6	6	—					
	Otitis	14	16	—	6	8	—					
Phlebitis	—	—	—	1	1	—						
Brain Disease, &c.	—	—	—	1	2	—						
ORDER 2.	Pericarditis	4	3	—	6	6	1	27	38	3	8·66	·96
	Aneurism	—	—	—	1	8	1					
	Varix	1	1	—	1	1	—					
	Heart Disease, &c.	3	6	1	11	13	—					
ORDER 3.	Epistaxis	—	—	—	2	2	—	38	46	2	12·19	·64
	Bronchitis	—	—	—	1	2	—					
	Pleurisy	—	—	—	1	2	—					
	Pneumonia	13	17	1	3	3	1					
	Asthma	13	16	—	5	4	—					
ORDER 4.	Dyspepsia	22	26	—	121	124	1	558	538	18	178·96	5·77
	Gastritis	3	4	—	4	3	—					
	Enteritis	1	2	—	—	—	—					
	Peritonitis	—	—	—	1	—	1					
	Ascites	2	—	2	1	—	—					
	Hæmatemesis	—	—	—	1	1	—					
	Hernia	3	3	—	4	4	—					
	Ileus and Colic	24	24	—	9	11	—					
	Hæmorrhoids	18	19	—	29	28	—					
	Fistula	2	—	—	—	—	—					
	Obstipatio	75	74	—	53	39	—					
	Hepatitis	126	128	7	51	41	6					
	Jaundice	—	—	—	2	1	1					
Spleen Disease, &c.	5	5	—	1	1	—						
ORDER 5.	Nephritis	3	2	—	1	1	—	6	7	—	1·92	—
	Ischuria	—	—	—	1	2	—					
	Stone	1	1	—	—	—	—					
	Cystitis	—	1	—	—	—	—					
ORDER 6.	Hydrocele	8	6	—	2	2	—	11	9	—	3·53	—
	Sarcocele	1	1	—	—	—	—					
ORDER 7.	Joint Disease, &c.	1	1	—	—	4	—	1	5	—	·32	—
ORDER 8.	Phlegmon	119	114	—	84	84	—	401	394	—	128·61	—
	Ulcer	63	66	—	93	79	—					
	Tumor	1	1	—	—	—	—					
	Skin Disease, &c.	30	36	—	11	14	—					
IV.	ORDER 1.											
Atrophy	2	1	1	2	2	—	4	3	1	1·28	·32	
V.	ORDER 1.— <i>Accident or Negligence.</i>											
Burns or Scalds	7	7	—	1	2	—	295	295	2	94·61	·64	
Contusion	111	117	—	73	67	—						
Sub-luxation	39	41	—	30	28	—						
Luxation	2	1	—	1	1	—						
Fracture	5	4	—	3	4	—						
Wounds { Gunshot	—	1	—	1	—	1						
{ Incised	8	9	—	9	9	—						
Amputatio	—	—	—	5	4	—						
Concussio Cerebri	—	—	—	—	—	1						
ORDER 5.	Punitus	2	1	—	1	1						—
Observatio	3	3	—	5	4	—						

* No Troops separately accounted for under this heading during the Years 1850, 1851, and 1856.

N.B.—Invalids are included in these Numbers, but the Returns do not enable them to be distinguished.

No. 111.

MADRAS.—TRICHINOPOLY STATION.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 4 Years - - - - 4,005
Mean Annual Strength - - - - 1,001

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Two Years,* 1850 and 1851.			Two Years,* 1852 and 1853.			Total for 4 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES	3,185	3,138	41	3,077	3,001	40	6,202	6,139	81	1,548.56	20.22
	CLASSES.											
I.	ZYMOTIC DISEASES	2,402	2,381	24	2,191	2,188	17	4,593	4,569	41	1,146.81	10.24
II.	CONSTITUTIONAL	24	21	5	65	56	6	89	77	11	22.22	2.74
III.	LOCAL	658	639	12	681	623	12	1,289	1,262	24	321.85	5.99
V.	VIOLENCE	101	97	—	130	134	5	281	231	5	57.68	1.25
	ORDERS.											
I.	ORDER 1.—Miasmatic Dis.											
	Varicella	—	—	—	1	1	—					
	Quincy	12	12	—	33	32	—					
	Catarra and Influenza	127	116	3	191	196	2					
	Ophthalmia	72	70	—	69	71	—					
	Fever (C. C.)	409	406	5	113	111	1					
	Anthrax	—	—	—	1	1	—					
	Dysentery	113	115	5	80	73	6	3,682	3,656	38	919.85	9.49
	Diarrhoea	170	172	—	244	244	1					
	Cholera	10	2	8	7	3	4					
	Ague	824	826	1	794	793	2					
	Remittent Fever	—	—	—	1	1	—					
	Rheumatism	191	191	—	220	220	—					
	ORDER 2.—Ethetic Dis.											
	Syphilis, &c.	443	440	2	386	393	—	849	852	2	211.98	.50
	Stricture of Urethra	11	11	—	9	8	—					
	ORDER 3.—Dietic Dis.											
	Bronchocele	1	1	—	—	—	—					
	Purpura and Scoury	3	3	—	—	—	—					
	Alcoholism { a. Del. Tremens	—	—	—	2	1	1	9	8	1	2.25	.25
	{ b. Intemperance	—	—	—	3	3	—					
	ORDER 4.—Parasitic Dis.											
	Verues	16	16	—	37	37	—	53	53	—	13.23	—
II.	ORDER 1.—Diathetic Dis.											
	Lumbago	2	2	—	17	17	—	37	33	3	9.24	.75
	Dropay	1	1	—	17	13	3					
	ORDER 2.—Tubercular Dis.											
	Scrofula	7	9	—	11	9	1					
	Pthisis	8	6	3	17	13	2	52	44	8	12.98	1.99
	Hæmoptysis	6	3	2	3	4	—					

No. 111.—Madras; Trichinopoly Station; Infantry. Stational Returns. European Troops; H. M. Regts.—*cont.*

Class.	Diseases.	Two Years,* 1850 and 1851.			Two Years,* 1852 and 1853.			Total for 4 Years.*			Annual Ratio per 1000 of Mean Strength.					
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Die				
III.	ORDER 1.															
	Cephalitis	36	34	—	40	39	—	157	143	11	39·2	2·74				
	Apoplexy	3	—	3	6	2	5									
	Paralysis	6	7	—	4	4	—									
	Odontalgia	—	—	—	1	1	—									
	Insanity	11	4	1	5	6	1									
	Tetanus	—	—	1	—	—	—									
	Epilepsy	12	12	—	3	3	—									
	Neuralgia	—	—	—	3	—	—									
	Otitis	11	11	—	13	13	—									
Dyseccæa	1	1	—	2	3	—										
III.	ORDER 2.															
	Pericarditis	2	3	—	1	1	—	39	87	3	9·74	·75				
	Aneurism	—	—	—	1	—	1									
	Varix	7	7	—	3	3	—									
	Heart Disease, &c.	11	8	2	13	14	—									
Phlebitis	1	1	—	—	—	—										
III.	ORDER 3.															
	Epistaxis	—	—	—	1	1	—	47	47	—	11·74	—				
	Laryngitis	—	—	—	2	2	—									
	Pneumonia	4	4	—	10	10	—									
Asthma	13	13	—	17	17	—										
III.	ORDER 4.															
	Dyspepsia	36	35	—	64	65	—	541	533	9	135·09	2·25				
	Gastritis	—	—	—	4	4	—									
	Peritonitis	2	2	—	—	—	—									
	Hernia	5	3	—	—	—	—									
	Ileus and Colic	4	4	—	4	4	—									
	Hæmatemesis	—	—	—	1	1	—									
	Hæmorrhoids	9	9	—	14	13	—									
	Fistula	1	1	—	—	—	—									
	Obstipatio	64	64	—	46	46	—									
	Hepatitis	138	137	4	131	129	3									
	Jaundice	3	2	—	10	10	1									
Spleen Disease, &c.	3	2	1	2	2	—										
III.	ORDER 5.															
	Nephritis	2	2	—	3	3	—	17	15	—	4·24	—				
	Ischuria	5	4	—	5	5	—									
	Stone	—	—	—	1	1	—									
Cystitis	—	—	—	1	—	—										
III.	ORDER 6.															
	Sarcocele	—	1	—	—	—	—	8	10	—	1·99	—				
Hydrocele	6	7	—	2	2	—										
III.	ORDER 7.															
Arthritis	—	—	—	1	1	—	1	1	—	·25	—					
III.	ORDER 8.															
	Phlegmon	161	160	—	120	121	—	479	476	1	119·6	·25				
	Abscess															
	Ulcer															
Tumor																
Skin Disease, &c.	12	10	—	30	30	—										
V.	ORDER 1.— <i>Accident or Negligence.</i>															
	Found dead	—	—	—	—	—	1	210	210	5	52·43	1·25				
	Contusion	58	56	—	63	64	1									
	Sub-luxation	22	22	—	43	43	—									
	Luxation	1	2	—	—	—	—									
	Fracture	1	1	—	2	2	—									
	Lightning Stroke	—	—	—	1	1	1									
	Wounds, Incised	8	8	—	11	11	—									
	Drowned	—	—	—	—	—	2									
	ORDER 5.															
Punitus	2	1	—	2	3	—	21						21	—	5·25	—
Observatio	9	7	—	8	10	—										

* No Troops separately accounted for at this Station during the Years 1847 to 1849 and 1854 to 1856.

No. 112.

MADRAS.—SECUNDERABAD STATION.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 3 Years - - - - 3,022
 Mean Annual Strength - - - - 1,007

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Three Years, 1847 to 1849.*			Total for 3 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES - - -	4,803	4,680	97	4,803	4,680	97	1,589.43	32.09
	CLASSES.								
I.	ZYMOTIC DISEASES - - -	3,783	3,710	59	3,783	3,710	59	1,251.9	19.52
II.	CONSTITUTIONAL - - -	43	37	8	43	37	8	14.23	2.65
III.	LOCAL - - - - -	831	786	26	831	786	26	274.99	8.60
IV.	DEVELOPMENTAL - - -	1	1	—	1	1	—	.33	—
V.	VIOLENCE - - - - -	145	145	4	145	145	4	47.98	1.32
	ORDERS.								
I.	ORDER 1.— <i>Miasmatic Dis.</i>								
	Small-pox - - - - -	7	6	1	2,521	2,447	56	834.21	18.53
	Vaccinia - - - - -	1	1	—					
	Quinsy - - - - -	32	31	—					
	Catarrh and Influenza - - -	201	200	3					
	Ophthalmia - - - - -	118	122	—					
	Fever (C. C.) - - - - -	832	818	8					
	Icteroles - - - - -	1	1	—					
	Erysipelas - - - - -	2	2	—					
	Dysentery - - - - -	368	324	35					
	Diarrhœa - - - - -	399	396	2					
	Cholera - - - - -	5	5	1					
	Ague - - - - -	291	286	—					
	Remittent Fever - - - - -	7	5	2					
	Rheumatism - - - - -	257	250	4					
	ORDER 2.— <i>Ethetic Dis.</i>								
	Syphilis, &c. - - - - -	1,233	1,235	3	1,241	1,243	3	410.65	.99
	Stricture of Urethra - - -	8	8	—					
	ORDER 3.— <i>Dietic Dis.</i>								
	Purpura and Scurvy - - -	12	12	—	17	18	—	5.62	—
	Alcoholism { a. Del. Tremens b. Intemperance	1 4	2 4	— —					
	ORDER 4.— <i>Parasitic Dis.</i>								
	Vermes - - - - -	2	2	—	4	2	—	1.32	—
	Dracunculus - - - - -	2	—	—					
II.	ORDER 2.— <i>Tubercular Dis.</i>								
	Morbus Coxarius - - - - -	1	1	—	43	37	8	14.23	2.65
	Scrofula - - - - -	14	14	—					
	Phthisis - - - - -	13	8	7					
	Hæmoptysis - - - - -	15	14	1					

No. 112.—Madras ; Secunderabad Station ; Infantry. Stational Returns. Europ. Troops ; H.M. Regts.—*cont.*

Class.	Diseases.	Three Years, 1847 to 1849.*			Total for 3 Years.*			Annual Ratio per 1000 of Mean Strength.					
		(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. dis- charged to Duty.	(F.) No. of Deaths.	Attacked.	Died.				
III.	ORDER I.												
	Cephalitis	20	18	1	67	57	4	22·17	1·32				
	Apoplexy	2	2	—									
	Paralysis	8	5	1									
	Insanity	15	13	—									
	Odontalgia	1	1	—									
	Epilepsy	4	4	—									
	Tetanus	1	—	1									
	Otitis	13	13	1									
	Brain Disease, &c.	3	1	—									
	ORDER 2.												
	Pericarditis	11	6	2	22	18	4	7·28	1·32				
	Varix	2	2	—									
	Heart Disease, &c.	9	10	1									
	Aneurism	—	—	1									
	ORDER 3.												
	Epistaxis	4	4	—	42	37	1	13·90	·33				
	Hydrothorax	1	—	1									
	Pneumonia	21	20	—									
	Asthma	16	13	—									
	ORDER 4.												
	Dyspepsia	40	38	1	413	391	16	136·68	5·30				
	Gastritis	1	1	—									
	Enteritis	1	1	—									
	Peritonitis	2	1	1									
	Hernia	1	1	—									
	Ileus and Colic	32	31	1									
	Hæmorrhoids	32	32	—									
	Fistula	8	8	—									
	Obstipatio	105	104	1									
	Hepatitis	190	173	12									
Spleen Disease, &c.	1	1	—										
ORDER 5.													
Nephritis	2	2	—	6						6	—	1·98	—
Dysuria	4	4	—										
ORDER 6.													
Hydrocele	1	—	1	1	—	1	·33	·33					
ORDER 7.													
Arthritis	1	—	—	1	—	—	·33	—					
ORDER 8.													
Phlegmon	215	215	—	279	277	—	92·32	—					
Abcess													
Ulcer													
Skin Disease, &c.	13	13	—										
IV.	ORDER 4.												
Atrophy	1	1	—	1	1	—	·33	—					
V.	ORDER 1.— <i>Accident or Negligence.</i>												
Found dead	—	—	1	137	137	2	45·33	·66					
Burns or Scalds	1	1	—										
Contusion	72	73	—										
Sub-luxation	38	37	—										
Luxation	3	3	—										
Fracture	1	1	—										
Wounds, Incised	22	22	—										
Drowned	—	—	1										
ORDER 4.— <i>Suicide.</i>													
Not stated	—	—	1	—	—	2	—	·66					
Suspendium	—	—	1										
ORDER 5.													
Punitus	1	1	—	8	8	—	2·65	—					
Observatio	7	7	—										

* Troops only separately accounted for at this Station during the Years 1847 to 1849.

No. 113.

MADRAS.—JACKATALLA STATION.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 3 Years - - - - - 1,687
 Mean Annual Strength - - - - - 562

RETURN showing (C.) the Number of ATTACKS of SICKNESS; (E.) the Number DISCHARGED to DUTY; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Three Years, 1854 to 1856.*			Total for 3 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES - - -	1,596	1,566	66	1,596	1,566	66	946.06	39.11
	CLASSES.								
I.	ZYMOTIC DISEASES - - -	1,074	1,044	38	1,074	1,044	38	636.63	22.52
II.	CONSTITUTIONAL - - -	16	16	2	16	16	2	9.48	1.18
III.	LOCAL - - - - -	382	380	26	382	380	26	226.44	15.41
IV.	DEVELOPMENTAL - - -	6	6	—	6	6	—	3.55	—
V.	VIOLENCE - - - - -	118	120	—	118	120	—	69.95	—
	ORDERS.								
I.	ORDER 1.—Miasmatic Dis.								
	Small-pox - - - - -	1	1	—	797	765	37	472.44	21.93
	Varicella - - - - -	5	4	—					
	Quinsy - - - - -	17	19	—					
	Catarrh and Influenza - - -	63	63	1					
	Ophthalmia - - - - -	78	77	—					
	Fever (C.C.) - - - - -	27	31	2					
	Typhus - - - - -	1	—	1					
	Ephemeral - - - - -	23	24	—					
	Erythema - - - - -	4	4	—					
	Erysipelas - - - - -	1	1	—					
	Anthrax - - - - -	1	1	—					
	Dysentery - - - - -	89	71	19					
	Diarrhoea - - - - -	182	174	6					
	Cholera - - - - -	15	7	8					
	Ague - - - - -	166	168	—					
	Remittent Fever - - - - -	52	58	—					
	Rheumatism - - - - -	72	62	—					
	ORDER 2.—Euthetic Dis.								
	Syphilis, &c. - - - - -	245	249	—	249	253	—	147.6	—
	Stricture of Urethra - - -	4	4	—					
	ORDER 3.—Dietic Dis.								
	Alcoholism { a. Del. Tremens - - -	3	2	1	17	15	1	10.08	.59
	b. Intemperance - - - - -	14	13	—					
	ORDER 4.—Parasitic Dis.								
	Verres - - - - -	3	3	—	11	11	—	6.52	—
	Psora - - - - -	8	8	—					
II.	ORDER 1.—Diathetic Dis.								
	Lumbago - - - - -	7	7	—	8	7	2	4.74	1.18
	Dropsy - - - - -	1	—	2					
	ORDER 2.—Tubercular Dis.								
	Scrofula - - - - -	6	6	—	8	9	—	4.74	—
	Phthisis - - - - -	1	2	—					
	Hæmoptysis - - - - -	1	1	—					

No. 113.—Madras; Jackatalla Station; Infantry. Stational Returns. European Troops; H. M. Regts.—cont

Class.	Diseases.	Three Years, 1854 to 1856.*			Total for 3 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
III.	ORDER 1.								
	Cephalitis - - - -	22	22	—	45	41	8	26·67	4·74
	Apoplexy - - - -	4	1	6					
	Paralysis - - - -	7	7	—					
	Insanity - - - -	3	3	—					
	Epilepsy - - - -	4	4	—					
	Otitis - - - -	4	4	—					
	Brain Disease, &c. - -	1	—	1					
	Tetanus - - - -	—	—	1					
	ORDER 2.								
	Pericarditis - - - -	5	4	1	18	16	3	10·67	1·78
	Aneurism - - - -	3	2	2					
	Heart Disease, &c. - -	10	10	—					
	ORDER 3.								
	Bronchitis - - - -	11	11	—	17	16	1	10·08	·59
	Pleurisy - - - -	2	2	—					
	Pneumonia - - - -	4	3	1					
	ORDER 4.								
	Dyspepsia - - - -	64	62	1	184	183	13	109·08	7·71
	Gastritis - - - -	1	1	—					
	Enteritis - - - -	1	—	1					
	Ascites - - - -	1	1	—					
	Hæmatemesis - - - -	1	1	—					
	Ileus and Colic - - - -	6	6	—					
	Hæmorrhoids - - - -	9	9	—					
	Obstipatio - - - -	34	32	—					
	Hepatitis - - - -	56	63	9					
Jaundice - - - -	6	3	2						
Spleen Disease, &c. - -	5	5	—						
ORDER 5.									
Nephritis - - - -	1	1	—	6	5	1	3·55	·59	
Ischuria - - - -	3	3	—						
Stone - - - -	1	1	—						
Cystitis - - - -	1	—	1						
ORDER 6.									
Hydrocele - - - -	—	1	—	—	1	—	—	—	
ORDER 7.									
Arthritis - - - -	2	2	—	7	6	—	4·15	—	
Joint Disease, &c. - -	4	3	—						
Contractura - - - -	1	1	—						
ORDER 8.									
Phlegmon - - - -	45	46	—	105	112	—	62·24	—	
Abscess - - - -									
Ulcer - - - -									
Tumor - - - -									
Skin Disease, &c. - -									7	6	—
IV.	ORDER 4.								
Atrophy - - - -	6	6	—	6	6	—	3·55	—	
V.	ORDER 1.— <i>Accident or Negligence.</i>								
Burns or Scalds - - - -	3	4	—	88	90	—	52·17	—	
Contusion - - - -	35	85	—						
Sub-luxation - - - -	25	24	—						
Luxation - - - -	5	6	—						
Fracture - - - -	14	14	—						
Wounds { Gunshot - - - -	1	1	—						
{ Incised - - - -	3	3	—						
Amputatio - - - -	2	3	—						
ORDER 5.									
Punitus - - - -	2	2	—	30	30	—	17·78	—	
Observatio - - - -	28	28	—						

* Troops only separately accounted for at this Station during the Years 1854, 1855, and 1856.

No. 114.

MADRAS.—POONAMALLEE STATION.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Aggregate Strength for 2 Years - - - - - 201
 Mean Annual Strength - - - - - 100

RETURN showing (C.) the Number of ATTACKS of SICKNESS ; (E.) the Number DISCHARGED to DUTY ; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	Two Years, 1847 and 1848.*			Total for 2 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES	299	362	18	299	362	18	1,487.58	89.55
	CLASSES.								
I.	ZYMOTIC DISEASES	218	276	14	218	276	14	1,084.6	69.65
II.	CONSTITUTIONAL	3	2	—	3	2	—	14.92	—
III.	LOCAL	61	64	4	61	64	4	303.48	19.90
V.	VIOLENCE	17	20	—	17	20	—	84.58	—
	ORDERS.								
I.	ORDER 1.— <i>Miasmatic Dis.</i>								
	Quinsy	1	1	—	146	180	14	726.38	69.65
	Catarrh and Influenza	6	5	—					
	Ophthalmia	1	2	—					
	Fever (C.C.)	36	46	—					
	Dysentery	86	99	14					
	Diarrhoea	8	10	—					
	Ague	3	8	—					
	Rheumatism	5	9	—					
	ORDER 2.— <i>Enthetic Dis.</i>								
	Syphilis, &c.	64	82	—	64	82	—	318.42	—
	Stricture of Urethra	—	1	—					
	ORDER 3.— <i>Dietic Dis.</i>								
	Alcoholism { a. Del. Tremens -	5	10	—	7	12	—	34.83	—
	{ b. Intemperance -	2	2	—					
	ORDER 4.— <i>Parasitic Dis.</i>								
	Vermes	1	1	—	1	1	—	4.97	—

No. 114.—Madras ; Poonamallee Station ; Infantry. Stational Returns. Europ. Troops ; H. M. Regts.—*cont.*

Class.	Diseases.	Two Years, 1847 and 1848.*			Total for 2 Years.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
II.	ORDER 2.— <i>Tubercular Dis.</i>								
	Scrofula	3	2	—	3	2	—	14.92	—
III.	ORDER 1.								
	Cephalitis	1	1	—	6	9	1	29.85	.97
	Paralysis	2	2	1					
	Insanity	—	3	—					
	Epilepsy	1	1	—					
	Otitis	2	2	—					
	ORDER 3.								
	Pneumonia	1	1	—	1	1	—	4.97	—
	ORDER 4.								
	Dyspepsia	2	2	—	36	36	3	179.12	14.93
	Gastritis	1	—	—					
	Enteritis	1	1	—					
	Peus and Colic	3	3	—					
	Hæmorrhoids	5	7	—					
	Fistula	—	1	—					
	Obstipatio	1	1	—					
	Hepatitis	21	20	3					
	Jaundice	1	1	—					
	Spleen Disease, &c.	1	—	—					
	ORDER 5.								
	Nephritis	2	2	—	3	3	—	14.92	—
	Cystitis	1	1	—					
	ORDER 6.								
	Sarcocœle	1	1	—	1	1	—	4.97	—
	ORDER 8.								
	Phlegmon	11	9	—	14	12	—	69.65	—
	Ulcer	3	3	—					
V.	ORDER 1.— <i>Accident or Negligence.</i>								
	Contusion	11	12	—	17	20	—	84.58	—
	Sub-luxation	5	6	—					
	Wounds, Incised	1	2	—					

* Troops only separately accounted for at this Station during the Years 1847 and 1848.

No. 115.

MADRAS.—KAMPTEE STATION.—INFANTRY.

STATIONAL RETURNS.—EUROPEAN TROOPS.—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

Mean Annual Strength - - - - - 767

RETURN showing (C.) the Number of ATTACKS of SICKNESS ; (E.) the Number DISCHARGED to DUTY ; and (F.) the Number of DEATHS by different DISEASES.

Class.	Diseases.	One Year, 1847.*			Total for 1 Year.*			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
	SPECIFIED CAUSES - - -	1,029	1,023	27	1,029	1,023	27	1,341.59	85.2
	CLASSES.								
I.	ZYMOTIC DISEASES - - -	793	793	16	793	793	16	1,033.9	20.86
II.	CONSTITUTIONAL - - -	3	5	—	3	5	—	3.91	—
III.	LOCAL - - - - -	201	189	11	201	189	11	262.06	14.34
IV.	DEVELOPMENTAL - - -	1	1	—	1	1	—	1.30	—
V.	VIOLENCE - - - - -	31	35	—	31	35	—	40.42	—
	ORDERS.								
I.	ORDER 1.— <i>Miasmatic Dis.</i>								
	Small-pox - - - - -	2	2	—	599	587	15	780.97	19.56
	Quinsy - - - - -	9	10	—					
	Catarrh and Influenza - - -	28	31	—					
	Ophthalmia - - - - -	9	11	—					
	Fever (C.C.) - - - - -	142	144	5					
	Erysipelas - - - - -	1	1	—					
	Dysentery - - - - -	99	83	10					
	Diarrhoea - - - - -	41	41	—					
	Ague - - - - -	164	163	—					
	Remittent Fever - - - - -	14	13	—					
	Rheumatism - - - - -	90	88	—					
	ORDER 2.— <i>Enthetic Dis.</i>								
	Syphilis, &c. - - - - -	183	196	1	186	199	1	242.5	1.30
	Stricture of Urethra - - -	3	3	—					
	ORDER 3.— <i>Dietic Dis.</i>								
	Alcoholism { a. Del. Tremens - - -	3	2	—	7	6	—	9.13	—
	{ b. Intemperance - - -	4	4	—					
	ORDER 4.— <i>Parasitic Dis.</i>								
	Verues - - - - -	1	1	—	1	1	—	1.30	—
II.	ORDER 1.— <i>Diathetic Dis.</i>								
	Lumbago - - - - -	1	1	—	2	2	—	2.61	—
	Dropsy - - - - -	1	1	—					
	ORDER 2.— <i>Tubercular Dis.</i>								
	Scrofula - - - - -	1	3	—	1	3	—	1.30	—

No. 115.—Madras ; Kamptee Station ; Infantry. Stational Returns. Europ. Troops ; H.M. Regts.—cont.

Class.	Diseases.	One Year, 1847.*			Total for 1 Year.*-			Annual Ratio per 1000 of Mean Strength.	
		(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	(C.) No. of Attacks.	(E.) No. discharged to Duty.	(F.) No. of Deaths.	Attacked.	Died.
III.	ORDER 1.								
	Cephalitis - - - -	13	13	—	29	23	7	37·81	9·13
	Apoplexy - - - -	4	—	6					
	Vertigo - - - -	1	1	—					
	Paralysis - - - -	1	1	—					
	Odontalgia - - - -	1	1	—					
	Insanity - - - -	1	2	—					
	Neuralgia - - - -	2	2	—					
	Epilepsy - - - -	2	1	1					
	Otitis - - - -	2	2	—					
	Dyseccœa - - - -	2	—	—					
	ORDER 2.								
	Pericarditis - - - -	2	1	1	4	3	1	5·22	1·30
	Varix - - - -	2	2	—					
	ORDER 3.								
	Pneumonia - - - -	3	3	—	10	9	—	13·04	—
	Asthma - - - -	7	6	—					
	ORDER 4.								
	Dyspepsia - - - -	28	29	—	91	91	9	118·64	3·91
	Enteritis - - - -	1	1	—					
	Peritonitis - - - -	1	1	—					
	Ileus and Colic - - - -	3	3	—					
	Hæmorrhoids - - - -	8	7	—					
Obstipatio - - - -	10	11	—						
Hepatitis - - - -	33	33	2						
Jaundice - - - -	3	2	1						
Spleen Disease, &c - - - -	4	4	—						
ORDER 6.									
Hydrocele - - - -	1	1	—	1	1	—	1·30	—	
ORDER 7.									
Arthritis - - - -	1	1	—	2	2	—	2·61	—	
Joint Disease, &c. - - - -	1	1	—						
ORDER 8.									
Phlegmon - - - -	17	17	—	64	60	—	83·44	—	
Ulcer - - - -	31	26	—						
Tumor - - - -	1	1	—						
Skin Diseases, &c. - - - -	15	16	—						
IV.	ORDER 4.								
Atrophy - - - -	1	1	—	1	1	—	1·30	—	
V.	ORDER 1.— <i>Accident or Negligence.</i>								
Burns or Scalds - - - -	2	2	—	31	35	—	40·42	—	
Contusion - - - -	13	15	—						
Sub-luxation - - - -	6	6	—						
Fracture - - - -	1	4	—						
Wounds { Gunshot - - - -	1	—	—						
{ Incised - - - -	8	8	—						

* Troops only separately accounted for at this Station during the Year 1847.

No. 116.

MADRAS.—CANNANORE STATION.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

(B.)—RETURN showing for each YEAR the REGIMENTS at the STATION, MEAN STRENGTH, NUMBER constantly SICK, ADMISSIONS, DISCHARGES, and DEATHS.

Year.	Regiments or Detachments at the Station.		Mean Strength during the Year.	Mean Number constantly sick in Hospital.	Admissions into Hospital during the Year.	Discharged from Hospital.	Deaths.
	Names.	Strength.					
1847	25th Foot	- - 1,149	1,149	103·25	2,179	2,145	41
1848	94th Foot	- - 873	873	61·50	1,452	1,409	17
1849	94th Foot	- - 1,131	1,131	72·75	1,675	1,665	17
1850	94th Foot	- - 1,087·75	1,088	51·75	1,315	1,333	12
1851	94th Foot	- - 1,028	1,028	52·50	1,329	1,317	23
1852	94th Foot	- - 776·25	909	54·25	1,235	1,142	10
1852	25th Foot	- - 132·75		7·25	193	196	2
1853	25th Foot	- - 864	864	59·25	1,253	1,184	32
1854	25th Foot	- - 938	938	57	1,150	1,158	21
1855	25th Foot	- - 254	576	12·25	242	287	2
1855	74th Foot	- - 321·75		21·25	505	491	7
1856	74th Foot	- - 476	476	33·50	724	709	11
Total	- - -	9,031·5	9,032	586·5	13,252	13,036	195
Mean	- - -	—	903	59	1,325	1,304	19·5

No. 117.

MADRAS.—BANGALORE STATION.

1847	15th Hussars	- - 665·75	1,609	61·75	846	815	8
1847	51st Foot	- - 943·50		64	1,682	1,591	48
1848	15th Hussars	- - 689	1,816	67·25	1,082	1,086	11
1848	51st Foot	- - 1,127·50		87·25	1,757	1,707	23
1849	15th Hussars	- - 667·75	1,492	38·50	765	774	10
1849	51st Foot	- - 824		64·75	1,196	1,195	23
1850	15th Hussars	- - 696·50	1,720	44·25	954	934	9
1850	25th Foot	- - 1,023·75		66·75	1,265	1,263	26
1851	15th Hussars	- - 685·50	1,692	45	880	889	14
1851	25th Foot	- - 1,007		57·50	1,053	1,047	17
1852	15th Hussars	- - 672·75	1,152	52	928	887	14
1852	25th Foot	- - 479·25		28·50	583	578	5
1853	15th Hussars	- - 694·25	1,047	56	1,052	1,037	19
1853	94th Foot	- - 352·75		26	774	748	4
1854	12th Lancers	- - 381·75	704	36	594	592	6
1854	43rd Foot	- - 322·25		24	471	422	11
1855	43rd Foot	- - 1,014	1,014	75	1,264	1,327	21
1856	43rd Foot	- - 1,177	1,177	76	1,300	1,308	15
Total	- - -	13,424·25	13,424	969·5	18,446	18,200	269
Mean	- - -	—	1,342	97	1,845	1,820	26·9

No. 118.

MADRAS.—FORT ST. GEORGE STATION.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS
AND MEN.(B.)—Return showing for each YEAR the REGIMENTS at the STATION, MEAN STRENGTH, NUMBER constantly
SICK, ADMISSIONS, DISCHARGES, and DEATHS.

Year.	Regiments or Detachments at the Station.		Mean Strength during the Year.	Mean Number constantly sick in Hospital.	Admissions into Hospital during the Year.	Discharged from Hospital.	Deaths.
	Names.	Strength.					
1847	94th Foot	897	897	56·75	1,331	1,228	29
1848	25th Foot	848·75	849	81·50	1,627	1,611	16
1849	25th Foot	1,083	1,083	104	2,288	2,252	69
1850	51st Foot	1,059	1,059	80	2,115	2,084	32
1851	51st Foot	995	995	94	1,779	1,739	28
1852	25th Foot	322	322	17·50	434	423	6
1853	25th Foot	102·25	623	6	149	157	5
1853	94th Foot	504·50		33·50	816	805	9
1853	43rd Foot	16·50	772	·75	25	10	—
1854	43rd Foot	617·50		48	1,151	1,094	26
1854	94th Foot	148·75		9·25	158	209	—
1854	51st Foot	6·85	—	·75	19	90	—
Total	-	6,601·1		6,601	532	11,892	11,702	223
Mean	-	—	825	67	1,487	1,463	28

No. 119.

MADRAS.—EN ROUTE, &c.

1847	Sundry	226	226	10·75	279	297	16
1848	Sundry	787	787	44·5	1,343	1,326	22
1849	Sundry	530	530	38·5	857	869	13
1852	Sundry	519	519	37·5	752	822	12
1853	Sundry	106	106	7·5	171	207	2
1854	Sundry	932	932	56	1,723	1,609	61
1855	Sundry	327	327	26·5	688	640	10
1856	Sundry	24	24	·5	40	16	—
Total	-	3,451	3,451	221·75	5,853	5,786	136
Mean	-	—	444	28	731	723	17

No. 120.

MADRAS.—TRICHINOPOLY STATION.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

(B).—RETURN showing for each YEAR the REGIMENTS at the STATION, MEAN STRENGTH, NUMBER constantly SICK, ADMISSIONS, DISCHARGES, and DEATHS.

Year.	Regiments or Detachments at the Station.		Mean Strength during the Year.	Mean Number constantly sick in Hospital.	Admissions into Hospital during the Year.	Discharged from Hospital.	Deaths.
	Names.	Strength.					
1850	84th Foot	- - 992	992	71·25	1,832	1,805	26
1851	84th Foot	- - 1,004	1,004	57·50	1,290	1,338	15
1852	84th Foot	- - 1,012	1,012	58·50	1,554	1,534	15
1853	84th Foot	- - 997	997	59·50	1,466	1,467	26
	Total	- - - 4,005	4,005	246·75	6,142	6,144	82
	Mean	- - - —	1,001	62	1,533	1,534	20

No. 121.

MADRAS.—SECUNDERABAD STATION.

1847	84th Foot	- - 1,103	1,103	69·	1,860	1,799	39
1848	84th Foot	- - 1,129·75	1,130	73·	1,671	1,637	36
1849	84th Foot	- - 789	789	61·25	1,275	1,256	21
	Total	- - - 3,021·75	3,022	208·25	4,806	4,692	96
	Mean	- - - —	1,007	69	1,602	1,230	32

No. 122.

MADRAS.—JACKATALLA STATION.

1854	74th Highlanders	- 642	642	31·	782	758	28
1855	74th Highlanders	- 602	602	24·25	478	485	29
1856	74th Highlanders	- 443	443	17·25	355	337	11
	Total	- - - 1,687	1,687	72·5	1,615	1,580	68
	Mean	- - - —	529	24	538	527	23

No. 123.

MADRAS.—POONAMALLEE STATION.

1847	63rd Foot	- - 171	171	12	226	256	18
1848	63rd Foot	- - 30	30	1·75	71	108	1
	Total	- - - 201	201	13·75	297	364	19
	Mean	- - - —	100	7	148	182	9

No. 124.

MADRAS.—KAMPTEE STATION.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS AND MEN.

(B).—RETURN showing for each YEAR the REGIMENTS at the STATION, MEAN STRENGTH, NUMBER constantly SICK, ADMISSIONS, DISCHARGES, and DEATHS.

Year.	Regiments or Detachments at the Station.		Mean Strength during the Year.	Mean Number constantly sick in Hospital.	Admissions into Hospital during the Year.	Discharged from Hospital.	Deaths.
	Names.	Strength.					
1847	4th Foot - - -	767	767	41·50	1,023	1,025	27
	Total and Mean - -	—	767	41·5	1,023	1,025	27

No. 125.

TROOPS ON FIELD SERVICE IN BENGAL, MADRAS, AND BOMBAY.

1848	3rd Dragoons - - -	171	1,898	6	191	158	8
1848	14th Dragoons - - -	154		13	228	247	25
1848	10th Regiment - - -	172		23	356	414	21
1848	24th Regiment - - -	288		6	339	332	17
1848	32nd Regiment - - -	588		47	1,606	1,556	84
1848	60th Regiment - - -	252		Not stated	374	392	7
1848	61st Regiment - - -	272		8	321	304	11
1849	3rd Dragoons - - -	167	2,702	10	216	200	27
1849	9th Dragoons - - -	179		7	155	133	12
1849	14th Dragoons - - -	157		10	220	137	10
1849	10th Regiment - - -	188		17	464	379	25
1849	Detachment, 18th Regiment	41		2	35	27	2
1849	22nd Regiment - - -	245		14	510	391	9
1849	24th Regiment - - -	215		15	433	357	238
1849	29th Regiment - - -	208	27	696	547	81	
1849	32nd Regiment - - -	279	14	377	409	21	
1849	60th Regiment - - -	752	Not stated	1,818	1,682	38	
1849	61st Regiment - - -	270	10	395	392	21	
1850	Detachment, 96th Regiment	27	27	—	3	—	—
1852	3rd Dragoons - - -	160	176	8	135	165	1
1852	Detachments - - -	16		1	3	3	—
1854	53rd Regiment - - -	184	184	5	244	314	6
1856	64th Regiment - - -	278	278	Not stated	396	387	4
	Total - - -	5,265	5,265	—	9,518	8,926	668
	Mean - - -	—	877	—	1,569	1,688	111

No. 126.

BURMAH.

STATIONAL RETURNS.—EUROPEAN TROOPS—HER MAJESTY'S REGIMENTS.—NON-COMMISSIONED OFFICERS
AND MEN.(B.) RETURN showing for each YEAR the REGIMENTS at the STATION, MEAN STRENGTH, NUMBER constantly
SICK, ADMISSIONS, DISCHARGES, and DEATHS.

Year.	Regiments or Detachments at the Station.		Mean Strength during the Year.	Mean Number constantly sick in Hospital.	Admissions into Hospital during the Year.	Discharged from Hospital.	Deaths.
	Names.	Strength.					
1852	51st Regiment - -	654	1,635	69·25	1,657	1,428	153
1852	18th " - -	565		59	1,245	1,011	135
1852	80th " - -	416		41	1,426	1,233	88
1853	51st Regiment - -	766	1,703	93·75	2,122	2,023	136
1853	18th " - -	523		55·75	1,179	1,085	167
1853	80th " - -	414		70·75	1,386	1,288	133
1854	84th Regiment - -	732	960	44·75	1,034	1,013	22
1854	29th " - -	228		10	292	291	8
1855	29th Regiment - -	894	1,845	54·75	1,256	1,200	62
1855	Detachments - -	34		1	11	11	—
1855	84th Regiment - -	917		50·75	1,143	1,110	27
1856	84th Regiment - -	960	2,223	65	1,463	1,391	28
1856	29th " - -	852		35·75	1,145	1,112	42
1856	35th " - -	411		67	1,059	957	41
	Total - - -	8,366	8,366	736·	16,418	15,160	1,042
	Mean - - -	—	1,673	147·	3,283	3,032	208

No. 127.

INVALIDING.

RETURN showing the Number of DEATHS occurring among INVALIDS of H.M. TROOPS on their PASSAGE from INDIA to ENGLAND during the 10 Years 1847 to 1856.

Year ending	BENGAL.		BOMBAY.		MADRAS.		TOTAL.		Per-centage of Deaths to the Number embarked.
	Em-barked.	Died.	Em-barked.	Died.	Em-barked.	Died.	Em-barked.	Died.	
31st March 1848	604	26	176	12	153	8	933	46	4.94
„ 1849	285	15	178	11	264	18	727	44	6.05
„ 1850	176	12	313	21	95	5	584	38	6.5
„ 1851	168	5	580	19	158	8	906	32	3.54
„ 1852	187	14	217	6	207	5	611	25	4.09
„ 1853	93	5	553	21	342	19	988	45	4.65
„ 1854	532	40	255	13	230	13	1,017	66	6.49
„ 1855	394	30	599	30	149	13	1,142	73	6.4
„ 1856	157	8	558	52	95	7	810	67	8.27
„ 1857	197	8	477	30	99	3	773	41	5.31
	2,793	163	3,906	215	1,792	99	8,491	477	} 5.65
Annual Average	279	16	391	22	179	10	849	48	
Per-centage of Deaths to the Number embarked from each Presidency -	5.73		5.62		5.54		—		

INVALIDING RETURNS.

75

No. 128.

INDIA.—HER MAJESTY'S TROOPS.

RETURN showing the DISEASES of INVALIDS of H.M. TROOPS found unfit for SERVICE, and DISCHARGED at CHATHAM from 1847 to 1856.

Year ending	Cachexia and Scrofula.	Dropsy and Visceral Diseases.	Dysentery and Hepatic Diseases.	Eye Diseases.	Wounds and Fractures.	Dislocations.	Contractions.	Hernia.	Mental Diseases.	Paralysis.	Epilepsia.	Deafness and Impediment of Speech.	Pulmonic and Thoracic Diseases.	Rheumatism and Chronic Pains.	Ulcers and Varix.	Stricture and Urinary Diseases.	Veneral Diseases.	Infirmities of Age and Worn-out.	Total.
31 March 1848	17	6	57	44	179	3	18	11	14	12	5	7	74	145	24	1	10	169	796
" 1849	11	16	37	19	65	1	1	9	16	15	4	4	51	128	13	1	8	129	523
" 1850	14	5	26	25	63	1	7	5	19	9	4	4	40	18	12	—	17	95	364
" 1851	27	9	44	66	103	—	8	8	14	12	9	5	36	15	7	2	14	146	525
" 1852	10	3	35	59	41	1	9	8	26	7	10	1	39	32	11	3	13	83	391
" 1853	25	19	68	39	11	2	8	10	27	16	4	7	83	148	22	6	12	65	572
" 1854	28	6	48	24	19	1	7	8	13	12	9	6	53	87	13	9	10	86	439
" 1855	12	3	16	14	11	—	5	4	19	16	4	—	23	46	6	—	5	72	256
" 1856	9	13	40	12	15	—	4	6	20	16	6	7	107	64	11	6	5	36	371
" 1857	23	2	23	30	5	1	2	4	19	8	6	1	54	33	16	2	2	43	271
Total - -	176	82	394	332	512	10	69	73	187	123	61	42	560	716	135	30	96	924	4,521

No. 129.

PRESIDENCY OF BENGAL.

RETURN showing the DISEASES of INVALIDS of H.M. TROOPS found unfit for SERVICE, and DISCHARGED at CHATHAM from 1847 to 1856.

31 March 1848	6	2	34	35	176	2	15	9	6	5	5	5	43	77	16	1	4	122	563
" 1849	6	9	19	15	62	—	1	1	7	3	1	3	23	54	4	1	2	64	275
" 1850	5	2	10	19	11	—	2	1	5	2	—	—	8	9	3	—	5	44	126
" 1851	5	2	4	42	40	—	3	3	4	—	2	1	3	2	2	—	1	20	134
" 1852	1	—	10	33	9	1	2	1	9	3	4	—	11	14	5	2	3	18	126
" 1853	6	3	9	10	5	—	3	2	5	5	2	1	21	50	6	—	3	13	144
" 1854	5	—	14	10	8	—	2	2	2	2	2	2	9	31	1	2	3	34	119
" 1855	3	1	9	9	9	—	2	1	12	—	1	—	6	18	4	—	2	29	106
" 1856	4	4	14	8	8	—	1	3	9	10	5	1	30	29	6	5	1	7	145
" 1857	13	—	14	19	3	1	1	—	6	4	3	—	28	14	7	1	1	24	139
Total - -	54	23	137	200	331	4	32	23	65	34	25	13	182	298	54	12	25	364	1,877

PRESIDENCY OF BOMBAY.

RETURN showing the DISEASES of INVALIDS of H.M. TROOPS found unfit for SERVICE, and DISCHARGED at CHATHAM from 1847 to 1856.

Year ending	Cachexies and Scrofula.	Dropsy and Visceral Diseases.	Dysentery and Hepatic Diseases.	Eye Diseases.	Wounds and Fractures.	Dislocations	Contractions.	Hernia.	Mental Diseases.	Paralysis.	Epilepsia.	Deafness and Impediments of Speech.	Pulmonic and Thoracic Diseases.	Rheumatism and Chronic Pains.	Ulcers and Varix.	Strictures and Urinary Diseases.	Veneral Diseases.	Infirmities of Age and Worn Out.	Total.
31 March 1848	8	2	8	4	3	1	2	—	5	4	—	1	21	34	2	—	3	23	121
„ 1849	1	3	10	2	1	—	—	6	2	3	2	—	13	26	1	—	2	21	93
„ 1850	7	2	12	5	48	1	3	2	11	2	3	3	22	3	7	—	6	30	167
„ 1851	17	6	36	18	63	—	4	3	8	9	4	3	26	13	3	2	8	68	291
„ 1852	8	2	19	20	30	—	7	5	8	1	5	—	22	18	2	1	7	35	190
„ 1853	9	15	42	26	5	2	5	5	16	8	1	4	39	55	6	2	5	40	285
„ 1854	19	5	26	13	8	1	3	5	7	6	7	2	35	45	9	7	3	44	245
„ 1855	5	2	5	5	2	—	1	2	5	15	2	—	11	17	2	—	3	29	106
„ 1856	3	6	18	4	4	—	2	2	7	6	1	6	55	22	3	1	3	20	163
„ 1857	9	2	6	5	1	—	1	3	9	2	1	1	19	14	9	—	1	14	97
Total	86	45	182	102	165	5	28	33	78	56	26	20	263	247	44	13	41	324	1,758

PRESIDENCY OF MADRAS.

RETURN showing the DISEASES of INVALIDS of H.M. TROOPS found unfit for SERVICE, and DISCHARGED at CHATHAM from 1847 to 1856.

31 March 1848	3	2	15	5	—	—	1	2	3	3	—	1	10	34	6	—	3	24	112
„ 1849	4	4	8	2	2	1	—	2	7	9	1	1	15	48	8	—	4	44	160
„ 1850	2	1	4	1	4	—	2	2	3	5	1	1	10	6	2	—	6	21	71
„ 1851	5	1	4	6	—	—	1	2	2	3	3	1	7	—	2	—	5	58	100
„ 1852	1	1	6	6	2	—	—	2	9	3	1	1	6	—	4	—	3	30	75
„ 1853	10	1	17	3	1	—	—	3	6	3	1	2	23	43	10	4	4	12	143
„ 1854	4	1	8	1	3	—	2	1	4	4	—	2	9	11	3	—	4	18	75
„ 1855	4	—	2	—	—	—	2	1	2	1	1	—	6	11	—	—	—	14	44
„ 1856	2	3	8	—	3	—	1	1	4	—	—	—	22	13	2	—	1	9	69
„ 1857	1	—	3	6	1	—	—	1	4	2	2	—	7	5	—	1	—	5	38
Total	36	14	75	30	16	1	9	17	44	33	10	9	115	171	37	5	30	235	887

STATISTICS OF REGIMENTS WHICH HAVE SERVED IN INDIA.

Name of Regiment, with Date of Arrival in India, and of Departure from India.	Military Year.	Strength on Arrival, at the Beginning of each Year, and on Departure from India.	During the Military Year.				Stations at which the Regiment has served a Month or more in each Year, and Remarks.	
			Deaths in India.	Number of Men sent from India to England.	Reinforcements.			
					By Transfer.	By Drafts.		
13TH REGIMENT OF HUSSARS, arrived in India, June 13, 1819; left India, in February 1840.	Apr. 1, 1820	Not known.	Not known.	Not known.	402	—	Arcot and Bangalore. Marched from Arcot February 1, 1820.	
	" 1821	"	"	"	None	9	Bangalore.	
	" 1822	"	"	"	"	6	Bangalore.	
	" 1823	"	"	"	"	40	Bangalore.	
	" 1824	"	"	"	"	22	Bangalore.	
	" 1825	"	"	"	"	30	Bangalore.	
	" 1826	"	"	"	"	42	Bangalore.	
	" 1827	"	"	"	"	30	Bangalore and Arcot. Marched from Bangalore July 15, 1826.	
	" 1828	"	"	"	"	50	Arcot and Arnee. Marched from Arcot March 3, 1828.	
	" 1829	"	3	"	"	79	Arnee.	
	" 1830	"	Not known.	"	"	9	98	Bangalore.
	" 1831	"	"	"	"	None	59	Bangalore.
	" 1832	"	"	"	"	"	31	Bangalore.
	" 1833	"	"	"	"	"	23	Bangalore.
	" 1834	"	"	"	"	"	17	Bangalore.
	" 1835	"	"	"	14	"	38	Bangalore.
	" 1836	"	"	Not known.	"	"	31	Bangalore.
" 1837	"	"	"	31	"	17	Bangalore.	
" 1838	"	"	"	11	1	—	Bangalore.	
" 1839	"	"	32	33	None	None	Bangalore, and 2 squadrons on field service to Bellary in March 1839.	
Feb. 1840	"	"	40	None	None	None	On march from Bangalore to Madras.	
Average - -	-	-	Cannot be given.	-	-	-	-	

By the Digest of Services (such being the only means of obtaining the required information, so many years having elapsed) it appears that the Casualties of the Regiment, during 21 years in India, amounted to 15 officers and 1,051 men.

SOAME G. JENYNS, Lieut.-Col., commanding 13th Light Dragoons.

4TH QUEEN'S OWN REGIMENT OF HUSSARS, arrived in India, May 12, 1822.	-	542	Further information cannot now be given, in consequence of there being no documents in possession of the Regiment to show it.			
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F. CORNWALLIS, Major, commanding 4th Q. O. Hussars.

16TH REGIMENT OF LANCERS, arrived in India, January 1823.	Apr. 1, 1846	329	The whole of the regimental records lost at the action of Buddewal on the 21st January 1846.			
		329*				

* Strength on departure from India.

CHARLES FOSTER, Lieut.-Col., commanding 16th Lancers.

16TH REGIMENT OF FOOT, arrived in India, November 23, 1828.	1828-29	698	58	—	157	7	Fort William.
	1830	818	64	6	64	17	Fort William.
	1831	794	54	6	21	14	Fort William and Chinsurah.
	1832	737	41	6	—	1	Chinsurah.
	1833	682	56	4	—	1	Chinsurah.
	1834	669	44	5	—	47	Chinsurah, on the March, and Cawnpore.
	1835	837	26	6	109	100	Cawnpore.
	1836	856	45	7	46	120	Cawnpore.
	1837	827	45	36	42	9	Cawnpore.
	1838	707	45	74	1	7	Cawnpore.
	1839	566	37	75	2	166	Cawnpore.
	1840	447	52	—	2	108	Dinapore and Calcutta.
Average - -	-	719 $\frac{1}{2}$	47 $\frac{1}{2}$	18 $\frac{1}{11}$	37	49 $\frac{1}{2}$	-

The strength on the first of each military year cannot be stated, but the average annual strength of the regiment is shown during its services in India.

J. W. P. AUDAIN, Bt. Lieut.-Col., commanding 1st Bat. 16th Regt.

STATISTICS OF REGIMENTS WHICH HAVE SERVED IN INDIA.

Name of Regiment, with Date of Arrival in India, and of Departure from India.	Military Year.	Strength on Arrival, at the Beginning of each Year, and on Departure from India.	During the Military Year.				Stations at which the Regiment has served a Month or more in each Year, and Remarks.
			Deaths in India.	Number of Men sent from India to England.	Reinforce- ments.		
					By Trans- fer.	By Drafts.	
15TH "THE KING'S" REGIMENT OF HUSSARS, arrived in India, September 19, 1859; November 9, 1859; February 4, 1840; left India, February 27, 1854.	—	506	—	—	—	—	Bombay. On march. Right wing marched September 6, 1844, en route for Arcot. Rejoined head-quarters November 20, 1844. Bangalore, Madras, E.I. Squadron, as escort to his Excellency the Commander-in-Chief, marched October 7, 1850, en route for Secunderabad. Rejoined January 28, 1851. 149 men volunteered to 12th, 3 to 9th Lancers.
	Apr. 1, 1840	634	25	—	101	52	
	" 1841	744	21	4	—	147	
	" 1842	762	18	6	24	23	
	" 1843	720	21	13	—	3	
	" 1844	711	13	12	1	23	
	" 1845	721	11	12	—	42	
	" 1846	688	32	21	—	30	
	" 1847	659	24	21	—	23	
	" 1848	682	7	35	—	78	
	" 1849	670	11	30	1	46	
	" 1850	703	11	19	—	67	
	" 1851	683	17	31	—	47	
	" 1852	673	6	26	—	40	
	" 1853	739	21	—	29	81	
Feb. 27, 1854	513	19	39	—	3		
Average - -	—	686 $\frac{1}{2}$	17 $\frac{2}{3}$	17 $\frac{1}{3}$	10 $\frac{1}{3}$	47	

It will be observed that the strengths subsequent to 1840 do not agree with the increase and decrease, as men became non-effective otherwise than by "Death," and "Sent to England."

F. W. FITZWYGRAM, Lieut.-Col., commanding 15th, "The King's," Hussars.

1ST BATTALION, 22ND REGIMENT OF FOOT, arrived in India, May 21, 1841; left India, March 23, 1855.	Apr. 1, 1842	1,007	102	3	6	139	Poona and Kurrachee and Sukkur. Sinde and Kurrachee, on field service, en- gaged in the battles of Meeanee and Hyder- bad. Poona. Poona and Kolapore, on the march and field service. Kolapore and Poona. Poona and Bombay. Poona. Poona and Bombay, on the march to Bombay and Kurrachee, on the march to Dugshai, Himalayas. Dugshai, Rawul Pindi, on the march to Rawul Pindi and Peshawur, on the march to Peshawur, on the march to Kurrachee.
	" 1843	981	215	16	—	102	
	" 1844	871	68	51	5	200	
	" 1845	936	40	45	23	32	
	" 1846	989	37	50	3	36	
	" 1847	938	97	42	—	—	
	" 1848	958	27	50	224	119	
	" 1849	1,152	45	73	1	122	
	" 1850	1,081	67	22	12	26	
	" 1851	1,049	27	17	5	64	
	" 1852	1,045	27	49	9	53	
	" 1853	988	45	37	3	40	
	" 1854	978	38	59	2	61	
	Mar. 23, 1855	729	57	—	—	—	
	Average - -	—	978·71	63·72	39·57	20·92		71

The casualties not accounted for in columns 4 and 5 occurred through desertion, volunteers, transfers, discharges, &c.

J. H. GRAHAM, Major, commanding 1st Bat. 22nd Regt.

14TH (KING'S) REGIMENT OF HUSSARS, arrived in India, September 6, 1841; left India, February 11, 1860.	Apr. 1, 1842	449	8	—	150	—	Kirkee. Kirkee. Kirkee, and field service Kolapore. Kirkee, Kolapore, and on march to the Punjab. On march to the Punjab, Umballa. Umballa. Lahore. Field service, Punjab Campaign. Field service, Punjab Campaign, Lahore. Lahore. On march to Meerut. Meerut. Meerut. Meerut. Meerut. On march to Kirkee. Kirkee. Kirkee. Field service to Persia; Kirkee; and field service in India. On field service. On field service; Kirkee. Kirkee.
	" 1843	689	39	7	—	100	
	" 1844	713	17	13	—	60	
	" 1845	693	21	25	—	35	
	" 1846	632	47	39	—	28	
	" 1847	641	71	17	10	75	
	" 1848	669	42	9	5	96	
	" 1849	622	32	10	—	50	
	" 1850	683	35	14	2	110	
	" 1851	693	41	13	2	70	
	" 1852	708	27	17	1	66	
	" 1853	739	14	26	27	56	
	" 1854	734	15	27	—	38	
	" 1855	720	17	19	—	26	
	" 1856	688	7	25	—	—	
	" 1857	656	7	26	1	—	
	" 1858	706	18	6	—	60	
" 1859	630	62	36	—	28		
Feb. 11, 1860	395	11	20	—	12		
Average - -	—	655·15	30·11	18·7	10·8	47·17	

R. H. GALL, Lt. Lieut.-Col., commanding 14th (King's) Hussars.

STATISTICS OF REGIMENTS WHICH HAVE SERVED IN INDIA.

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Name of Regiment, with Date of Arrival in India, and of Departure from India.	Military Year.	Strength on Arrival, at the Beginning of each Year, and on Departure from India.	During the Military Year.				Stations at which the Regiment has served a Month or more in each Year, and Remarks.
			Deaths in India.	Number of Men sent from India to England.	Reinforcements.		
					By Transfer.	By Drafts.	
29TH REGIMENT OF FOOT, arrived in India, July 29, 1842; left India, September 30, 1859.	July 29, 1842	1,004	—	—	—	—	Chinsurah. Ghazee-pore. Ghazee-pore. Ghazee-pore and Meerut. Kussowlie, and Sutlej Campaign; 141 killed and died of wounds. Kussowlie. Kussowlie and Ferozepore. Wuzeerabad, and Punjab Campaign, 48 killed and died of wounds. Wuzeerabad and march to Meerut. Meerut. Cawnpore, on march from Meerut to Dinapore. Dinapore. Moulmein, Burmah. Thayetmyo, Burmah. Thayetmyo, Burmah. Thayetmyo, Burmah, 1 Wing Calcutta. Thayetmyo, Burmah, 1 Wing Calcutta. Thayetmyo and Bengal (latter part of Indian Mutiny); on passage to England.
	Apr. 1, 1843	998	106	—	—	24	
	" 1844	944	158	—	—	24	
	" 1845	987	260	21	9	183	
	" 1846	835	223	61	132	68	
	" 1847	913	49	27	149	199	
	" 1848	1,162	176	8	1	38	
	" 1849	1,006	113	86	3	235	
	" 1850	1,039	54	35	17	10	
	" 1851	963	72	12	7	100	
	" 1852	1,012	51	26	5	62	
	" 1853	998	86	41	12	69	
	" 1854	955	52	36	27	16	
	" 1855	907	68	23	2	137	
	" 1856	849	71	22	2	—	
	" 1857	949	69	37	1	137	
	" 1858	913	37	26	2	97	
" 1859	824	17	—	2	—		
Average	—	1,015	97	27	23	86	

E. H. WESTROFF, Lieut.-Col., commanding 29th Regiment.

78TH REGIMENT OF HIGHLANDERS, arrived in India, July 30, 1842.	Apr. 1, 1843	1,035	29	—	—	—	Poona. Kurrachee, Sinde. Hydrabad, Sinde. Poona. Belgaum. Belgaum. Belgaum. 1 Wing Bombay, 1 Wing Aden. 1 Wing Bombay, 1 Wing Aden. 1 Wing Bombay, 1 Wing Aden. Poona. Poona. Poona. Poona. Mohumra, Persia, field service. Busseratgunge, Oude, Bengal, field service. Mhow.
	" 1844	—	—	—	—	44	
	" 1845	—	400	105	—	51	
	" 1846	—	—	—	100	638	
	" 1847	—	—	—	168	23	
	" 1848	—	258*	—	—	27	
	" 1849	—	—	—	—	30	
	" 1850	—	—	—	—	2	
	" 1851	—	—	—	—	83	
	" 1852	—	—	—	—	80	
	" 1853	—	—	—	1	67	
	" 1854	—	—	—	—	11	
	" 1855	—	—	—	—	77	
	" 1856	914	—	—	1	59	
" 1857	928	—	29	1	98		
" 1858	756	223	91	1	16		
" 1859	540	48	18	—	—		
Average	—	—	—	—	16	76½	

* From April 1, 1845, to September 1850.

This return cannot be filled up completely in consequence of several books and documents having been destroyed by fire at Cawnpore in November 1857.

J. A. EWART, Colonel, commanding 78th Highlanders.

1ST BATTALION, 10TH REGIMENT OF FOOT, arrived in India, August 4, 1842; left India, April 29, 1859.	Aug. 4, 1842	1,195	35	—	27	25	Stationed at Fort William, Calcutta. Stationed at Fort William, Calcutta. Right wing removed to Chinsurah, February 2, 1844. Regiment marched to Meerut, November 15, 1844. Stationed at Meerut from January 31, 1844, to December 16, 1845. Left Meerut, December 16, 1845; with the army of the Sutlej, from January 8, 1846 to March 23, 1846. Left Lahore, March 23, and returned to Meerut, April 15, 1846. Left Meerut, October 27, 1846; arrived at Ferozepore, November 20, 1846; marched again on December 23, 1846 to Lahore. Stationed at Lahore from January 2, 1847, to July 27, 1848. Engaged with the army of the Punjab before Mooltan from August 12, 1848, to January 22, 1849. Engaged with the Grand Army, under Sir Hugh Gough, from January 22, 1849, until the arrival of the regiment in quarters at Ferozepore on April 8, 1849. The regiment left Ferozepore, February 4, 1850, and marched into quarters at Wuzeerabad, February 17, 1850. Stationed at Wuzeerabad. Stationed at Wuzeerabad. The regiment, marched from Wuzeerabad, November 16, 1853, and marched into quarters at Mean Meer, November 22, 1853. Stationed at Mean Meer. Left Mean Meer, October 13, 1856, and marched into quarters at Dinapore, January 21, 1856. Stationed at Dinapore.
	April 1, 1843	1,052	105	2	3	34	
	" 1844	986	60	77	5	58	
	" 1845	980	89	2	43	38	
	" 1846	1,041	103	23	124	179	
	" 1847	955	99	117	69	111	
	" 1848	1,024	92	44	4	133	
	" 1849	1,054	76	28	2	181	
	" 1850	1,097	53	86	3	4	
	" 1851	996	44	35	5	74	
	" 1852	985	44	59	7	77	
	" 1853	991	30	7	15	93	
	" 1854	994	35	103	11	25	
	" 1855	964	36	26	5	25	
" 1856	976	33	45	4	93		

Name of Regiment, with Date of Arrival in India, and of Departure from India.	Military Year.	Strength on Arrival, at the Beginning of each Year, and on Departure from India.	During the Military Year.				Stations at which the Regiment served a Month or more in each Year, and Remarks.
			Deaths in India.	Number of Men sent from India to England.	Reinforcements.		
					By Transfer.	By Drafts.	
1st BATTALION, 10th REGIMENT OF FOOT—cont.	Apr. 1, 1857	898	30	49	—	1	The battalion was stationed at Dinapore, various detachments being engaged in the suppression of the mutiny in the surrounding districts. The whole regiment was subsequently engaged in the suppression of the mutiny from December 24 to June 19, 1858, when the head-quarters marched into Dinapore. Left Dinapore for embarkation on February 10, 1859. Head-quarters, consisting of 8 companies, embarked at Calcutta, March 17, 1859, on board the King Philip. The remaining 2 companies embarked at Calcutta on April 29, 1859.
	" 1858	796	128	45	—	70	
	" 1859	521	64	61	3	23	
	Average	—	972 $\frac{2}{13}$	64 $\frac{4}{13}$	44 $\frac{1}{13}$	18 $\frac{3}{13}$		69$\frac{3}{13}$

Strength on embarkation, 521 non-commissioned officers, rank and file; 176 men volunteered.

H. E. LONGDEN, C.B., Colonel and Lieut.-Col., commanding 1st Bat. 10th Regt. of Foot.

84th REGIMENT OF FOOT, arrived in India, August 8, 1842; left India, April 8, 1859.	Apr. 1, 1843	1,064	14	Nil.	1	12	Stationed at Moulmein, Burmah, from August 1842, to March 28, 1845. Fort St. George, Madras, from March 29, 1845, to January 5, 1847. On march from Madras to Secunderabad, January 5 to February 20, 1847. Stationed there until December 4, 1849. Stationed at Trichinopoly from January 1850 to January 1854. Stationed at Rangoon, Burmah, from January 1854 to March 1857. On field service from March 1857 to date of leaving India, April 8, 1859.	
	" 1844	Returns destroyed by order of the Secretary of State for War.	54	"	1	25		
	" 1845		28	36	Nil.	Nil.		
	" 1846		48	53	33	114		
	" 1847		1,060	13	35	84		37
	" 1848		1,140	42	25	39		119
	" 1849	1,073	30	26	1	10		
	" 1850	998	43	35	Nil.	11		
	" 1851	1,013	19	28	2	76		
	" 1852	1,006	17	46	2	65		
	" 1853	1,032	10	Nil.	Nil.	59		
	" 1854	986	28	39	4	83		
	" 1855	924	35	44	Nil.	33		
	" 1856	967	23	18	4	112		
	" 1857	918	29	65	Nil.	49		
" 1858	803	280	47	"	204			
" 1859	481	74	67	"	112			
Average	—	962	46	33	10	66		

25th REGIMENT OF FOOT, arrived in India, August 9, 1842.	Apr. 1, 1843	1,104	82	—	5	8	Poonamallee, Arcot, Arnee, Cannanore.
	" 1844	1,027	28	32	—	36	
	" 1845	1,086	26	32	—	84	
	" 1846	1,199	38	30	129	28	
	" 1847	1,234	31	47	88	48	
	" 1848	1,226	41	69	105	28	
	" 1849	1,170	38	23	4	36	
	" 1850	1,126	56	35	—	24	
	" 1851	1,080	22	43	2	52	
	" 1852	1,067	19	61	6	57	
	" 1853	1,042	21	44	1	70	
	" 1854	1,039	33	40	2	78	
" 1855	947	18	51	—	4		
Average	—	1,103 $\frac{2}{13}$	34 $\frac{1}{13}$	39	26 $\frac{4}{13}$	42 $\frac{7}{13}$	

FRANCIS FANE, Lieut.-Col., commanding 25th Regt.

86th ROYAL REGIMENT OF FOOT, arrived in India, August 31, 1842; left India, April 18, 1859.	Aug. 31, 1842	1,052	135	95	—	19	Bombay and Belgaum. Attacked by cholera on arrival at Bombay. Belgaum, Kurrachee, and Hyderabad. Kurrachee and Hyderabad. Kurrachee. Kurrachee. Attacked by cholera after a march of 1,300 miles. Poona and Deesa. Deesa. Deesa. Deesa and Poona. Poona. Poona. Poona, Kurrachee, and Hyderabad. Hyderabad, Kurrachee, and Aden. Kurrachee, Bombay, and Aden. Bombay and Aden. Divided into 7 detachments throughout the Bombay Presidency. With Central India Field Force under Sir Hugh Rose. Gwalior, and march to Bombay. Bombay. Arrived at Gosport, August 20, 1859.
	" 1843	936	35	19	1	120	
	" 1844	999	83	34	9	118	
	" 1845	1,006	32	52	104	82	
	" 1846	1,099	264	19	32	7	
	" 1847	854	42	22	123	258	
	" 1848	1,167	30	—	2	30	
	" 1849	1,163	30	31	1	21	
	" 1850	1,113	34	44	6	14	
	" 1851	1,053	11	39	12	41	
	" 1852	1,056	10	48	2	14	
	" 1853	931	21	52	10	132	
	" 1854	920	19	54	24	30	
	" 1855	897	22	45	3	105	
	" 1856	937	17	37	3	64	
	" 1857	937	40	22	2	99	
	" 1858	977	90	160	—	240	
" 1859	727	5	—	—	—		
Apr. 18, 1859	722	—	—	—	—		
Average	—	976 $\frac{2}{13}$	51 $\frac{1}{13}$	39 $\frac{1}{13}$	18 $\frac{1}{13}$	77 $\frac{1}{13}$	

R. M. BEER, Lieut.-Col., commanding 86th Regt.

STATISTICS OF REGIMENTS WHICH HAVE SERVED IN INDIA.

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Name of Regiment, with Date of Arrival in India, and of Departure from India.	Military Year.	Strength on Arrival, at the Beginning of each Year, and on Departure from India.	During the Military Year.				Stations at which the Regiment has served a Month or more in each Year, and Remarks.
			Deaths in India.	Number of Men sent from India to England.	Reinforcements.		
					By Transfer.	By Drafts.	
9TH QUEEN'S ROYAL REGIMENT OF LANCERS, arrived in India during September and October 1842; left India, April 29, 1859.	—	653	—	—	—	—	Calcutta. Passage by boats on the Ganges to Cawnpore. Wing of the regiment on field service in Gwalior. Cawnpore. Meerut. Meerut and Punjab Campaign. Wuzerabad. Wuzerabad, and march to Umballa. Umballa. Umballa. Umballa. Umballa. Umballa. On field service during Indian Mutiny.
	Apr. 1, 1843	609	84	—	—	40	
	" 1844	693	65	—	—	150	
	" 1845	690	62	—	—	68	
	" 1846	696	36	6	4	54	
	" 1847	707	41	6	24	45	
	" 1848	720	15	9	1	51	
	" 1849	705	23	12	—	33	
	" 1850	663	68	6	1	38	
	" 1851	683	24	17	1	83	
	" 1852	682	13	20	2	63	
	" 1853	649	29	28	13	56	
	" 1854	639	18	26	8	61	
	" 1855	695	16	10	7	84	
	" 1856	693	17	14	1	33	
" 1857	611	13	23	1	—		
" 1858	547	107	—	1	51		
" 1859	399	41	50	1	95		
Average - -	—	651.72	39.58	13.35	3.82	59.11	

W. DRYSDALE, Lieut.-Col., commanding 9th Lancers.

53RD REGIMENT OF FOOT, arrived in India, December 30, 1844.	Apr. 1, 1845	1,029	214	—	14	35	Chinsurah and Cawnpore. Cawnpore, Agra, and on service with the Army of the Sutlej. Umballa and Ferozepore. Ferozepore and Lahore. Lahore, and on service with the Army of the Punjab. Rawul Pindi. Rawul Pindi. Rawul Pindi. Standing Camp, and on the march to Peshawur. Peshawur. Peshawur, and on the march to Dugshai. Dugshai and Standing Camp, Umballa. Dugshai, on the march, Dum Dum, and Fort William. Fort William. Calcutta and field service. On field service and Lucknow. Lucknow, on the march, and Calcutta.
	" 1846	837	116	6	195	46	
	" 1847	898	66	32	135	101	
	" 1848	1,083	79	34	39	66	
	" 1849	910	58	32	—	159	
	" 1850	848	27	10	—	64	
	" 1851	854	13	23	—	68	
	" 1852	880	63	17	—	65	
	" 1853	949	68	26	—	64	
	" 1854	993	34	31	—	94	
	" 1855	1,165	47	36	195	71	
	" 1856	1,108	57	28	—	35	
	" 1857	1,093	35	22	—	79	
" 1858	961	106	—	—	247		
" 1859	863	13	15	—	20		
" 1860	807	64	9	—	—		
Average - -	—	954 $\frac{1}{8}$	65 $\frac{1}{8}$	20 $\frac{1}{8}$	36 $\frac{1}{8}$	75 $\frac{1}{8}$	

F. ENGLISH, C.B., Lieut.-Col., commanding 53rd Regt.

39TH REGIMENT OF FOOT, return is made from January 1, 1845; left India, February 7, 1847.	Jan. 1, 1845	1,373	22	35	—	—	Dinapore.
	Apr. 1, 1845	1,288	118	83	—	78	
	" 1846	645	35	78	3	—	
	Feb. 7, 1847	297	—	—	—	—	
Average - -	—	900 $\frac{1}{2}$	58 $\frac{1}{2}$	65 $\frac{1}{2}$	1	26	

There are no documents at the depôt of a date prior to January 1, 1845.

C. DENISON PEDDER, Captain, commanding Depôt, 39th Regt.

1ST BATTALION, 60TH REGT. ROYAL RIFLES, arrived in India, October 15, 1845; left India, March 17, 1860.	Oct. 15, 1845	1,000	99	—	—	37	Landed in India October 15, 1845, to Poona; from Poona to Kurrachee, February 11, 1846. Kurrachee. Kurrachee. From Kurrachee to active service in the Punjab October 8, 1848; capture of Mooltan; battle of Goozerat. No records for this year. Peshawur. Kussowlia. From Kussowlia to Jullundur in September 1851.
	Apr. 1, 1846	938	45	33	—	82	
	" 1847	925	31	50	—	205	
	" 1848	—	—	—	—	—	
	" 1849	1,079	19	19	—	28	
" 1850	1,053	27	51	—	20		
" 1851	959	45	51	1	91		

Name of Regiment, with Date of Arrival in India, and of Departure from India.	Military Year.	Strength on Arrival, at the Beginning of each Year, and on Departure from India.	During the Military Year.				Stations at which the Regiment has served a Month or more in each Year, and Remarks.
			Deaths in India.	Number of Men sent from India to England.	Reinforce- ments.		
					By Trans- fer.	By Drafts.	
1st BATTALION, 60th REGIMENT OF ROYAL RIFLES— <i>cont.</i>	Apr. 1, 1852	933	47	59	1	104	Jullundur.
	" 1853	899	34	45	3	123	Jullundur.
	" 1854	918	26	46	42	55	From Jullundur, December 19, 1854, to Umballa, where it arrived on December 29, for the purpose of joining a Camp of Exercise under command of Major-General Fane; returned to Jullundur, March 1855.
	" 1855	913	10	48	5	93	From Jullundur to Meerut on the 1st, and arrived on December 28, 1855, in course of relief.
	" 1856	949	54	76	6	59	Meerut.
	" 1857	862	194	2	1	102	From Meerut on May 27, 1857, towards Delhi; engaged at the Hindun, May 30 to 31, Allipore on June 7. Engaged with the mutinous sepoys, June 18; encamped before Delhi on that date; siege operations before Delhi from June 8 till September 13. Assault and capture of the city on September 14, 1857. Stationed at Delhi till the end of December 1857.
	" 1858	789	43	137	5	290	To Meerut on January 1, 1858. Campaign in Rohilkund in April 1858; actions of Bagawalla and Nugeena; relief of Moradabad; action on the Dajura; assault and capture of Bareilly; relief of Shahjehanpore; attack and destruction of Mahumdee and Shahabad; action of Bung-tra-Gong; served in Oudh in October 1858; actions of Pusgaon, Rissoolpoor; capture of Mittowlie; action at Biswah; in the field to end of year.
	" 1859	900	61	127	6	35	From service in the field to Camp at Seetapore, March 1, 1859. From Seetapore on March 21, 1859, to Benares, where it remained till September 20, 1859.
	" 1860	452	—	—	—	—	From Benares to Calcutta on September 21, 1859, and remained at Fort William, Calcutta, until March 17, 1860, when it embarked for England on board the Ship "Aliquis."
	Average - -	—	1,258·9	73·5	74·4	7	132·4

C. N. NORTH, Lieut.-Col., and Major commanding 1st Battalion, 60th Royal Rifles.

61st REGIMENT OF FOOT, arrived in India, October 26, 1845; left India, June 30, 1860.	Apr. 1, 1846	No returns in possession for this period.	54	27	4	57	Dum Dum and Cawnpore.		
	" 1847						3	98	Umballa.
	" 1848						3	98	Jullundur, Doab.
	" 1849						2	228	Active field service with the army of Punjab.
	" 1850						2	13	Peshawur, Afghanistan.
	" 1851						4	57	Peshawur, Afghanistan.
	" 1852						4	77	Kussowlie and Subathoo.
	" 1853						3	76	Kussowlie and Subathoo.
	" 1854						4	78	Wuzeerabad.
	" 1855						93	43	Wuzeerabad.
	" 1856						2	36	Wuzeerabad.
	" 1857						1	15	Ferozepore.
	" 1858						3	115	At Delhi, active field service.
	" 1859						6	277	Line of march to Bombay.
June 30, 1860	—	50	Poona and Bombay.						
Average - -	—	938·44	59·77	41·11	10·00	90·05			

J. P. REDMOND, Lieut.-Col., commanding 61st Regt.

1st BATTALION, 8TH, THE KING'S, REGIMENT OF INFANTRY, arrived in India, August 2, 1846; left India, May 4, 1860.	Apr. 1, 1847	869	—	—	—	—	Poona and Bombay.
	" 1848	1,022	10	—	49	31	—
	" 1849	1,010	9	4	99	—	Poona and Bombay.
	" 1850	1,144	33	11	3	150	Per steamer to Kurrachee, and left wing marched to Hyderabad.
	" 1851	1,029	46	86	—	30	Kurrachee and Hyderabad.
	" 1852	1,851	14	8	—	46	Kurrachee and Hyderabad.
	" 1853	1,020	30	48	—	52	Both wings marched to Deesa.
	" 1854	987	27	48	—	43	Deesa.
	" 1855	932	18	75	—	—	Marched to Agra.
	" 1856	977	18	1	21	98	Agra.
	" 1857	854	29	98	12	—	Marched to Jullundur.
	" 1858	891	40	70	1	119	Jullundur.
	" 1859	845	175	—	—	174	At the siege of Delhi various operations and relief of Lucknow and Umballa.
	" 1860	870	56	88	4	148	Agra, Futtighur and Subjugation of Oude.
May 4, 1860	475	29	99	7	90	Futtighur. March from Futtighur to Calcutta. Calcutta.	
Average - -	—	1,021·4	82·4	60·4	14	70·7	

FRED. P. HAINES, Colonel, Lieut.-Col. commanding 1st Bat, The King's Regt.

STATISTICS OF REGIMENTS WHICH HAVE SERVED IN INDIA.

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Name of Regiment, with Date of Arrival in India, and of Departure from India.	Military Year.	Strength on Arrival, at the Beginning of each Year, and on Departure from India.	During the Military Year.				Stations at which the Regiment has served a Month or more in each Year, and Remarks.
			Deaths in India.	Number of Men sent from India to England.	Reinforcements.		
					By Transfer.	By Drafts.	
8TH REGIMENT, arrived in India, August 2, 1846; left India, May 4, 1860.	Apr. 1, 1846	869	—	—	—	—	November and December, Poona.
	" 1847	1,022	10	—	49	31	January to December, Poona.
	" 1848	1,010	9	4	99	—	January to October, Poona; October to December, Kurrachee.
	" 1849	1,144	33	11	3	150	January to December, Kurrachee.
	" 1850	1,030	46	86	—	30	January to December, Right Wing, Kurrachee; Left Wing, Hyderabad.
	" 1851	1,051	14	8	—	46	January to December, Deesa.
	" 1852	1,020	30	48	—	52	January to December, Deesa.
	" 1853	987	27	48	—	43	January to November, Deesa; December, on the march.
	" 1854	932	18	75	—	—	January, on the march; February to December, Agra.
	" 1855	977	18	1	21	98	January to October, Agra; November and December, on the march.
	" 1856	854	29	98	12	—	January to December, Jullundur.
	" 1857	891	40	70	1	119	January to December, in the Field.
	" 1858	845	175	—	—	174	January and February, on the March; March to July, Agra; August to October, Futtighur; November and December, in the Field.
	" 1859	870	56	88	4	148	January to December, Futtighur
	" 1860	475	29	99	7	90	January to May, Calcutta.
May 1, 1860	319	9	209	—	1		
Average - -	—	1,021	39	60	14	70	

FRED. P. HAINES, Colonel, N. Wg., Com. 1st, 8th Foot.

10TH ROYAL REGIMENT OF HUSSARS, arrived in India, August 22, 1846; left India, February 1, 1855.	—	640	—	—	—	—	
	Apr. 1, 1847	644	10	—	—	14	Kirkee, East Indies.
	" 1848	708	17	29	—	110	Kirkee, East Indies.
	" 1849	721	9	7	1	29	Kirkee, East Indies.
	" 1850	667	19	60	—	25	Kirkee, East Indies.
	" 1851	674	25	31	—	65	Kirkee, East Indies.
	" 1852	676	15	51	—	67	Kirkee, East Indies.
	" 1853	689	6	64	5	78	Kirkee, East Indies.
	" 1854	645	12	75	—	43	Kirkee, East Indies.
	Jan. 10, } 1855 Feb. 1, }	672	12	38	—	77	Marched in two wings for Bombay, 1st wing Dec. 28, 1854, 2nd wing Jan. 12, 1855.
Average - -	—	693.7	13.88	44.37	.66	56.44	

V. BAKER, Lieut.-Col., commanding 10th Royal Hussars.

1ST BATTALION, 24TH REGIMENT OF INFANTRY, arrived in India, August 28, 1846.	Aug. 28, 1846	924	49	5	139	7	Dum Dum, Ghazepore, Allahabad, and Agra.				
	Apr. 1, 1847	1,015									
	" 1848	1,185					88	18	109	173	Agra, Punjab campaign, Chillianwallah.
	" 1849	896					288	15	1	18	
	" 1850	1,103					39	56	2	318	Wuzerabad.
	" 1851	1,015					60	36	6	10	Wuzerabad and Lahore.
	" 1852	1,021					26	36	1	67	Wuzerabad.
	" 1853	1,008					19	41	2	58	Sealkote.
	" 1854	1,049					27	54	58	74	Sealkote.
	" 1855	1,062					33	23	41	32	Sealkote and Peshawur.
	" 1856	1,049					37	32	13	46	Peshawur and Nowshera.
	" 1857	952					79	34	2	12	Peshawur, Rawul Pindi, Shelum, Wuzerabad, Fort Attock, Fort Phillour, Fort Govindghur, Jullundur, Umritsur, Goo-gana. The regiment (in detachments) was on the march from May 1857 to May 1858. Ferozepore (in pursuit of Tantia Topee).
	" 1858	954					105	—	2	106	
	" 1859	1,141					27	89	6	297	Ferozepore.
" 1860	1,058	16	46	22	10	Ferozepore, and march to Kurrachee (via Mooltan).					
" 1861	633	11	96	5	1						
Average - -	—	1,077 $\frac{1}{2}$	60 $\frac{1}{2}$	38 $\frac{1}{2}$	27 $\frac{1}{2}$	82 $\frac{2}{5}$					

N.B.—Men discharged or "volunteers" to other corps not accounted for, there being no column for the same.

EDMUND WODEHOUSE, Lieut.-Col., commanding 1st Bat. 24th Regt.

STATISTICS OF REGIMENTS WHICH HAVE SERVED IN INDIA.

Name of Regiment, with Date of Arrival in India, and of Departure from India.	Military Year.	Strength on Arrival, at the Beginning of each Year, and on Departure from India.	During the Military Year.				Stations at which the Regiment has served a Month or more in each Year, and Remarks.	
			Deaths in India.	Number of Men sent from India to England.	Reinforcements.			
					By Transfer.	By Drafts.		
32ND REGIMENT INFANTRY, arrived in India, September 9, 1846; left India, March 24, 1859.	Sept. 9, 1846	943	—	—	—	—	Chinsurah to November 26, 1846, when the regiment marched en route for Meerut, and arrived February 19, 1847 (quartered in barracks). Meerut to February 14, 1848, when it marched en route to Umballa, and arrived March 1, 1848 (quartered in barracks). Umballa to May 14, 1848. Ferozepore from May 27 to August 10, 1848. On field service before Mooltan and Goozerat to March 23, 1849. En route to Jullundur to March 31, 1849. En route to Jullundur to April 17, 1849, after which quartered in barracks. Jullundur (in barracks). Jullundur till November 19, 1851. On march to Peshawur till February 8, 1852; were quartered in barracks whilst stationed there. Employed on field service in Rannazye valley from March 10 to 27, 1852. Peshawur. Employed on field service in Rannazye valley from May 2 to June 1852. Peshawur to January 3, 1854. On march to Kussowlie till March 6, 1854, from that time headquarters at Kussowlie, and left wing at Subathoo (both in barracks). Head-quarters, Kussowlie; Left wing, Subathoo, to August 27, 1854; the whole regiment at Kussowlie till December 12, 1854. At camp of exercise, Umballa, from December 16, 1854 to March 4, 1855. Head-quarters, Kussowlie; Left wing, Subathoo, remainder of the year. Head-quarters, Kussowlie. } In barracks. Left wing, Subathoo. } Head-quarters, Kussowlie; Left wing, Subathoo, till April 3, 1856; the whole regiment, Kussowlie, till October 30, 1856; on march to Lucknow till December 27, 1857; were quartered in barracks with one company at Cawnpore, with women and children. Lucknow, with one company at Cawnpore; on field service in the neighbourhood of Lucknow from May 15 to June 30; employed in defence of the Residency from June 30 to November 22; on field service remainder of year. On field service in the Allahabad and Oude districts till January 27, 1859; in camp at Allahabad till February 12, 1859; en route (bullock train) to Chinsurah till February 28; at Chinsurah in barracks till embarkation for England on March 23, 1859. Sailed for England.	
	Apr. 1, 1847	1,114	37	7	137	1		
	" 1848	1,202	76	5	42	128		
	" 1849	1,075	125	—	1	15		
	" 1850	1,114	68	60	3	156		
	" 1851	998	45	25	—	21		
	" 1852	1,021	31	26	4	44		
	" 1853	919	87	59	—	53		
	" 1854	925	26	—	3	70		
	" 1855	—	Returns lost in Lucknow, and copies for the period from Jan. 1 to Dec. 31, 1855, could not be obtained from Horse Guards.					
	" 1856	909						
	" 1857	742	82	32	4	33		
	" 1858	510	384	32	2	185		
	Mar. 24, 1859	341	63	65	2	58		
Average	—	908 $\frac{8}{13}$	93 $\frac{1}{11}$	28 $\frac{4}{11}$	18	69 $\frac{4}{11}$		

G. G. C. STAPYLTON, Lieut.-Col., commanding 32nd Lt. Infantry.

32ND REGIMENT, arrived in India, September 9, 1846; left India, March 24, 1859.	Apr. 1, 1846	943	—	—	—	—	October and November, Chinsurah; December, on the March. January and February, on the March; March to December, Meerut. January and February, Meerut; March to May, Umballa; June to August, Ferozepore; September to December, Camp before Mooltan. January, Camp before Mooltan; February to April, on the March; May to December, Jullundur. January to December, Jullundur. January to November, Jullundur; December, on the March. January to April, Peshawur; May, in the Field; June to December, Peshawur. January to December, Peshawur. January and February, on the March; March to December, Kussowlie. January to March, Umballa; April to December, Right Wing, Kussowlie; Left Wing, Subathoo. January to October, Kussowlie; November and December, on March. January to November, Lucknow; December, Cawnpore. January to December, in the Field. January, Camp Morawon; February, Allahabad; March, Chinsurah.	
	" 1847	1,114	37	7	137	1		
	" 1848	1,202	76	5	42	128		
	" 1849	1,075	125	—	1	15		
	" 1850	1,114	68	60	3	156		
	" 1851	998	45	25	—	21		
	" 1852	1,021	31	26	4	44		
	" 1853	919	87	59	—	53		
	" 1854	925	26	—	—	70		
	" 1855	—	Returns lost in Lucknow, and copies for the period from 1st January to 31st December 1855 could not be obtained from the Horse Guards.					
	" 1856	909						
	" 1857	742	82	32	4	33		
	" 1858	510	384	32	2	185		
	" 1859	341	63	65	2	85		
Average	—	908 $\frac{8}{13}$	93 $\frac{1}{11}$	28 $\frac{4}{11}$	18	69 $\frac{4}{11}$		

G. G. C. STAPYLTON, Lieut.-Col., commanding 32nd Regiment Light Infantry.

STATISTICS OF REGIMENTS WHICH HAVE SERVED IN INDIA.

765

Name of Regiment, with Date of Arrival in India, and of Departure from India.	Military Year.	Strength on Arrival, at the Beginning of each Year, and on Departure from India.	During the Military Year.				Stations at which the Regiment has served a Month or more in each Year, and Remarks.
			Deaths in India.	Number of Men sent from India to England.	Re-inforcements.		
					By Transfer.	By Drafts.	
96TH REGIMENT OF FOOT, arrived in India, April 26, 1849; left India, December 31, 1854.	Apr. 1, 1850	1,014	60	4	1	199	Calcutta and Ghazee-pore. Marched from Ghazee-pore to Cawnpore. Marched from Cawnpore to Lahore. Lahore. Mean Meer. Mean Meer. Marched for Dinapore, November 1853. Dinapore and Chinsurah. Embarked for England in December 1854.
	" 1850	891	121	53	4	208	
	" 1851	933	122	63	6	94	
	" 1852	973	69	48	2	150	
	" 1853	937	44	44	5	110	
	" 1854 Dec. 31, 1854	*954 633	58 —	Nil 633	5 —	Nil —	
Average -	—	950½	75½	42½	3½	152½	

* 279 men volunteered for further service in India.

E. W. SCOVELL, Colonel, commanding 96th Regiment.

83RD REGIMENT OF FOOT, arrived in India, May 10, 1849.	July 31, 1849	1,132	—	—	—	—	Poona, Bombay Presidency. Marched in November 1850 to Bombay, thence by sea to Kurrachee, Scinde. Kurrachee, Scinde. Kurrachee, Hyderabad, Scinde. Head-quarters, with three companies, marched to Deesa Dec. 1855, arrived in Deesa Feb. 1854. Seven companies embarked from Kurrachee for Bombay November 1854. Three companies, Deesa; seven companies from Bombay joined head-quarters at Deesa, Jan. 25, 1856. Deesa. Seven companies marched on field service to Nusserabad and Ajmeer in May and June 1857; head-quarters to Mount Abo from Deesa in November 1857; head-quarters and three companies to Nusserabad on field service in December 1857; two companies, January 1858, to siege of Awah; regiment siege of Kotah, March 9 to April 25, 1858. On field service July to September 1858; on field service November 1858 to February 1859; marched from Nusserabad, February 1860, Rajpootana, Reached Belgaum May 1860. Belgaum.
	Apr. 1, 1850	1,100	47	3	—	19	
	" 1851	1,061	27	20	—	10	
	" 1852	989	69	33	2	29	
	" 1853	983	69	43	6	103	
	" 1854	992	19	53	4	80	
	" 1855	972	17	48	18	38	
	" 1856	934	24	57	4	43	
	" 1857	940	18	47	1	70	
	" 1858	1,006	45	44	—	156	
	" 1859	1,101	54	56	15	191	
	" 1860	1,048	30	223	189	11	
" 1861	965	18	72	6	70		
Average -	—	1,101.92	36.42	58.25	20.42	68.33	

Under "Sent Home" all men discharged in India are included. Under "Transfers" all men joining in India other than drafts. Under "Drafts" Recruits. This return does not show the numbers transferred from the regiment to other corps or deserters.

H. DE R. PICOTT, Captain commanding Depot 83rd Regiment.

64TH (2ND STAFFORDSHIRE) REGIMENT OF INFANTRY, arrived in India, May 17, 1849; left India, April 9, 1861.	May 17, 1849	1,103	78	4	—	14	Poona and Kurrachee. Kurrachee. Kurrachee. Kurrachee. Kurrachee and Belgaum. Belgaum - } Return books for these years and 1851 were lost while crossing the Ganges, 1 May 1858. On Field Service in Persia and Bengal. On Field Service in Bengal. Kurrachee. Kurrachee. Kurrachee.
	Apr. 1, 1850	1,035	14	28	—	—	
	" 1851	993	—	—	—	—	
	" 1852	1,012	50	52	2	76	
	" 1853	989	—	—	—	—	
	" 1854	—	—	—	—	—	
	" 1855	—	—	—	—	—	
	" 1856	—	—	—	—	—	
	" 1857	1,088	237	77	6	72	
	" 1858	852	39	115	100	430	
	" 1859	1,228	24	224	11	2	
" 1860	993	12	452	7	60		
" 1861	596	—	—	—	—		
Average of Returns given	—	988.9	64½	136	18	93½	

Under "Number of men sent from India to England" men transferred to other regiments are included. Under "Drafts" recruits are included.

N. H. SHUTE, Lieut.-Col., commanding 64th Regiment.

Name of Regiment, with Date of Arrival in India, and of Departure from India.	Military Year.	Strength on Arrival, at the Beginning of each Year, and on Departure from India.	During the Military Year.				Station at which the Regiment has served a Month or more in each Year, and Remarks.
			Deaths in India.	Number of Men sent from India to England.	Re-inforcements.		
					By Transfer.	By Drafts.	
70TH REGIMENT OF FOOT, arrived in India, May 17, 1849.	May 17, 1849	979	—	—	—	—	Calcutta and on march. Fort William and Cawnpore. Cawnpore. Cawnpore. Cawnpore and Ferozepore (on march). Ferozepore. Ferozepore. Ferozepore and Peshawur (on march). Peshawur. Peshawur, Nowsheras, and Rawul Pindi (march). Rawul Pindi and Allahabad and on march. Allahabad.
	Apr. 1, 1850	935	129	4	1	96	
	" 1851	1,000	48	1	5	125	
	" 1852	963	67	36	6	81	
	" 1853	950	40	32	1	74	
	" 1854	808	243	23	34	102	
	" 1855	882	17	14	12	97	
	" 1856	896	8	28	5	52	
	" 1857	745	117	57	—	38	
	" 1858	963	82	—	2	302	
	" 1859	975	59	71	12	153	
	" 1860	915	18	45	3	36	
Feb. 1, 1861	884	42	77	7	131		
Average - -	—	910	72	32	7	107	

W. COOPER, Capt., commanding 70th Depôt.

87TH REGIMENT R. I. FUSILIERS, arrived in India, August 1, 1849; left India, 1860.	Aug. 1, 1849	1,032	—	—	—	—	Ferozepore, E.I. Ferozepore, E.I. Ferozepore, E.I. Ferozepore, E.I. Rawul Pindi, E.I. Rawul Pindi, E.I. Peshawur, E.I. Peshawur, E.I. En route to Jullundur. Jullundur. En route to China. En route from China to Ireland.
	Apr. 1, 1850	852	168	12	—	—	
	" 1851	852	88	37	11	238	
	" 1852	992	72	19	31	94	
	" 1853	991	26	15	12	88	
	" 1854	946	22	22	23	85	
	" 1855	956	23	31	11	—	
	" 1856	896	15	31	2	46	
	" 1857	890	58	20	3	55	
	" 1858	889	58	55	3	136	
	" 1859	943	58	43	111	123	
	" 1860	1,036	27	16	190	13	
" 1861	1,073	62	75	1	56		
Average - -	—	943	56.4	31.3	33.1	77.8	

A. H. COBBE, Major, commanding 87th Fusiliers.

75TH REGIMENT OF FOOT, arrived in India, August 10, 1849.	Aug. 10, 1849	988	—	—	—	—	Calcutta and Allahabad. Umballa. Umballa. Umballa. Left wing in Agra. Umballa. Cholera. March to Peshawur. Peshawur. Rawul Pindi. March to Kussowlie. Field service in front of Delhi and Lucknow, 1857-58. Meerut. Allahabad. Calcutta.
	Apr. 1, 1850	956	188	1	—	9	
	" 1851	1,033	50	—	1	132	
	" 1852	1,041	30	14	2	69	
	" 1853	941	118	24	7	61	
	" 1854	994	31	26	38	97	
	" 1855	931	107	30	19	65	
	" 1856	976	46	43	2	138	
	" 1857	937	22	62	5	48	
	" 1858	816	228	—	3	104	
	" 1859	1,091	39	37	124	147	
	" 1860	1,039	27	73	11	73	
" 1861	951	57	71	3	99		
Average - -	—	1,058	78	31	17	86	

T. C. DUNBAR, Bt. Major, commanding Depôt 75th Regt.

52ND REGIMENT OF LIGHT INFANTRY, arrived in India, October 1, 1853.	Oct. 1, 1853	1,067	19	—	54	9	Calcutta, Umballa. Umballa, Meerut. Meerut, Lucknow. Lucknow, Cawnpore, Delhi, Sealkote. Sealkote, Loodiana, Jullundur. The monthly returns for July, September, and October 1857, and March 1858, have not been received at the depôt; regiment on service during those months in 1857. Jullundur, Sealkote. Sealkote. Sealkote, Jhansi. Jhansi.
	Apr. 1, 1854	1,106	59	5	9	14	
	" 1855	1,041	40	24	2	34	
	" 1856	1,002	103	75	1	56	
	" 1857	871	63	—	—	212	
	" 1858	888	25	94	22	417	
	" 1859	1,204	12	19	12	—	
	" 1860	1,131	13	96	63	49	
	" 1861	1,076	—	—	—	—	
	Average - -	—	1,108	44.8	41.1	21.1		105.7

ARTHUR HENLEY, Capt., commanding Depôt 52nd Lt. Infantry.

STATISTICS OF REGIMENTS WHICH HAVE SERVED IN INDIA.

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Name of Regiment, with Date of Arrival in India, and of Departure from India.	Military Year.	Strength on Arrival, at the Beginning of each Year, and on Departure from India.	During the Military Year.				Stations at which the Regiment has served a Month or more in each Year, and Remarks.
			Deaths in India.	Number of Men sent from India to England.	Re-inforcements.		
					By Transfer.	B Drafts.	
81st REGIMENT OF FOOT, arrived in India, October 7, 1853.	Apr. 1, 1854	1,068	29	1	13	1	Calcutta. On march. Meerut. Meerut. On march. Meerut. Mean Meer. Visited by cholera, August and September 1856. Mean Meer, 150 men on field service for short periods, but continuously on duty and exposed on picket in cantonments. On march. Nowshera. Nowshera. On march. Peshawur. 350 men on field service for short period. No rain at Peshawur, 1858-9. Regiment healthy. Peshawur. On march. Rawul Pindi.
	" 1855	1,047	77	—	43	26	
	" 1856	1,022	16	10	7	53	
	" 1857	1,047	170	1	1	26	
	" 1858	1,044	32	—	—	221	
	" 1859	1,074	41	59	94	28	
	" 1860 to Mar. 31, 1861	1,034	26	94	200	35	
Average - -	—	1,047	55	23	51	77	

C. SKERRY, Capt., 81st Regt, commanding Depôt

43RD REGIMENT OF LIGHT INFANTRY, arrived in India, February 11, 1854; still serving in India.	Feb. 11, 1854	1,056	—	—	—	—	Madras, 2 months. Madras, 11 months; Bangalore, 1 month. Bangalore, 12 months. Bangalore, 12 months. Bangalore, 9 months; on field service, 3 months. On field service, 7 months; Calpee, 3 months; Saugor, 2 months. Saugor, 9 months; on march, 2 months; Madras, 1 month. Madras, 12 months.
	Apr. 1, 1854	1,118	7	—	24	45	
	" 1855	1,230	43	34	158	39	
	" 1856	1,181	24	33	3	8	
	" 1857	1,094	50	43	—	30	
	" 1858	1,041	31	28	1	6	
	" 1859	979	116	30	3	85	
" 1860	950	26	69	11	78		
" 1861	969	11	141	12	197		
Average - -	—	1066.44	38.50	47.25	26.60	61	

H. J. BERNERS, Lieut., commanding Depôt 43rd Light Infantry.

74TH REGIMENT OF HIGHLANDERS, arrived in India, March, 1854.	March 1854	730	—	—	—	—	Head-quarters marched from Madras to Trichinopoly, January 19, 1854. Left wing from Madras to Trichinopoly, arrived March 17, 1854. Head-quarters from Trichinopoly to Jackatalla, March 16, 1854. Head-quarters from Jackatalla to Bellary, July 23, 1857. Left wing from Trichinopoly to Jackatalla (date not known at Depôt). Left wing from Jackatalla to Cannanore, (date not known at Depôt). Left wing from Cannanore to Bellary, January 1858. Head-quarters from Bellary to Secunderabad, November 9, 1858, returned to Bellary, February 23, 1859.
	Apr. 1, 1854	828	7	—	—	78	
	" 1855	1,004	63	17	262	5	
	" 1856	994	25	36	1	59	
	" 1857	978	22	34	—	48	
	" 1858	972	18	41	—	63	
	" 1859	1,065	40	26	2	131	
" 1860	911	27	90	6	33		
" 1861	932	13	100	31	140		
Average - -	—	934.8	26.7	49.4	60.2	69.8	

Portions of the Regiment on field service during Indian Mutiny; strength and dates not known at the Depôt.

H. W. PALMER, Capt., commanding Depôt 74th Highlanders.

27TH INNISKILLING REGIMENT OF FOOT, arrived in India, October 12, 1855; the regiment remains in India.	April 1, 1855	770	7	—	20	—	Allahabad, and on march. Sealkote. Sealkote, Peshawur, and Nowshera. Peshawur, Nowshera, and march from Nowshera to Attock and Rawul Pindi. Umballa. Umballa. Umballa and Morar Gwalior. Morar Gwalior.
	Mar. 31, 1856	718*	50	2	7	255	
	" 1857	930	33	14	2	111	
	" 1858	988	140	30	1	105	
	" 1859	935	34	82	7	240	
	" 1860	1,040	12	11	28	—	
	" 1861 to June 30, 1861	1,042	22	82	75	135	
" 1861	1,107	4	24	2	—		
Average - -	—	941	37	30	17	105	

* 62 men drowned at Algoa Bay, Port Elizabeth, Cape of Good Hope, not noticed in this return.

EDWD. N. MOLESWORTH, Brevet Major, commanding Depôt 24th Regiment.

5 D 4

Name of Regiment, with Date of Arrival in India, and of Departure from India.	Military Year.	Strength on Arrival, at the Beginning of each Year, and on Departure from India.	During the Military Year.				Stations at which the Regiment has served a Month or more in each Year, and Remarks.
			Deaths in India.	Number of Men sent from India to England.	Re-inforcements.		
					By Transfer.	By Drafts.	
35TH REGIMENT OF FOOT, arrived in India, November 14, 1854.	Nov. 14, 1854	642	—	—	—	—	Dum Dum.
	April 1, 1855	681	14	3	66	—	Dum Dum, 4 months.
	" 1856	655	52	15	—	44	Dum Dum, 5 months; Calcutta, 6 months; Moulmein, 1 month.
	" 1857	656	66	1	—	75	Moulmein, 12 months.
	" 1858	933	66	64	—	365	Moulmein, 3 months; on march, 2 months; Barrackpore, 7 months.
	" 1859	934	187*	35	20	204	Dinapore, 8 months; field service, 4 months.
	" 1860	959	38	62	72	104	Dinapore, 6 months; on march as escort of Governor-General, 3 months; Meerut, 3 months.
" 1861	1,162	19	56	183	100	Meerut, 12 months.	
Average - -	—	946	63.18	33.71	48.71	127.42	

* 101 killed in action.

A. TISDALL, Brevet Major, commanding Depôt 35th Regiment.

6TH (CARABINEERS) DRAGOON GUARDS, arrived in India, November 22, 1856; left India, March 18, 1861.	April 1, 1857	635	2	—	—	—	On line of march from Calcutta to Meerut, arrived March 11, 1857.
	" 1858	632	71	—	3	65	Meerut when in quarters. On field service.
	" 1859	661	28	45	2	100	Meerut. On field service. Muttra, February 5, 1859.
	" 1860*	659	13	34	14	42	Muttra to January 9, 1860. Meerut.
	Mar. 18, 1861†	510	9	43	5	50	Meerut. On line of march for Calcutta from January 20, 1861.
Average - -	—	619	30	30	7	64	

* 11 men discharged in India not noted in the above.

† 15 men discharged in India, 3 men transferred, 134 men volunteered to corps in India, not counted in the above numbers.

H. RICHMOND JONES, Colonel, commanding 6th Carabineers.

12TH REGIMENT ROYAL LANCERS, arrived in India, December 11, 1856.	Apr. 1, 1857	610	3	—	—	—	Head Quarters and Right Wing, Bangalore and Secunderabad; Left Wing, Kirkee, Secunderabad, Saugor. Employed on field service in Central India from December 1857 to April 1859.
	" 1858	644	20	4	—	61	
	" 1859	608	52	41	—	57	
	" 1860	404	34	45	23	89	
	" 1861	404	—	—	—	—	
Average - -	—	534	27½	22½	5½	51½	

T. OAKES, Lieut.-Col., commanding 12th Royal Lancers.

37TH REGIMENT OF FOOT, arrived in India, June 13, 1857; left India, March 7, 1861.	Apr. 1, 1858	841	121	15	—	27	Left Wing served at Calcutta and Ghazepore; Right Wing at Dinapore, on field service, and on the March. Right Wing at Dinapore and Ghazepore; Left Wing and a part of the Right at Azimgur, on field service, and on the march. Ghazepore. Calcutta and Hazareebangh. On embarkation. Not included in average.
	" 1859	705	36	52	—	279	
	" 1860	862	37	25	8	215	
	Mar. 7, 1861	998	84	82	—	13	
	—	539	—	—	—	—	
Average - -	—	851.5	69.5	43.5	2	133.5	

EGERTON MILMAN, Colonel.

1ST BATT. 5TH REGT. FUSILIERS, arrived in India, July 4, 1857; left India, March 9, 1861.	Apr. 1, 1858	856	165	2	1	1	Chinsurah, Allumbagh, and Cawnpore. Calpee and Allahabad. Allahabad and Calcutta. Calcutta. Strength on March 9, 1861, on leaving India.
	" 1859	663	88	48	3	298	
	" 1860	828	104	76	6	150	
	Mar. 9, 1861	805	38	419*	3	211	
	—	562	—	—	—	—	
Average - -	—	782½	98½	136½	3½	165	

* In this number is included 328 volunteers to other Regiments on the departure of the Battalion from Calcutta.

The men who were discharged are included in the column "Number of Men sent from India to England."

The Battalion was on field service from July 1857 to April 1858, from June to August 1858, and from October 1858 to February 1859. On the March from January to March 1860 from Allahabad to Calcutta.

W. C. MASTER, Lieut.-Col., commanding 1st Batt. 5th Regt. Fusiliers.

Name of Regiment, with Date of Arrival in India, and of Departure from India.	Military Year.	Strength on Arrival, at the Beginning of each Year, and on Departure from India.	During the Military Year.				Stations at which the Regiment has served a Month or more in each Year, and Remarks.
			Deaths in India.	Number of Men sent from India to England.	Re-inforcements.		
					By Transfer.	By Drafts.	
90TH REGIMENT OF LIGHT INFANTRY, arrived in India, July 21, 1857.	Apr. 1, 1858	1,036	149	34	—	—	Incomplete in consequence of several of the Monthly Returns having been destroyed en route to the Depot.* Lucknow and in camps in various parts of Oudh. On field service. Seetapore, Oude. Seetapore, and one month at Allahabad.
	" 1859	130	140	82	4	201	
	" 1860	858	32	48	10	184	
	" 1861	929	25	51	7	131	
	Average - -	—	738½	86½	53½	5½		129

* During the first year the Regiment was on active service, and upwards of 90 men out of the 149 were killed or died of wounds.
L. H. IRBY, Captain, commanding Depot 90th Light Infantry.

33RD REGIMENT OF FOOT, arrived in India, August 7, 1857.	Aug. 7, 1857	855	—	—	—	—	Colabah, Bombay, from August 7, 1857, to October 4, 1857. Arrived at Poona October 9, 1857, to December 4, 1858. Arrived at Deesa January 25, 1859, to present time. Detachments several times on field service.
	Apr. 1, 1858	859	8	16	1	31	
	" 1859	1,233	12	19	9	376	
	" 1860	1,162	41	13	13	27	
	" 1861	991	64	68	4	—	
	Aug. 1, 1861	979	1	9	7	—	
Average - -	—	1,013½	21	20½	5½	72½	

J. TRENT, Captain, commanding Depot 33rd Regiment.

89TH REGIMENT OF FOOT, arrived in India, September 11, 1857.	Sept. 11, 1857	700	7	6	9	—	Ahmedabad. The regiment suffered very much on the march from Gogo to Ahmedabad, and on arrival was employed on field service and marching. Ahmedabad, Deesa, Neemuch, Serouge, field service, and continually under canvas and on march. Jhansi, Gwalior. Umballa. Umballa.
	Apr. 1, 1858	724	25	—	2	300	
	" 1859	979	38	48	17	162	
	" 1860	1,058	81	83	18	112	
	" 1861	992	9	4	23	—	
	Aug. 1, 1861	1,000	—	—	—	—	
Average - -	—	908½	32	28½	13½	114½	

R. F. HOLMES, Brevet Major, commanding Depot 89th Regiment.

1ST BATTALION, 23RD REGIMENT OF ROYAL WELSH FUSILIERS, arrived in India, October 1, 1857.	Apr. 1, 1858	947	31	21	—	20	Fort William, Calcutta. Allahabad, line of march. Camp Cawnpore, field service. Camp Gogra Gunge, field service. Camp Ramgunge, field service. Camp Bunteerah, field service. Lucknow, field service. Lucknow, field service. Camp Newabgunge, field service. Camp on the Gogra, field service. Cantonments, Lucknow, field service. Lucknow, field service. Old cantonments, Lucknow. Lucknow. New cantonments, Lucknow. New cantonments, Lucknow. Lucknow.
	" 1859	1,191	107	58	15	391	
	" 1860	1,046	53	61	18	1	
	" 1861	1,166	23	53	232	72	
	Average - -	—	1,087.50	53.50	48.25	66.25		121.0

C. MONSELL, Capt., commanding Depot, 1st Battalion, 23rd R. W. Fusiliers.

1ST BATT. 13TH REG. LT. INFANTRY, arrived in India, 1st Div. Oct. 3, 1857 2nd " Jan. 18, 1858 3rd " Jan. 20, 1858	—	764	—	—	—	—	Field service, Allahabad. Field service, Benares and Goruckpore. Goruckpore. Goruckpore and Gondah.
	Apr. 1, 1858	779	3	2	—	20	
	" 1859	1,058	98	65	12	430	
	" 1860	917	61	152	7	65	
	" 1861	989	36	54	39	123	
Average - -	—	935	49	68	14	159	

R. B. MONTGOMERY, Capt., 13th Light Infantry, commanding Depot 1st Battalion.

Name of Regiment, with Date of Arrival in India, and of Departure from India.	Military Year.	Strength on Arrival, at the Beginning of each Year, and on Departure from India.	During the Military Year.				Stations at which the Regiment has served a Month or more in each Year, and Remarks.
			Deaths in India.	Number of Men sent from India to England.	Re-inforcements.		
					By Transfer.	By Drafts.	
82ND REGIMENT OF FOOT, arrived in India, October 12, 1857.	Apr. 1, 1858	950	55	10	1	—	On the march, and Futtghur. Shahjehanpore and Mahomdee. Shahjehanpore. Shamjehampore and Delhi.
	" 1859	1,112	104	33	2	311	
	" 1860	1,039	31	32	22	2	
	" 1861	1,153	27	55	87	115	
Average - -	—	1,086	54½	32½	28	107	

E. M. PALLISER, Capt., commanding Depôt-82nd Regt.

34TH REGT. FOOT, arrived in India, October 17, 1857.	Apr. 1, 1858	754	55	11	2	540	Cawnpore, &c., field service. Azinghur, &c., field service Fyzabad. Fyzabad.
	" 1859	730	83	42	5	73	
	" 1860	1,175	58	98	6	9	
	Aug. 1, 1861	1,008	37	17	7	74	
Average - -	—	916½	58½	42	5	174	

G. W. PUGET, Capt., commanding Depôt 34th Regt.

1ST BATT. 1ST ROYAL REGT. FOOT, arrived in India, October 30, 1857.	Apr. 1, 1858	1,087	9	—	1	—	Secunderabad. 2 men transferred in India. Secunderabad. 83 men transferred in India. 3 men discharged in India. Secunderabad. 1 re-admitted on strength in India. 2 men discharged in India. 41 transferred in India. Secunderabad. Secunderabad.
	" 1859	1,079	120	29	45	306	
	" 1860	1,279	43	146	6	8	
	" 1861	1,013	18	63	10	81	
	Aug. 1, 1861	981	3	12	3	—	
Average - -	—	1,087·80	38·60	50·00	12·80	79·00	

W. F. J. RUDD, Capt., commanding Depôt 1st Batt. 1st Foot

42ND ROYAL HIGHLAND REGT. OF FOOT, arrived in India, November 1, 1857.	Nov. 1, 1857	876	—	—	—	—	Barielly. Thilleebheet. Camp Madho Thanda. Barielly. Agra.
	Apr. 1, 1858	771	20	1	—	—	
	" 1859	961	123	22	19	238	
	" 1860	1,009	20	76	12	166	
	" 1861	990	23	40	11	100	
Average - -	—	932·75	46·5	34·75	10·5	126	

FRAN. E. H. FARQUHARSON, commanding Depôt 42nd Royal Highland B. W.

95TH REGT. FOOT, arrived in India, 1st Division, September 27, 1857; 2nd Division, November 1, 1857.	—	725	—	—	—	—	Stationed at Bombay November and part of December 1857. Remainder on field service. On field service. Field service to May 1859. Stationed at Neemuch to April 1860. Neemuch to November 1860. March to Poona from 1860 to January 1861. Poona February to April 1861.
	1 Apr. 1858	714	8	3	—	—	
	" 1859	1,047	50	24	—	408	
	" 1860	1,037	32	42	5	76	
	" 1861	985	38	39	3	96	
Average - -	—	883½	25½	21½	1½	116	

GEORGE CARMICHAEL, Bt.-Major, commanding Depôt 95th Regiment.

88TH REGIMENT OF FOOT, arrived in India, November 2, 1857.	Apr. 1, 1858	960	31	13	—	4	On march, on field service, Bhithoor, Akbarpore. Akbarpore, Cawnpore, on field service, Lucknow. On march, Delhi. Delhi.
	" 1859	916	118	41	8	211	
	" 1860	961	43	35	37	79	
	" 1861	{ 925 1,048 }	{ 25 49 }	{ 47 168 }			
Average - -	—	962·2	62	41·1	30·2	152·2	

Men transferred to other corps, discharged in India, deserted, and rejoined from desertion, are not shown in this Return, no column being provided for them.

GEORGE BROWNE, Bt. Major, commanding Depôt 88th Regiment.

STATISTICS OF REGIMENTS WHICH HAVE SERVED IN INDIA.

77A

Name of Regiment, with Date of Arrival in India, and of Departure from India.	Military Year.	Strength on Arrival, at the Beginning of each Year, and on Departure from India.	During the Military Year.				Stations at which the Regiment has served a Month or more in each Year, and Remarks.
			Deaths in India.	Number of Men sent from India to England.	Re-inforcements.		
					By Transfer.	By Drafts.	
2ND BATTALION, RIFLE BRIGADE, arrived in India, November 1857.	Nov., 1857	847	—	—	—	—	Cawnpore, field service, period not known. Newabgunge, Sultanpore, field service, period not known. Baraitch, Lucknow, field service, period not known. Marched to Subathoo. Subathoo.
	Apr. 1, 1858	886	20	12	—	72	
	" 1859	1,043	113	29	2	299	
	" 1860	1,106	48	80	99	120	
Average - -	—	1,003	49·75	47·25	27·50	159·25	

A. F. WARREN, Bt.-Major, commanding Depôt, 2nd Bat. Rifle Brigade.

3RD BATTALION, RIFLE BRIGADE, arrived in India, November 1857.	Apr. 1, 1858	966	—	—	—	—	Field service. Field service to September. At Agra from September 1859. Agra till April 1861. Marched to Bareilly.
	" 1859	945	21	—	18	282	
	" 1860	1,069	141	30	10	112	
	" 1861	1,156	29	32	8	38	
Average - -	—	1,036	57·5	23	9·3	108	

CLAUDE T. BOURCHIER, Bt. Maj., commanding Depôt, 3rd Bat. Rifle Brigade.

3RD REGIMENT OF DRAGOON GUARDS, arrived in India, November 9, 1857.	Apr. 1, 1858	558	4	—	—	—	Kirkee. Camp Burhampore. Mhow. Mhow.
	" 1859	701	16	25	—	131	
	" 1860	663	30	36	18	15	
	" 1861	657	14	15	3	25	
Average - -	—	643	16	19	5	43	

C. HAGART, Col., commanding Cavalry Depôt, Canterbury.

1ST REGT. DRAGOON GUARDS, arrived in India, November 10, 1857.	Apr. 1, 1858	503	8	—	—	—	} Bangalore and China.
	" 1859	605	9	9	1	116	
	" 1860	704	11	39	62	90	
	" 1861	699	25	21	2	50	
Average - -	—	628	13	17	16	64	

C. HAGART, Col., commanding Cavalry Depôt, Canterbury.

38TH REGIMENT OF FOOT, arrived in India, November 16, 1857.	Apr. 1, 1858	1,005	21	3	2	—	Calcutta, Allahabad, &c. On the march. Lucknow, on field service. Rae-Bareilly cantonments. Rae-Bareilly, Allahabad. On march to Dinapore. Dinapore.
	Mar. 31, 1859	982	176	38	4	294	
	" 1860	1,059	40	82	26	61	
	" 1861	1,014	22	59	32	131	
Average - -	—	1,015	85	61	21	162	

1ST BATTALION, 19TH REGT. FOOT, arrived in India, November 18, 1857.	Apr. 1, 1858	1,023	10	4	—	33	Calcutta, on march, Barrackpore. Barrackpore, on march, Dinapore, field service, Muttaharee. Muttaharee, field service, Dinapore, on march. Benares. Benares.
	" 1859	1,108	87	60	14	257	
	" 1860	965	65	64	—	3	
	" 1861	905	40	97	16	60	
Average - -	—	1,000½	50½	56½	7½	88½	

AMES GOREN, Captain 1st Batt., 19th Regt., commanding Depôt.

1ST BATT. 20TH REGT. FOOT, arrived in India, November 19, 1857.	Nov. 19, 1857	816	—	—	—	—	Field service and on march. Lucknow and Nawabgungee. Gondah. Gondah. Gorruckpore.
	Apr. 1, 1858	796	19	1	—	—	
	" 1859	1,015	123	58	—	407	
	" 1860	964	56	82	3	97	
Average - -	—	838·5	59·4	42·3	3·3	151·2	

W. D. NUNN, Capt. commanding Depôt 1st Batt., 20th Regt.

Name of Regiment, with Date of Arrival in India, and of Departure from India.	Military Year.	Strength on Arrival, at the Beginning of each Year, and on Departure from India.	During the Military Year.				Stations at which the Regiment has served a Month or more in each Year, and Remarks.
			Deaths in India.	Number of Men sent from India to England.	Re-inforcements.		
					By Transfer.	By Drafts.	
97TH REGT. FOOT, arrived in India, November 22, 1857.	Apr. 1, 1858	816	5	—	—	—	Calcutta and on march. Lucknow, on field service and on march. Banda, and on March. Jubbulpore. Jubbulpore.
	Mar. 31, 1859	799	139	39	4	445	
	" 1860	1,013	93	68	14	66	
	" 1861	986	35	70	21	140	
	July 31, 1861	979	6	2	1	—	
Average - -	—	918·6	55·6	35·8	8·0	130·2	

C. K. JONES, Capt., commanding Depôt 97th Regiment.

1ST BAT. 7TH REGT. ROYAL FUSILIERS, arrived in India, November 23, 1857.	Apr. 1, 1858	1,062	6	—	1	52	The regiment proceeded from Kurrachee to Mean Meer in December 1858. At Mean Meer from December 1858 to April 1859 the right wing at Dera-Ishmael Khan from September 1858 to April 1859. The regiment marched from Mean Meer to the Jheelum in April 1859. At the Jheelum from May to October 1859, a strong detachment, consisting of six companies, were sent to Rawl Pindi. The regiment marched from the Theelum to Peshawur in November 1859. At Peshawur from November 1859 to April 1861.
	" 1859	1,222	68	9	7	234	
	" 1860	1,182	30	17	19	—	
	" 1861	1,254	19	104	215	7	
	Average - -	—	1,180	30·75	32·50	60·50		73·10

RIG. HARBORD, Capt., commanding Depôt 7th Royal Fusiliers.

93RD REGIMENT OF HIGHLANDERS, arrived in India, November 26, 1857.	Apr. 1, 1858	1,078	80	9	—	3	} In the field during the Indian mutiny (Bengal). On the march to Subathoo. Rawul Pindi, East Indies. Rawul Pindi, East Indies.
	" 1859	992	97	66	6	76	
	" 1860	911	42	42	22	220	
	" 1861	1,069	41	70	27	113	
	" 1861	1,098	1	14	—	—	
Average - -	—	1,009 $\frac{2}{3}$	52 $\frac{1}{2}$	40 $\frac{1}{2}$	18 $\frac{1}{2}$	98	

F. G. DAWSON, Bt. Maj., commanding Depôt 93rd Highlanders.

2ND REGIMENT OF DRAGOON GUARDS, arrived in India, November 26, 1857.	*Apr. 1, 1859	604	112	29	13	144	Lucknow. Lucknow. Lucknow.	
	" 1860	605	22	14	8	97		
	" 1861	585	29	35	5	41		
	Average - -	—	598	54	26	9		94

* No casualty return received from the Senci troops, from one dated December 10, 1857, until one dated January 1, 1859.

C. HAGART, Col., commanding Cavalry Depôt, Canterbury.

44TH REGT. FOOT, arrived in India, November 28, 1857; left India, March 3, 1860.	Nov. 28, 1857	809	—	—	—	—	Madras. Madras, one deserted, four transferred to other corps, one rejoined from desertion. Madras, eight discharged, eight transferred to other corps, one deserted, one rejoined from desertion, nine joined as recruits. Embarked for China March 3, 1860.
	Apr. 1, 1858	832	5	—	—	29	
	" 1859	1,139	33	48	34	358	
	" 1860	1,176	18	77	129	10	
	Average - -	—	988·75	1,866	62·5	82·5		198·5

ALEX. W. COBHAM, Capt., commanding Depôt 44th Regiment.

7TH REGT. HUSSARS, arrived in India, November 30, 1857.	Nov. 30, 1857	515	—	—	—	—	On field service to April 1859. Umballa. Umballa. Umballa.
	Apr. 1, 1858	507	14	1	—	6	
	" 1859	546	112	19	4	161	
	" 1860	723	19	6	21	189	
	" 1861	737	19	27	69	—	
Average - -	—	628 $\frac{1}{2}$	41	11 $\frac{1}{2}$	23 $\frac{1}{2}$	89	

JOHN C. H. GIBSON, Col., Commandant Cav. Depôt, Maidstone.

STATISTICS OF REGIMENTS WHICH HAVE SERVED IN INDIA.

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Name of Regiment, with Date of Arrival in India, and of Departure from India.	Military Year.	Strength on Arrival, at the Beginning of each Year, and on Departure from India.	During the Military Year.				Stations at which the Regiment has served a Month or more in each Year, and Remarks.
			Deaths in India.	Number of Men sent from India to England.	Re-inforcements.		
					By Transfer.	By Drafts.	
79TH REGIMENT OF FOOT, arrived in India, December 1, 1857.	Apr. 1, 1858	973	11	—	—	—	Calcutta, and on the march <i>via</i> Allahabad to Lucknow. Field service, Oude, and Rohilkund (hot weather campaign). Lahore, Punjab. Arrived April 1859. Lahore and Ferozepore. Ferozepore.
	" 1859	949	165	55	11	215	
	" 1860	967	25	49	27	129	
	" 1861	1,016	13	48	19	133	
	Aug. 1, 1861	1,041	6	12	29	—	
Average - -	—	989	44	33	17	95	

G. T. SCOVELL, Capt., 79th Highlanders, Commanding Depôt.

3RD BATTALION, 60TH ROYAL RIFLES, arrived in India, December 2, 1857.	Apr. 1, 1858	1,044	7	2	—	102	Bangalore, Madras. Bangalore, Madras, April 1858 to February 1859; Jackatalla, Neigherry Hills, from February 1859. Jackatalla, Madras. Jackatalla (name of station changed to "Wellington" in May 1860).
	" 1859	1,178	24	22	20	164	
	" 1860	1,176	13	51	4	1	
	" 1861	934	23	44	7	—	
	Average - -	—	1,083	16.75	29.75	7.75		66.75

THOMAS BIGGS, Capt., commanding Depôt 3rd Batt. 60th Rifles.

72ND REGIMENT OF HIGHLANDERS, arrived in India, December 10, 1857.	Dec. 10, 1857	833	—	—	—	—	On march from date of arrival to May 1858; at Neemuch to September 1858; on march to January 1859; at Mhow from January 1859 until the present date. Several detachments have been from time to time marching, and on field service. The dates are not known at the depôt.
	Apr. 1, 1858	877	6	—	—	—	
	" 1859	1,061	48	11	4	242	
	" 1860	892	23	100	6	28	
	" 1861	968	15	47	2	180	
Average - -	—	936 $\frac{2}{3}$	23	52 $\frac{1}{3}$	4	150	

T. BEST, Capt., commanding Depôt 72nd Highlanders.

66TH REGT. OF INFANTRY, arrived in India, December 14, 1857.	Apr. 1, 1858	854	6	—	—	76	Cannanore. Cannanore. Cannanore. Cannanore.
	Mar. 31, 1859	1,270	18	67	34	360	
	" 1860	1,204	25	119	10	—	
	" 1861	1,036	9	—	6	—	
	Average - -	—	1,091	14.50	46.50	12.50		109

A. TORRENS, Capt., commanding Depôt 66th Regt.

8TH REGT. HUSSARS, arrived in India, December 18, 1857.	Apr. 1, 1858	486	2	—	—	—	Camp near Kotah. Camp Sukutpore. Nusseerabad. Meerut.
	" 1859	559	41	6	—	120	
	" 1860	711	24	20	55	128	
	" 1861	704	19	24	35	—	
	Average - -	—	615	21	12	22		62

C. HAGART, Col., commanding Cavalry Depôt, Canterbury.

SERVICE COMPANY, 69TH FOOT, arrived in India, December 26, 1857.	—	779	—	—	—	—	Sowgher, Burmah.
	Apr. 1, 1858	790	3	—	—	—	
	" 1859	969	29	1	—	212	
	" 1860	974	38	62	17	92	
	" 1861	1,010	9	76	4	124	
	July 1, 1861*	966	1	41	1	—	
Average - -	—	921 $\frac{1}{2}$	11 $\frac{3}{4}$	30	3 $\frac{3}{4}$	71 $\frac{1}{2}$	

* Date of latest return received from India.

R. FITZGERALD, Capt., commanding Depôt 69th Regt.

Name of Regiment, with Date of Arrival in India, and of Departure from India.	Military Year.	Strength on Arrival, at the Beginning of each Year, and on Departure from India.	During the Military Year.				Stations at which the Regiment has served a Month or more in each Year, and Remarks.
			Deaths in India.	Number of Men sent from India to England.	Re-inforcements.		
					By Transfer.	By Drafts.	
51ST REGIMENT OF LIGHT INFANTRY, arrived in India, January 1, 1858.	Apr. 1, 1858	769	4	—	—	—	Kurrachee. 2 deserters joined, 2 transferred to other corps, and one discharged in India. Mean Meer. 19 transfers to other corps and discharged in India. Mean Meer. 64 transfers to others corps and discharged in India. Mean Meer.
	" 1859	1,188	33	19	3	469	
	" 1860	1,143	46	8	17	16	
	" 1861	1,070	19	49	19	35	
	Average - -	—	1,043	25	19	9		130
G. B. McQUEEN, Capt., commanding Depôt 51st Lt. Infantry.							
7TH DRAGOON GUARDS, arrived in India, January 7, 1858.	Apr. 1, 1858	473	3	—	—	—	Mean Meer. Sealkote. Sealkote. Sealkote.
	" 1859	568	39	8	3	143	
	" 1860	601	9	23	12	60	
	" 1861	645	15	47	16	100	
	Average - -	—	572	16	19	8		76
C. HAGART, Col., commanding Cavalry Depôt, Canterbury.							
94TH REGIMENT OF FOOT, arrived in India, January 14, 1858.	Jan. 14, 1858	865	—	—	—	—	Strength on arrival in India, January 14, 1858. Marched from Kurrachee to Rawul Pindi. At Rawul Pindi. Marched from Rawul Pindi to Peshawur. At Peshawur. Marched from Peshawur to Nowshera. At Nowshera. Marched from Nowshera to Mean Meer. At Mean Meer.
	Apr. 1, 1858	880	7	—	—	43	
	" 1859	1,081	46	15	7	257	
	" 1860	1,125	31	1	20	73	
	" 1861	1,023	15	111	18	60	
Average - -	—	1,027.25	24.75	31.75	11.25	108.25	
W. W. J. BRUCE, Capt., commanding Depôt 94th Regiment.							
98TH REGIMENT OF FOOT, arrived in India, January 1858.	Apr. 1, 1858	769	44	17	9	298	Nowshera and Campbellpore. Nowshera and Peshawur. Peshawur. Peshawur.
	" 1859	991	17	20	42	87	
	" 1860	1,046	17	77	84	110	
	" 1861	1,112	—	—	—	—	
	Average - -	—	979*	26†	38†	45†		165†
* Average of 4 Years.				† Average of 3 Years.			
E. GRANTHAM, Capt., commanding Depôt 98th Regiment.							
80TH REGIMENT OF INFANTRY, arrived in India, January 18, 1858.	Jan. 18, 1858	826*	1	—	—	—	Whole Regiment on line of march from Calcutta to Allahabad, January and February 1858. Head Quarters and Left Wing marched to Futtyghur in March 1858; Right Wing on field service in Futtyghur District during March 1858. Right Wing on field service in Futtyghur District, April and May 1858; Head Quarters and Left Wing on field service in Futtyghur and Rohilkund, and Oude Districts during April, May, and June 1858. Whole Regiment stationed at Cawnpore from July to September 1858; Head-Quarters and Right Wing on field service in Oude from October 1858 to January 1859; Left Wing at Cawnpore, October 1858 to January 1859; whole Regiment stationed at Cawnpore, February and March 1859. Whole Regiment stationed at Cawnpore from April to December 1859; on line of march from Cawnpore to Saugur January 1860. Stationed Head Quarters and Right Wing at Saugur, Left Wing at Nowgong, from February to March 1860. Stationed Head Quarters and Right Wing at Saugur, Left Wing at Nowgong, from April 1860 to March 1861.
	Apr. 1, 1858	808†	174	42	22	249	
	" 1859	858†	67	63	10	117	
	" 1860	838§	23	57	16	282	
	" 1861	1,038	—	—	—	—	
Average - -	—	873.6	81.12	49.80	14.76	197.52	

* By all other causes, increase 0, decrease 17

† " " " 4, " 9

‡ " " " 1, " 18

§ " " " 4, " 23

1.76 .. 21.52

F. MILLER, Brevet Major, commanding Depôt 80th Foot.

Name of Regiment, with Date of Arrival in India, and of Departure from India.	Military Year.	Strength on Arrival, at the Beginning of each Year, and on Departure from India.	During the Military Year.				Stations at which the Regiment has served a Month or more in each Year, and Remarks.
			Deaths in India.	Number of Men sent from India to England.	Re-inforcements.		
					By Transfer.	By Drafts.	
SERVICE COMPANIES, 56TH REGIMENT OF INFANTRY, arrived in India, Head-quarters, Jan. 20, 1858, Left Wing, Dec. 31, 1857.	Apr. 1, 1858	794	3	*	1†	—	On march from Bombay to Belgaum from January 29, 1858, to March 1, 1858. Belgaum. On march from Belgaum to Poona from February 24, 1860, to March 16, 1860. Marched from Poona to Colaba in the month of December 1860. Colaba.
	" 1859	792	21	12	9	214	
	" 1860	976	51	60	27	102	
	" 1861	924	30	110	7	152	
	July 31, 1861	936	17	10	3	—	
Totals - -	—	4,222	122	292	47	468	
	—	5‡	3‡†	3‡†	3‡†	3‡†	
Average - -	—	884.4	34.04	81.48	13.11	130.6	

* This column includes 5 men sent to the Cape of Good Hope for discharge in the year ended March 31, 1860, and 3 in that ended March 31, 1861.

† Rejoined from desertion; surrendered while serving in another corps in India.

‡ By these numbers the totals have been divided in the determination of the average.

In addition to the increase and decrease of the regiments above shown, 4 recruits have been enlisted at the head-quarters of the Service Companies in the year ended March 31, 1861; 6 men transferred to other corps in India in the year ended March 31, 1859; 64 in that ended March 31, 1860, and 5 in that ended March 31, 1861; and 6 men discharged in India in the year ended March 31, 1860, and 6 in that ended March 31, 1861.

W. G. MARGESSON, Capt., commanding Depôt 56th Regiment.

54TH REGT. FOOT, arrived in India, January 28, 1858.	Jan. 28, 1858	905	—	—	—	—	Allahabad, and on the march. Camp, Sultanpore, on field service. Cawnpore. Cawnpore.
	Apr. 1, 1858	841	29	52	1	16	
	" 1859	1,057	141	42	1	403	
	" 1860	1,004	47	50	8	52	
	" 1861	1,011	52	63	32	93	
Average - -	—	963.60	67.25	51.75	10.50	141.00	

F. G. C. PROBART, Capt. commanding Depôt 54th Regiment.

17TH REGIMENT OF LANCERS, arrived in India, January 1858.	Jan., 1858	486	—	—	—	—	Kirkee. Kirkee, to September 1, 1858. On field service to April 1859. On field service to June 1, 1859. At Morar to January 1860. On march to Secunderabad from February 1860. Secunderabad.
	Apr. 1, 1858	486	—	—	—	—	
	" 1859	568	21	8	—	110	
	" 1860	599	74	23	4	131	
	" 1861	632	28	36	21	70	
Average - -	—	571	30‡	16‡	6‡	7‡	

JOHN C. H. GIBSONE, Col., Commandant Cavalry Depôt, Maidstone.

71ST HIGHLAND LIGHT INFANTRY, arrived in India, February 5, 1858.	Feb. 5, 1858	833	—	—	—	—	Field service with Central India F. F. Gwalior. Sealkote. Marched from Gwalior on December 20, 1860, and arrived at Sealkote on February 22, 1861.
	Apr. 1, 1858	832	1	—	—	—	
	" 1859	967	65	19	1	218	
	" 1860	907	40	110	9	118	
	" 1861	868	106	76	4	150	
Average - -	—	893	53	51.4	3.2	121.2	

15 men have been discharged, 32 transferred to other corps, and 1 man deserted in India.

W. F. SEGRAVE, Capt., 71st, commanding Depôt.

1ST BATTALION, 18TH R. I. REGIMENT OF FOOT, arrived in India, February 6, 1858.	Apr. 1, 1858	846	12	26	9	380	Landed at Bombay, and after a month proceeded to Poona. Stationed at Poona from April 1858 to November 1858. Marched from Poona via Jaulnah and Sholapore into Secunderabad in July 1859.* The regiment has been stationed at Secunderabad from July 1859 to the present date.
	" 1859	1,179	61	66	22	1	
	" 1860	1,031	18	54	6	79	
	" 1861	992	4	7	1	1	
	Average - -	—	1,012	23‡	38‡	9‡		115‡

* The regiment furnished detachments to Nassick, Asseerghur, Mulligaum, Mahableswhur and Jaulnah during the mutiny from April 1858 to April 1860.

Discharged, deserted, and transfers given:—To April 1, 1858, 17; to April 1, 1859, 44; to April 1, 1860, 54; to April 1, 1861, 5. Average 30.

W. H. GRAVES, Capt., commanding Depôt, 1st Bat., 18th R. I. Regt.

Name of Regiment, with Date of Arrival in India, and of Departure from India.	Military Year.	Strength on Arrival, at the Beginning of each Year, and on Departure from India.	During the Military Year.				Stations at which the Regiment has served a Month or more in each Year, and Remarks.
			Deaths in India.	Number of Men sent from India to England.	Re-inforcements.		
					By Transfer.	By Drafts.	
1ST BATTALION, 6TH REGT. OF FOOT, arrived in India, February 20, 1858.	Apr. 1, 1858	690	9	—	—	—	Calcutta and on march. Sesseram. On field service. Benares. Azimghur. Benares. Benares. Barrackpore. Barrackpore.
	Mar. 31, 1859	679	148	121	4	340	
	" 1860	798	43	53	7	268	
	" 1861	951	32	87	6	40	
	July 31, 1861	863	6	—	3	—	
Average - -	—	796.2	47.6	52.2	4.0	129.6	

RICHARD THOMPSON, Capt., 6th Foot, commanding Depôt 1st Bat.

92ND REGIMENT OF HIGHLANDERS, arrived in India, March 6, 1858.	Apr. 1, 1858	1,029	20	12	—	343	Bombay, Mhow (on field service). Mhow, Camp Jhansi. Camp Matha, Dugshai, Camp Umballa. Camp Umballa, Camp Dugshai.
	" 1859	1,150	65	60	13	20	
	" 1860	991	22	44	1	95	
	" 1861	1,019	—	—	—	—	
	Average - -	—	1,063	35	38	4		152

F. MACBEAN, Bt.-Major, 92nd Highlanders, commanding Depôt.

68TH REGIMENT OF LIGHT INFANTRY, arrived in India, March 23, 1858.	Apr. 1, 1858	821	—	—	—	17	Rangoon.
	" 1859	1,261	13	18	—	477	
	" 1860	1,202	25	60	35	—	
	" 1861	1,112	9	79	10	1	
	Average - -	—	1,099	11½	39½	11½		123½

J. CASSIDY, Capt., commanding Depôt 68th Lt. Infantry.

2ND BATTALION, 60TH REGIMENT OF ROYAL RIFLES, 336 men on May 15, 1858, and 347 men on Nov. 14, 1858; left India, February 28, 1860.	Apr. 1, 1859	743	72	44	1	76	Calcutta 1 month, on march and in the field 2 months, Arrah 6 months, Benares 1 month. Benares 9 months, on march 1 month. Strength on departure.	
	Feb. 23, 1860	742	58	108	72	278		
	" 1860	942	—	—	—	—		
	Average per cent. -	—	730	9	10	5		25

ATHOLL LIDDELL, Capt., commanding Depôt 2nd Batt. 60th Rifles.

57TH REGT. FOOT, arrived in India, June 8, 1858; left India, November 26, 1860.	Apr. 1, 1859	833	17	10	6	79	Bombay, Ahmednuggur. Ahmednuggur, Poona. Poona.	
	Mar. 31, 1860	886	30	71	28	148		
	Nov. 26, 1860	884	*21	12	6	80		
	Average - -	—	867	23	31	13		102

* There are 5 men included in this number who died at the depôt at Poona after the departure of the Service Companies for New Zealand.

T. W. J. LLOYD, Capt., commanding Depôt 57th Regt.

77TH REGIMENT OF INFANTRY, arrived in India, July 1, 1858.	July 1, 1858	874	—	—	—	—	At Calcutta 9 months. At Sessaram 6 months. At Benares 15 months. At Hazareebagh 11 months.
	Apr. 1, 1859	597	80	30	—	132	
	" 1860	934	51	27	—	441	
	" 1861	877	116	45	—	124	
	Average - -	—	802.66	83.33	34	—		132.33

F. J. BURRS, Capt., commanding 77th Depôt.

STATISTICS OF REGIMENTS WHICH HAVE SERVED IN INDIA.

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Name of Regiment, with Date of Arrival in India, and of Departure from India.	Military Year.	Strength on Arrival, at the Beginning of each Year, and on Departure from India.	During the Military Year.				Stations at which the Regiment has served a Month or more in each Year, and Remarks.
			Deaths in India.	Number of men sent from India to England.	Re-inforcements.		
					By Transfer.	By Drafts.	
46TH REGIMENT OF INFANTRY, arrived in India, October 5, 1858.	Apr. 1, 1859	878	2	—	—	—	Kurrachee, and a detachment of two companies at Hyderabad to February 1859. Conveyed by steamboat on Indus to Mooltan, and stationed there till 1st April 1859. One man transferred to other corps in India. Mooltan to January 1860. The regiment marched by wings from Mooltan to Jullundur in February 1860. Jullundur, and a detachment of one company at Phillour to 1st April 1860. Sixteen men transferred to other corps, and discharged in India. Jullundur, and a detachment of one company at Phillour to 1st April 1861. Thirteen men transferred to other corps and discharged in India.
	" 1860	875	18	11	10	245	
	" 1861	1,085	14	51	13	92	
	Average - -	—	946	13 $\frac{2}{3}$	24 $\frac{2}{3}$	9 $\frac{1}{3}$		134$\frac{2}{3}$

H. F. SANDWITH, Capt., commanding 46th Depôt.

6TH REGIMENT OF DRAGOONS, arrived in India, October 1858.	Oct. 1858	615	—	—	—	—	A squadron of 115 men marched to Sattara on 22nd January 1859. Head-quarters at Kirkee. A squadron of 110 men rejoined regiment in February 1860. Head-quarters at Kirkee. Kirkee and Ahmednuggur; the regiment proceeded to the latter station in Nov. 1860.
	Apr. 1, 1859	607	5	2	—	—	
	" 1860	686	13	8	5	107	
	" 1861	702	5	25	2	56	
Average - -	—	665	7 $\frac{2}{3}$	11 $\frac{2}{3}$	2 $\frac{1}{3}$	54 $\frac{1}{3}$	

JOHN C. H. GIBSONE, Col., Commandant, Cavalry Depôt, Maidstone.

91st REGT. FOOT, arrived in India, October 8, 1858.	Oct. 8, 1859	785	—	—	—	—	Kamptee. 2 transfers to other corps. Kamptee. 2 transfers to other corps. Kamptee. 94 transfers to other corps, and discharge in India.
	Apr. 1, 1859	783	1	—	1	—	
	" 1860	893	27	33	10	163	
	" 1861	1,090	30	38	15	273	
Average - -	—	922	19	23	8	145	

W. SQUIRL, Capt., commanding Depôt 91st Regiment.

48TH REGT. FOOT, arrived in India, October 21, 1858.	Apr. 1, 1859	798	4	2	2	—	Barrackpore and Calpee. Jheelum, Humeapore, Calpee. Cawnpore and Allahabad. Jheelum, Humeapore, Orai, Allahabad. Detachments on march after rebels in Bundelcund. Allahabad and Seetapore. Orai. Seetapore and Roy Bareilly.
	Mar. 31, 1860	787	71	35	31	278	
	" 1861	979	40	68	8	26	
	July 31, 1861	870	5	—	—	1	
Average - -	—	858	30	26	10	76	

J. R. LOVETT, Capt., commanding Depôt 48th Regiment.

31st REGT. FOOT, arrived in India, December 1, 1858; left India, February 16, 1860.	—	864	—	—	—	—	Poona. Poona.
	Apr. 1, 1859	831	3	3	2	—	
	" 1859	831	9	62	268	172	
	Feb. 16, 1860	1,133	when the regiment embarked for China.				

Transfers given and deserters are not included in the above return.

C. PREVOST, Capt., commanding Depôt 31st Regiment.

STATISTICS OF REGIMENTS WHICH HAVE SERVED IN INDIA.

Name of Regiment, with Date of Arrival in India, and of Departure from India.	Military Year.	Strength on Arrival, at the Beginning of each Year, and on Departure from India.	During the Military Year.				Stations at which the Regiment has served a Month or more in each Year, and Remarks.
			Deaths in India.	Number of Men sent from India to England.	Re-inforce- ments.		
					By Trans- fer.	By Drafts.	
28TH REGIMENT OF INFANTRY, arrived in India, December 8, 1858.	Dec. 8, 1858	829	—	—	—	—	Bombay. Bombay and Poona. 1 field officer, 3 cap- tains, 10 subalterns, 500 non-commissioned officers and rank and file on field service at Dwarka with Okamundel Field Force, from September 29 to middle of November. Marched, from Poona for Nusseerabad, Feb- ruary 17; arrived April 10. Nusseerabad.
	Apr. 1, 1859	940	2	2	26	90	
	" 1860	1,013	*42	37	10	191	
	" 1861	1,026	29	27	3	142	
Average - -	—	952	24·33	22	13	141	
* Seventeen killed in action or died of wounds received in action at storming of Beyt Fort, and occupation of Dwarka, October 1859.							
S. HACKETT, Capt., commanding Depôt 28th Regiment.							
67TH REGIMENT OF INFANTRY, arrived in India, December 16, 1858.	Dec. 16, 1859	763	32	41	38	52	Barrackpore. Embarked for field service in China September 21, 1859. Strength 780 men.
	Average - -	—	—	—	—	—	
H. COLLETTE, Bt. Major, 67th Regiment, commanding Depôt.							
99TH REGT. OF FOOT, arrived in India, December 18, 1858; left India, March 24, 1860.	April 1, 1859	744	2	4	11	} Calcutta the whole of the period.	
	Mar. 24, 1860.	1,022	38	50	259		132
	Average - -	—	883	20	27		135	66
L. J. NUNN, Capt., commanding Depôt 99th Regiment.							
1ST BATT. 3RD REGT. OF FOOT (BUFFS), arrived in India, December 29, 1858; left India, November 14, 1859.	Dec. 29, 1858	715	—	—	29	168	Dum Dum.
	April 1, 1859	982	22	99	21	129	Dum Dum and Calcutta.
	Nov. 14, 1859	1,011	—	—	—	—	
	Average - -	—	926	2·20	9·90	5	29·70
G. J. AMBROSE, Lieut.-Col., commanding 1st Batt., 3rd Foot.							
1ST BATT. 4TH KING'S OWN REGT. FOOT, arrived in India, January 30, 1859; at present in India.	Jan. 30, 1859	816	—	—	—	—	Ahmedabad, 2 months. Ahmedabad, 12 months. Ahmedabad, 10 months; Kurrachee, 2 months.
	Apr. 1, 1859	814	2	—	—	—	
	" 1860	991	37	67	1	293	
	" 1861	933	50	41	40	60	
Average - -	—	912·67	29·67	36	13·67	117·33	
AVG. E. H. ANSELL, Capt., commanding Depôt 1st Batt., 4th King's Own Regiment.							
73RD REGIMENT OF FOOT, arrived in India, April 24, 1858; left India, April 20, 1861.	—	765	96	42	3	134	Calcutta to beginning of July, Benares to 29th September, field service from 29th September to end of year. April, May, and June, field service; July to end of October, Lucknow; November to March, Dinapore. Dinapore. Chinsurah. Strength on departure from India.
	Apr. 1, 1859	765	49	37	7	135	
	" 1860	765	34	8	3	259	
	" 1861	704	4	10	—	—	
	Apr. 20, 1861	616	—	—	—	—	
Average - -	—	999½	61	32½	4½	176	
G. H. SMITH, Col., commanding 73rd Regiment.							

STATISTICS OF REGIMENTS WHICH HAVE SERVED IN INDIA.

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Name of Regiment, with Date of Arrival in India, and of Departure from India.	Military Year.	Strength on Arrival, at the Beginning of each Year, and on Departure from India.	During the Military Year.				Stations at which the Regiment has served a Month or more in each Year, and Remarks.
			Deaths in India.	Number of Men sent from India to England.	Re-inforcements.		
					By Transfer.	By Drafts.	
3RD REGIMENT OF HUSSARS.	This return cannot be filled up, there being no record in possession of the regiment at the present time giving the information; the documents that would have done so were given into the Adjutant-General's office in India, and the hospital records (64 vols.) sent to Fort Pitt, Chatham, on the return of the regiment from India in 1853.						
H. MONCKTON, Lieut.-Col. commanding 3rd (King's Own) Hussars.							
63RD REGT. FOOT.	The 63rd Regiment returned from India in 1847.						
C. A. HAND, Capt., 63rd Regiment, commanding Depôt.							
62ND REGT. FOOT.	The 62nd Regiment arrived in England from India in 1847.						
S. G. CARTER, Capt., commanding Depôt 62nd Foot.							
55TH REGT. FOOT.	Regiment at home since arrival from Gibraltar.						
R. HUME, Lieut.-Col., commanding 55th Foot.							
50TH REG. INFANTRY.	In consequence of the want of necessary documents, this return cannot be completed.						
C. F. YOUNG, Lieut., commanding Depôt 50th Regiment. E. JEFFREYS, Col., 5th Depôt Battalion.							
49TH REGT. OF FOOT.	The 49th Regiment has not been in India since 1843, and no records are with the Regiment from which this return could be filled up.						
CLEMENT A. EDWARDS, Col., commanding 49th Regiment.							
41ST REGT. OF FOOT.	The 41st Regiment returned from the East Indies in July 1843, and there are no documents now extant that can give the information required by this return.						
H. W. MEREDITH, Major, commanding 41st Welch Regiment.							
26TH OR CAMERONIAN REGIMENT OF FOOT.	26th Regiment has not been in India since 1843, this return is blank in consequence of there being no documents with the Regiment to give the information required.						
F. CAREY, Lieut.-Col., commanding 26th Cameronians.							
DEPÔT, 1ST BATT. 17TH REG. OF FOOT.	The 1st Battalion, 17th Regiment, has not served in India since the Year 1847.						
P. M'PERSON, Captain, commanding Depôt 1st Battalion 17th Regiment.							
1ST BATT. 9TH REG. OF FOOT.	The Regiment did not serve in India.						
J. E. MACDONNELL, Ensign, 1st Battalion, 9th Foot, commanding Depôt.							
1ST BATTALION, 2ND QUEEN'S ROYAL REG. OF INFANTRY.	The Regiment not having been in India since the year 1846, there is no record in possession of the Depôt companies to give the required information.						

F. CONNOR, Captain, commanding Depôt, 1st Battalion, 2nd Queen's.
T. ADDISON, Lieut.-Col., commanding 1st Battalion, 2nd Queen's Royal Regiment.

TABLE showing the Admissions into and Deaths in Hospital among the Troops of the Line during Five Years, 1850-54. Prepared by Dr. Graham Balfour.

	Bengal Presidency, aggregate strength 84,281.				Peshawur, aggregate strength 8,178.				Kussowlie, Subathoo, and Dugshai, strength 6,896.		
	Admitted into Hospital.	Died in Hospital.	Ratio per 1,000.		Admitted into Hospital.	Died in Hospital.	Ratio per 1,000.		Admitted into Hospital.	Died in Hospital.	Ratio per 1,000.
			Admitted.	Died.			Admitted.	Died.			
- - - - -	75,535	918	896	10·9	20,017	195	2,448	23·8	3,705	15	538
RS - - - - -	186	27	2	·3	11	2	1	·2	3	-	
Lungs - - - - -	7,365	350	87	4·1	814	53	100	6·5	692	16	100
Liver - - - - -	5,195	281	62	3·3	594	32	73	3·9	467	12	68
Stomach and Bowels - - - - -	26,230	1,640	311	19·5	3,198	210	391	25·7	3,059	120	444
Colera - - - - -	1,346	596	16	7·1	43	17	5	2·1	-	-	-
Brain - - - - -	2,320	370	28	4·4	282	50	34	6·1	217	6	31
- - - - -	165	36	2	·4	29	4	3	·5	12	4	2
Diseases - - - - -	54,046	243	641	2·9	4,740	30	580	3·7	4,141	18	600
	172,888	4,461	2,045	52·9	29,728	593	3,635	72·5	12,296	191	1,783

tion all the Regiments came to the Hill Stations from Peshawur. The amount of Dysentery and Diarrhœa at Peshawur and, the Hill Stations respectively, was a

	Dysentery rated per 1,000.				Diarrhœa rated per 1,000.			
	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.
Peshawur - - - - -	1,402	171	171	20·9	1,221	32	149	3·9
Hill Stations - - - - -	313	40	45	5·8	2,297	75	333	10·9*

* Of the deaths from Diarrhœa, 30 occurred in the 32nd Regiment in 1855. If the strength and deaths by Diarrhœa in that year are deducted, the ratio will be 7·5 instead of 10·9.

REPORT UPON THE METEOROLOGY OF INDIA IN RELATION TO THE HEALTH OF THE TROOPS THERE STATIONED,

By JAMES GLAISHER, Esq., F.R.S., &c., Secretary to the British Meteorological Society.

SIR, Blackheath, May 9, 1863.

In the Report upon the meteorology of India, and its relation to the health of troops resident there, which I have the honour to submit to you, I have endeavoured to indicate at different seasons of the year the heights at which the English climate is most nearly approached, and the several investigations it was considered desirable to carry out.

On reducing all the observations I had at first at my command, I found the results too few, and too discordant to place any confidence in them; I then sought for additional observations, and first for all observations which have been made in fixed observatories in India, next for all others I could find in all the libraries at my command, and from every available source.

All the information possessed by the India Office, the Army Medical Department, were placed at my disposal, and my best thanks are due to many gentlemen, particularly to Dr. Gibson, C.B., Dr. Balfour, F.R.S., Dr. Logan, Sir Ranald Martin, C.B., F.R.S., and Colonel Sykes, M.P., who gave me all the assistance in their power, and placed all their MSS. in my hands.

When all the observations thus collected were reduced I had local information at many places, but which I found was scarcely available for the purposes of your Commission, I then sought to combine the results in various ways with the view of their general application, but generally failed to satisfy myself; but finally I determined the change of temperature for one degree of longitude, and for one degree of latitude, by means of which I was enabled to calculate, with a near approximation to the truth, the three most important elements of research of high day, low night, and mean temperature of the air in every month for every part of India, even where no observations had been made.

Having succeeded so far it became necessary to ascertain the effect of elevation upon temperature in every month of the year, in each of the three presidencies, and it was found that there was no certain difference in the law of decrease of temperature with height in one part of India from another in the same month, but that the law was different in the different months. In the winter months the decrease of mean temperature for elevations up to 1,000 feet are small, amounting to $1\frac{1}{2}^{\circ}$ only, but this difference increases from March to $4\frac{1}{2}^{\circ}$ in August, and then decreases gradually month by month to January.

The reduction of temperature at heights exceeding 1,000 feet are smaller in the winter months than in the summer months, the former being about two-thirds of the latter.

These results are remarkable and important; they do not confirm a constant decrease of temperature for a constant increase of elevation, but on the contrary give results varying both with the elevation and season of the year.

And these results are not in accordance with those I have recently obtained in the balloon experiments, in which a reduction of temperature of 1° is found for an average difference of height of 137 feet for the first 1,000 feet, the space gradually increasing to 400 feet for the same decline of temperature of 1° in the twelfth 1,000 feet. The law of decrease of temperature is therefore apparently very different in India from that found in England.

The general agreement of the results from different parts of India in the same season surprised, but enabled me, with some confidence, to calculate the extremes and mean temperature at any elevation with almost equal accuracy with those at low elevations.

The mountain climates throughout India include portions where the sun's direct heat, the extremes and mean temperature of the air, differ but little from those of England, and where doubtless the health of Europeans may certainly be preserved to a high degree.

The next important step was to determine the heights at which these temperatures would be reached.

For this purpose I first determined the average meteorological elements at Greenwich as a standard for England.

logical elements at Greenwich as a standard for England.

The next step was to determine the monthly excess of temperature in every part of India over that in England in every month, and then to ascertain the heights at which the excess would be counteracted.

These heights are calculated for high day, low night, and mean temperature. In some instances they will be found to be at a height not always attainable, but those nearest approaching would doubtless be attended with the greatest probability of continued health to the troops.

So far as I am able to judge from the discussion of all the observations, the climate of the hill stations in India is dry enough, the temperature low enough, and the sky clear enough, without any excess of rain for Europeans.

From the Tables in the Report it will be seen that at heights of 5,000 to 6,000 feet the mean annual temperature would be about 10° higher than England, with a smaller daily range, offering I think a healthy climate, except in exceptional cases where local circumstances exist to counteract the favourable meteorological conditions.

The observations of solar radiation have been too few and they are too discordant to be used safely; for the most part no mention has been made of the kind of instrument used, and no information given upon its situation. There is reason to believe that the instrument has been in some cases placed near the soil, others at some distance from it, and in others in close proximity to painted wood and highly heated bodies.

The best conclusions I can draw from the observations are that in the Madras Presidency the average solar radiation for the year is about 100° ; in Bombay it exceeds 100° , and in Bengal reaches 105° ; but at Fort William, Calcutta, the average for the year is 132° .

This certainly seems to be too high; these readings decrease from 15° to 20° for heights reaching to 5,000 feet, and is also less in the vicinity of the sea.

The observations for the humidity of the air have been far too few. There has been unfortunately a prejudice in India against the use of the dry and wet bulb thermometers, particularly in elevated districts, and there have been very few observations made on the dew point by any hygrometer. This is greatly to be regretted, as bearing in a most important degree on this question in India, I took a series of simultaneous observations of the dry and wet bulb thermometer with Daniell's and Regnault's hygrometers in the recent balloon experiments, and I find the results by the use of the dry and wet bulb thermometers are nearly identical with those as found by the direct use of either Daniell's or Regnault's hygrometer up to great heights in the atmosphere, and therefore the dry and wet bulb thermometers may be used with confidence in India to any height where man may be resident.

The observations upon the direction of the wind are limited and do not agree at the different stations, and I do not feel that the discussion of the observations enables me to add any additional information upon this head.

I have now to the utmost of my means collected every observation made in India, and discussed them with the view of rendering the results applicable for the purposes of this Commission.

The results derived are as decided as could possibly be expected, and may be used with some confidence, as the calculated temperature, when compared with the observed temperature at places where the longest and best series of observations have been made, are found to be accordant.

I cannot help expressing a hope that future meteorological observations in India may be carried out under some general system on a uniform plan, both with respect to instruments, their position, and general instructions.

I have, &c.

JAMES GLAISHER.

T. Baker, Esq.,
Secretary to the Commission of Inquiry into the
Sanitary State of the Army in India.

REPORT UPON THE METEOROLOGY OF INDIA.

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REPORT UPON THE METEOROLOGY OF INDIA.

SECTION I.—On Atmospheric Pressure or corrected Reading of the Barometer.

Throughout India the daily increase and decrease in the reading of the barometer takes place with great regularity. At about 4 o'clock in the morning a minimum reading occurs, it then turns to increase, and at about 10 o'clock A.M. a maximum; it decreases till about 5 P.M. when a second minimum pressure takes place, and a second maximum pressure is attained at about 11 P.M. The maximum reading therefore occurs one or two hours before noon or midnight, and the minimum reading at about one or two hours before sunrise or sunset.

The actual reading is greater at its morning maximum than at its evening maximum, and generally lower at the evening minimum than at the morning minimum. The time of evening maximum remains pretty nearly constant.

The difference between the mean daily readings of the barometer on two consecutive days, seldom exceeds 0.2 inch, the whole daily range is generally less than 0.1 inch. The daily ranges are somewhat larger in winter than in summer.

The barometer reading is highest in January, and decreases gradually till June, and increases gradually from July to December all over India.

The decrease of readings from January to June is 0.26 inch in the Presidencies of Madras and Bombay, and about 0.44 inch in that of Bengal. The increase from July to December is about the same amount in the respective presidencies.

The mean atmospheric pressure is subjected to very little change from year to year, as will be seen from the two following series of observations taken at the Observatories of Madras and Bombay.

TABLE I. showing the Mean Monthly Reading of the Barometer at Madras.

MONTHS.	YEARS.												
	1796.	1797.	1798.	1799.	1800.	1801.	1802.	1803.	1804.	1805.	1806.	1807.	1813.
January	in. 30.11	in. 30.07	in. 30.14	in. 30.10	in. 30.13	in. 30.10	in. 30.09	in. 30.12	in. 30.15	in. 30.15	in. 30.5	in. 29.94	in. 29.92
February	30.13	30.09	30.06	30.11	30.11	30.08	30.09	30.08	30.13	30.11	30.08	29.96	29.89
March	30.06	30.01	30.05	30.04	30.04	30.01	30.03	30.06	30.14	30.04	30.03	30.53	29.85
April	29.99	29.93	29.94	30.02	29.95	...	29.92	29.99	30.00	29.99	29.96	30.01	29.78
May	29.90	29.84	29.93	29.88	29.87	...	29.88	29.91	29.82	29.88	29.88	29.79	29.72
June	29.86	29.83	29.86	29.87	29.85	29.84	29.87	29.88	29.89	29.86	29.88	29.92	29.73
July	29.86	29.82	29.86	29.84	29.86	29.85	29.85	29.89	29.88	29.88	29.85	29.80	29.74
August	29.88	29.84	29.91	29.89	29.89	29.87	29.92	29.93	29.92	29.91	29.87	29.87	29.77
September	29.92	29.91	29.91	29.93	29.95	29.89	29.94	29.92	29.94	29.93	29.91	29.82	29.80
October	29.96	29.93	29.92	30.04	29.89	29.95	30.00	30.08	29.98	29.86	29.98	29.83	29.83
November	30.00	30.04	30.06	30.07	30.03	30.01	30.02	30.08	30.08	30.05	29.97	29.60	29.91
December	30.05	30.08	30.13	30.09	30.04	30.07	30.01	30.12	30.15	30.14	30.04	30.00	30.03
Means	29.97	29.95	29.98	29.99	29.96	...	29.96	30.00	30.00	29.98	29.96	29.92	29.83

(continued.)

MONTHS.	YEARS.												
	1814.	1815.	1816.	1817.	1818.	1819.	1820.	1821.	1822.	1823.	1824.	1825.	1826.
January	in. 29.91	in. 30.07	in. 30.13	in. 30.17	in. 30.12	in. 30.08	in. 30.04	in. 30.10	in. 30.15	in. 30.17	in. 30.18	in. 30.19	in. 30.01
February	30.00	30.00	30.10	30.13	30.10	30.11	30.06	30.15	30.15	30.16	30.13	30.15	29.94
March	29.97	29.95	30.01	30.04	30.04	30.00	29.87	30.08	30.08	30.07	30.10	30.10	29.92
April	29.87	29.90	29.95	30.02	30.04	29.82	29.98	30.06	30.08	30.00	30.04	30.04	29.80
May	29.83	29.85	29.86	29.94	30.09	29.86	29.38	29.93	29.90	29.92	29.92	29.96	29.77
June	29.79	29.83	29.84	29.90	29.85	29.89	29.91	29.94	29.91	29.89	29.87	29.91	29.75
July	29.80	29.79	29.85	29.90	29.87	29.83	29.95	29.93	29.88	29.89	29.93	29.92	29.75
August	29.80	29.88	29.86	29.89	29.80	29.88	29.94	29.94	29.91	29.92	29.96	29.93	29.67
September	29.85	29.87	29.90	29.90	29.89	29.90	30.05	29.94	29.93	29.94	29.99	29.99	29.82
October	29.88	29.95	30.03	29.98	29.68	29.93	30.03	30.06	30.00	30.06	30.03	30.03	29.90
November	29.98	29.90	30.04	29.99	30.02	29.99	30.12	30.12	30.06	30.12	30.07	30.05	29.94
December	30.01	30.05	30.10	30.11	29.89	30.11	30.07	30.17	30.11	30.12	30.20	30.12	30.01
Means	29.89	29.92	29.97	29.99	29.95	29.95	29.95	30.03	30.01	30.02	30.03	30.03	29.85

(continued.)

MONTHS.	YEARS.												
	1827.	1828.	1829.	1830.	1831.	1832.	1833.	1834.	1835.	1836.	1837.	1838.	1839.
January	in. 30.00	in. 30.01	in. 29.99	in. 30.10	in. 30.08	in. 30.03	in. 30.07	in. 29.99	in. 30.00	in. 30.07	in. 30.03	in. 29.92	in. 29.99
February	29.95	29.99	29.97	30.02	29.97	29.97	29.97	29.96	29.98	30.03	30.00	29.99	29.97
March	29.97	29.91	29.96	29.93	29.96	29.90	29.91	29.92	29.92	29.98	29.92	29.92	29.92
April	29.90	29.86	29.84	29.90	29.82	29.84	29.86	29.87	29.91	29.92	29.72	29.84	29.84
May	29.79	29.79	29.74	29.82	29.70	29.73	29.66	29.78	29.76	29.79	29.81	29.77	29.72
June	29.70	29.72	29.72	29.63	29.67	29.66	29.75	29.72	29.76	29.75	29.77	29.71	29.69
July	29.74	29.73	29.76	29.75	29.70	29.68	29.72	29.72	29.77	29.76	29.74	29.74	29.72
August	29.78	29.75	29.79	29.78	29.71	29.75	29.77	29.75	29.78	29.75	29.76	29.72	29.74
September	29.81	29.81	29.81	29.81	29.70	29.79	29.78	29.80	29.84	29.81	29.82	29.77	29.79
October	29.92	29.86	29.85	29.82	29.76	29.87	29.88	29.83	29.88	29.95	29.85	29.90	29.85
November	29.97	29.94	29.96	29.93	29.87	30.01	30.00	29.99	30.01	29.94	29.87	29.92	29.92
December	30.02	30.02	30.00	30.02	30.05	...	29.96	30.01	30.06	29.97	29.99	29.98	30.05
Means	29.88	29.86	29.86	29.87	29.83	...	29.86	29.86	29.89	29.89	29.85	29.85	29.84

(continued.)

TABLE I. showing the Mean Monthly Reading of the Barometer at Madras—continued.

MONTHS.	YEARS											Means, 1796 to 1850.
	1840.	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.	1850.	
January - -	in. 30.05	in. 29.93	in. 29.95	fn. 30.00	in. 30.00	in. 30.02	in. 30.07	in. 29.98	in. 30.00	in. 29.98	in. 29.91	in. 30.05
February - -	29.99	29.96	29.95	29.98	29.98	29.97	30.01	29.95	29.99	29.99	29.98	30.03
March - - -	29.95	29.84	29.84	29.89	29.91	29.92	29.92	29.92	29.88	29.89	29.93	29.98
April - - -	29.79	29.81	29.79	29.86	29.81	29.82	29.84	29.83	29.80	29.77	29.84	29.90
May - - - -	29.71	29.70	29.72	29.69	29.70	29.71	29.76	29.74	29.73	29.67	29.75	29.80
June - - - -	29.66	29.67	29.66	29.70	29.67	29.71	29.72	29.69	29.69	29.69	29.67	29.78
July - - - -	29.69	29.66	29.69	29.70	29.72	29.73	29.73	29.71	29.72	29.71	29.70	29.79
August - - -	29.72	29.75	29.72	29.76	29.73	29.74	29.75	29.74	29.74	29.74	29.76	29.82
September - -	29.73	29.72	29.86	29.77	29.79	29.83	29.77	29.75	29.78	29.74	29.78	29.85
October - - -	29.84	29.82	29.87	29.85	29.87	29.85	29.81	29.85	29.82	29.84	29.82	29.91
November - -	29.88	29.86	29.94	29.94	29.96	29.98	29.93	29.93	29.92	29.92	29.89	29.93
December - -	29.95	29.88	30.01	29.98	29.93	29.97	29.96	29.92	29.96	29.94	30.00	30.03
Means - - -	29.83	29.80	29.75	29.84	29.84	29.84	29.85	29.83	29.83	29.81	29.83	29.91

TABLE II. showing the Mean Monthly Reading of the Barometer at Bombay.

MONTHS.	YEARS.											Means, 1847 to 1858.	
	1847.	1848.	1849.	1850.	1851.	1852.	1853.	1854.	1855.	1856.	1857.		1858.
January - - -	in. 29.92	in. 29.93	in. 29.95	in. 29.89	in. 29.96	in. 29.93	in. 29.94	in. 29.94	in. 29.94	in. 29.29	in. 29.93	in. 29.92	in. 29.93
February - - -	29.90	29.92	29.91	29.93	29.90	29.90	29.87	29.92	29.93	29.92	29.87	29.94	29.91
March - - - -	29.87	29.83	29.87	29.89	29.86	29.83	29.86	29.89	29.85	29.14	29.83	29.85	29.86
April - - - -	29.79	29.77	29.78	29.82	29.78	29.79	29.80	29.79	29.82	29.79	29.79	29.80	29.79
May - - - - -	29.72	29.74	29.71	29.76	29.74	29.75	29.78	29.76	29.78	29.72	29.74	29.67	29.74
June - - - - -	29.62	29.65	29.62	29.64	29.63	29.63	29.64	29.67	29.66	29.65	29.64	29.70	29.65
July - - - - -	29.65	29.65	29.67	29.65	29.60	29.66	29.67	29.62	29.66	29.61	29.65	29.67	29.65
August - - - -	29.71	29.71	29.70	29.74	29.70	29.73	29.74	29.71	29.74	29.71	29.68	29.72	29.72
September - -	29.75	29.81	29.73	29.79	29.78	29.76	29.79	29.72	29.79	29.80	29.81	29.78	29.77
October - - -	29.83	29.83	29.84	29.79	29.83	29.86	29.85	29.79	29.83	29.83	29.86	29.82	29.83
November - - -	29.89	29.91	29.89	29.89	29.84	29.91	29.86	29.92	29.94	29.90	29.92	29.93	29.90
December - - -	29.90	29.92	29.91	29.95	29.95	29.92	29.96	29.93	29.94	29.93	29.98	29.94	29.94
Means - - - -	29.80	29.81	29.80	29.81	29.80	29.81	29.81	29.80	29.82	29.81	29.81	29.81	29.81

The change in the atmospheric pressure from month to month is very constant in different years, and the mean annual pressure is subjected to but very little change from year to year as before remarked.

In the Appendix will be found the monthly readings of the barometer at different stations scattered over India, in Tables CVI. to CVIII. at pages 847 and 848; but, as I do not know the direct influence which the variations of atmospheric pressure can produce on human life, particularly where the changes are so limited in extent, and as the barometric observations bear no comparison to the immense influence of heat, it is scarcely requisite to dwell upon them at greater length in the present inquiry; I therefore proceed to consider the average temperature of the air over India, in relation to its maximum by day, its minimum by night, its daily range, and its mean value.

SECTION II.

On the observed high day temperature of the Air. Deduced effect of a change of 1° of latitude. Deduced effect of a change of 1° of longitude. Deduction of formulæ to calculate high day temperature at low elevations over India. Law of decrease of high day temperature with elevation.

ON OBSERVED HIGH DAY TEMPERATURE OF THE AIR.

The mean monthly, quarterly, half-yearly, and yearly observed maximum temperatures of the air will be found in the Appendix in each presidency arranged in the order of latitude for all stations at which this element has been observed. See Tables CIX., CXIX., and CXXIX.

Determination of the effect of a change of 1° of Latitude on High Day Temperature of the Air.

Tables XLIII., XLIV., and XLV., pages 820 and 821, were formed of the results of this element from stations whose elevations above the level of the sea are less than 1,000 feet, in the presidencies of Madras, Bombay, and Bengal respectively. By taking the means of the numbers in each month of these groups of stations, the first three columns of the next table were formed, showing the mean of all the maximum temperatures of stations of low elevations in each presidency, with a corresponding mean longitude and latitude, and the numbers in the last three columns are found by taking the

successive differences between the numbers in the first three columns.

TABLE III. showing the Mean Monthly Maximum Temperature of the Air at different Latitudes.

MONTHS.	Mean Maximum Temperature of groups			Difference of Mean Maximum Temperature of groups		
				A and B	B and C	A and C
	A	B	C	Corresponding to a Difference of Latitude of		
Lat. - - -	14° 49' N.	21° 22' N.	26° 49' N.	6° 33'	5° 27'	12° 0'
Long. - - -	79° 28' E.	71° 44' E.	80° 33' E.	7° 42'	8° 49'	1° 6'
Height	128 Feet.	215 Feet.	527 Feet.	of Long.	of Long.	of Long.
January - - -	82	81	73	-1	-8	-9
February - - -	85	86	76	+1	-10	-9
March - - - -	89	91	85	+2	-6	-4
April - - - - -	91	96	93	+5	-3	+2
May - - - - -	94	99	98	+5	-1	+4
June - - - - -	93	95	97	+2	+2	+5
July - - - - -	88	92	93	+4	+1	+5
August - - - -	88	88	89	0	+1	+1
September - -	87	88	89	+1	+1	+2
October - - -	86	90	87	+4	-3	+1
November - - -	83	87	79	+4	-8	-4
December - - -	82	83	71	+1	-12	-11

The numbers in the fifth and sixth columns are affected by the influence of a great difference of longitude, whilst those in the last column show the effect of a difference of 12° in latitude and of one degree only in longitude; the effect of the latter may possibly be neglected, and, if so, the effect of an increase of one degree in latitude, is as follows in the different months:—

- In January a decrease of 0°·7 for an increase of 1° of north latitude.
- In February a decrease of 0°·7
- In March a decrease of 0°·3
- In April an increase of 0°·2
- In May an increase of 0°·3
- In June an increase of 0°·4
- In July an increase of 0°·4
- In August an increase of 0°·1
- In September an increase of 0°·2
- In October an increase of 0°·1
- In November a decrease of 0°·3
- In December a decrease of 1°·1

Determination of the effect of a change of 1° of Longitude on High Day Temperature in India.

Turning our attention to the influence of longitude on high day temperature, we find that in the presidency of Madras south of latitude 15° there are not sufficient stations available for this investigation; and, with the exception of Cannanore and Madras, which differ in latitude by 1° 12' and in longitude by about 5°, with 10 years' observations at the former, and 5 at the latter, there are no means of finding the monthly coefficient. In the other parts of India, the investigation was treated in every way as described in section for mean temperature, and the following tables formed.

TABLE IV. showing the effect of an Increase of 1° of East Longitude on High Day Temperature.

MONTHS.	Latitudes N.	
	As found by comparing Cannanore and Madras.	15° to 34°.
January	- 0.2	- 0.4
February	+ 0.1	- 0.4
March	+ 0.1	- 0.4
April	+ 1.2	- 0.5
May	+ 2.0	- 0.3
June	+ 2.8	0.0
July	+ 2.7	0.0
August	+ 2.6	0.0
September	+ 2.0	- 0.1
October	+ 1.5	- 0.4
November	+ 1.7	- 0.5
December	- 0.2	- 0.6

The values in the second column imply that the high day temperatures in the winter months are nearly alike at those stations in the presidency of Madras, but that they differ very much in the summer months, from each other, and indicate that those situated to the east are of higher temperature than those to the west. The numbers in this column have only been formed, however, from the observations at Cannanore and Madras; they are therefore of little value, and can be viewed as indications only; but as such they show that the higher temperature on the Coromandel coast over that on the Malabar coast in the summer months is due, if not entirely, to a very great extent, to excess of high day temperature.

The results from the other parts of Madras, were not very accordant; but I have no information for the most part on the instruments used, and their situation in observation.

The general result is, that the effect of longitude is insensible in the months from June to August; that in the other months, stations situated to the west have higher day temperature than those to the east, amounting in the winter months to a little more or less than ½ a degree for 1° of longitude.

By combining the results an approximation to the high day temperature in India may be found as follows:—

At places south of 15° of north latitude.

From the very small range of daily temperature in the presidency of Madras, south of latitude 15° (see Section IV., page 788, and Table LXIII., page 827,) the high day

temperature may be readily found by applying additively the one half of the mean daily range (Section IV.) to the monthly mean temperature of the air for the latitude. (See Section VI., page 792.)

At places situated between the latitudes 15° and 20° the high day temperature may be approximately determined by the use of the following formula:—

January	81 - (lat. - 21½) × 0.7 - (long. - 72) × 0.4
February	86 - (lat. - 21½) × 0.7 - (long. - 72) × 0.4
March	91 - (lat. - 21½) × 0.3 - (long. - 72) × 0.4
April	96 + (lat. - 21½) × 0.2 - (long. - 72) × 0.5
May	99 + (lat. - 21½) × 0.3 - (long. - 72) × 0.3
June	95 + (lat. - 21½) × 0.4
July	92 + (lat. - 21½) × 0.4
August	88 + (lat. - 21½) × 0.1
September	88 + (lat. - 21½) × 0.2 - (long. - 72) × 0.1
October	90 + (lat. - 21½) × 0.1 - (long. - 72) × 0.4
November	87 - (lat. - 21½) × 0.3 - (long. - 72) × 0.5
December	83 - (lat. - 21½) × 1.1 - (long. - 72) × 0.6

At the places situated between the latitudes 20° and 25°, the high day temperature may be approximately determined by the use of the following formula:—

January	73 - (lat. - 27) × 0.7 - (long. - 80½) × 0.4
February	76 - (lat. - 27) × 0.7 - (long. - 80½) × 0.4
March	85 - (lat. - 27) × 0.3 - (long. - 80½) × 0.4
April	93 + (lat. - 27) × 0.2 - (long. - 80½) × 0.5
May	98 + (lat. - 27) × 0.3 - (long. - 80½) × 0.3
June	97 + (lat. - 27) × 0.4
July	93 + (lat. - 27) × 0.4
August	89 + (lat. - 27) × 0.1
September	89 + (lat. - 27) × 0.2 - (long. - 80½) × 0.1
October	87 + (lat. - 27) × 0.1 - (long. - 80½) × 0.4
November	79 - (lat. - 27) × 0.3 - (long. - 80½) × 0.5
December	71 - (lat. - 27) × 1.1 - (long. - 80½) × 0.6

At places situated to the north of latitude 25°, the high day temperature may be approximately determined by the use of the following formula:—

January	73 - (lat. - 27) × 0.7 - (long. - 80½) × 0.4
February	76 - (lat. - 27) × 0.7 - (long. - 80½) × 0.4
March	85 - (lat. - 27) × 0.3 - (long. - 80½) × 0.4
April	93 + (lat. - 27) × 0.2 - (long. - 80½) × 0.5
May	98 + (lat. - 27) × 0.3 - (long. - 80½) × 0.3
June	97 + (lat. - 27) × 0.4
July	93 + (lat. - 27) × 0.4
August	89 + (lat. - 27) × 0.1
September	89 + (lat. - 27) × 0.2 - (long. - 80½) × 0.1
October	87 + (lat. - 27) × 0.1 - (long. - 80½) × 0.4
November	79 - (lat. - 27) × 0.3 - (long. - 80½) × 0.5
December	71 - (lat. - 27) × 1.1 - (long. - 80½) × 0.6

Determination of the Influence of Elevation on High Day Temperature in India.

For this purpose Tables XLVI. to LII., pages 821 to 823, were formed, of stations whose elevations are between 1,000 and 2,000 feet, and those between 2,000 and 3,000 feet, and of higher elevations in steps of 1,000 feet, in each presidency, from Tables CIX., CXIX., and CXXIX.; their means were taken corresponding to a mean height, latitude, and longitude, and these results were compared with either observed or calculated values in the same latitude and longitude at the level of the sea; a series of differences of temperature due to elevation were thus obtained, whose means are shown in the next table.

TABLE V. showing the observed Mean Decrease of High Day Temperature with Increase of Elevation.

MONTHS.	Presidency, Number of Stations, and Mean Elevation.							
	Bombay. Mean of 9 Stations, 1,450 ft.	Madras. Mean of 3 Stations, 1,524 ft.	Bombay. Mean of 3 Stations, 2,176 ft.	Madras, Bangalore, 2,874 ft.	Bengal, Cherra-poongee, 3,591 ft.	Bombay. Mean of 3 Stations, 4,018 ft.	Madras, Wellington, 5,880 ft.	Bengal, Darjeeling, 6,473 ft.
January	- 2	- 2	- 4½	- 4½	- 13	- 11	- 16½	- 23
February	- 2	- 1	- 2½	- 3½	- 12	- 11	- 21½	- 25
March	- 1	- 2	- 1	- 2	- 18½	- 9½	- 19	- 28
April	0	- 1	- 1	- 4½	- 20½	- 11½	- 23½	- 33
May	- 3	- 1	- 4	- 2	- 23½	- 14½	- 20	- 35
June	- 6	- 7	- 8	- 7	- 25½	- 14½	- 17½	- 32
July	- 8	- 6	- 7	- 3	- 19½	- 18½	- 12½	- 29
August	- 5	- 5	- 7	- 7	- 18	- 17	- 13	- 24
September	- 6	- 4	- 8	- 5	- 17	- 16	- 12	- 24
October	- 5	- 5	- 6	- 4	- 14	- 16	- 12	- 26
November	- 4	- 3	- 4	- 5	- 15½	- 13½	- 16½	- 23
December	- 3	- 1	- 8	- 4	- 14½	- 14	- 10	- 19

The results, as found for the same elevation in the different presidencies, are sufficiently accordant to show that the decrease for the same elevation is the same everywhere. The results from Chirrapoongee are, however, discordant, as was found to be the case with the mean temperature. By treating these values precisely the same as those for mean temperature (see Section V., page 789,) the following most probable values were found.

TABLE VI. showing the calculated Decrease of High Day Temperature in India with an Increase of Height up to 9,000 feet above the level of the sea, for every month.

MONTHS.	Height in Feet.								
	1,000	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000
January	1½	4	8	11½	15	19	23½	27½	32
February	2	4	6½	11½	16½	21½	26½	31½	37
March	1½	3½	7	11½	17	22½	28½	34½	40
April	1	3	8	13½	21	27½	34½	41	47½
May	1½	4½	10	15½	20½	27½	36	44½	53
June	1½	4½	10½	18	23	27½	33	38	43
July	1½	4½	13½	17½	22	26½	30½	34½	39
August	1½	7	10½	14½	18	21½	25½	29½	33
September	1½	6½	10½	13½	17	20½	24½	28½	32½
October	1½	6½	10½	14½	18½	22	26	30	34
November	1½	5½	8½	13	16½	18½	22½	26½	30½
December	1½	5	8½	11½	15½	18½	21	23½	28

From these the approximate high day temperature may be determined at any elevation in India, when the same element is known at a lower elevation.

SECTION III.

On observed low night temperature in India. Deduced effect of a change of 1° of latitude. Deduced effect of a change of 1° of longitude. Deduction of formulæ to calculate low night temperature at low elevations over India. Law of decrease of low night temperature with elevation.

ON THE OBSERVED LOW NIGHT TEMPERATURE OF THE AIR IN INDIA.

The mean monthly, &c., and yearly observed minima temperatures of the air will be found in the Appendix, arranged in the order of latitude, in each presidency, for all stations where this element has been determined. See Tables CX., CXX., and CXXX.

Determination of the effect of a change of 1° of Latitude on Low Night Temperature of the Air.

Tables LIII. to LV. contain the results from those stations in each presidency, whose elevations are below 1,000 feet. Their means have been taken and treated exactly as in the case of the maximum temperature, and thus the next table was formed.

TABLE VII. showing the Mean Monthly Minimum Temperature of the Air at different Latitudes.

MONTHS.	Mean Minimum Temperature of groups			Difference of Mean Minimum Temperature of groups		
	D	E	F	D and E	E and F	D and F
	Lat. - 14° 40' N. Long. - 79° 29' E. Height - 126 Feet.	21° 22' N. 71° 44' E. 315 Feet.	26° 40' N. 80° 33' E. 527 Feet.	6° 33' and 7° 42' of Long.	5° 27' and 8° 49' of Long.	12° 0' and 1° 6' of Long.
January	70	59	53	-11	-6	-17
February	78	62	59	-11	-3	-14
March	76	69	65	-7	-4	-11
April	80	75	74	-5	-1	-6
May	82	81	81	-1	0	-1
June	81	81	83	0	+2	+2
July	80	79	82	-1	+3	+2
August	79	78	79	-1	+1	0
September	78	77	79	-1	+2	+1
October	77	78	71	-4	-2	-6
November	73	64	60	-9	-4	-13
December	70	59	55	-11	-4	-15

The effect of latitude upon low night temperature is here shown to be very decided, and large in amount in the winter months. It is small in amount, and almost insensible, in the summer months. It seems to be uniform in each month all over India; and the following are the most

probable changes in this element for an increase of one degree of north latitude in each month:—

In January a decrease of 1.4° for an increase of 1° of north latitude.

In February a decrease of 1.2° " "

In March a decrease of 1.0° " "

In April a decrease of 0.5° " "

In May " " " "

In June " " " "

In July " " " "

In August " " " "

In September " " " "

In October a decrease of 0.5° for an increase of 1° of north latitude.

In November a decrease of 1.0° " "

In December a decrease of 1.2° " "

From these values, which from their general agreement in all latitudes must be near the truth, it appears that, from November to March, the nights at northern stations are much colder than at southern stations, generally exceeding a degree of temperature in amount for every degree of greater north latitude. In the months of April and October they are still colder, but to about one-half of the amount in the other months. Whilst in the remaining period of the year, viz., from May to September, there seems to be no sensible difference in the low night temperature throughout the whole of India.

Determination of the effect of a change of 1° of Longitude on the Low Night Temperature.

I now proceed to determine the effect of a change of 1° of longitude upon the low night temperature.

For this purpose the investigation was proceeded with in precisely the same way as in the analogous investigations of the maximum temperature, and the following are the results obtained.

TABLE VIII. showing the effect of an increase of 1° of East Longitude on Low Night Temperature.

MONTHS.	Latitudes N.			
	South of 15°	15° to 20°	20° to 25°	25° to 30°
January	-1.6	+0.2	+0.2	+0.2
February	-1.7	+0.2	+0.4	+0.4
March	-1.4	+0.1	+0.2	+0.2
April	-0.8	+0.3	+0.2	+0.2
May	-0.3	+0.1	+0.1	+0.1
June	+0.3	+0.1	+0.1	+0.1
July	+0.5	+0.2	+0.2	+0.2
August	+0.3	+0.1	+0.1	+0.1
September	0.0	+0.1	+0.2	+0.1
October	-0.2	+0.1	+0.1	+0.1
November	-0.5	+0.2	+0.2	+0.2
December	-1.0	+0.3	+0.3	+0.3

From the agreement in these results, I think much confidence may be placed in them.

The greatest changes are in those latitudes south of 15° amounting to a decrease of low night temperature to more than 1½° for each degree of greater east longitude in the months of January and February; decreasing to a little less than 1½° in March, to ¾° in April, and to ½° in May; a change then takes place, and, for the months from June to September, those places with greater east longitude are from ¼° to ½° warmer for each degree of longitude. In September, longitude seems to exercise no influence on this element, and in October, the lower night temperature, as a the beginning of the year sets in, and which by December amounts to 1° of lower temperature for one degree of east longitude. These results, however, can be looked upon as indications only.

The same general laws prevail in higher parallels of latitude, viz., north of 15°; and the results agree very well together, and the same coefficient may be used in the different parallels of latitude.

As both the coefficients in latitude and longitude at stations north of 15° are moderately satisfactory, the mean monthly low night temperature at stations within a few hundred feet of the surface may be calculated from the following formulæ:—

An approximation to the low night temperature at any place in India may be found as follows:—

At places south of 15° north latitude.

From the very small range of temperature in the presidency of Madras south of parallel of 15° of north latitude the low night temperature may be readily found by applying subtractively to the monthly mean temperature the one-half of the monthly daily range.

At places situated between the latitudes 15° and 20°, the low night temperature may be approximately determined by the use of the following formulæ :—

In January	59	— (lat.—21½) × 1·4 + (long.—72) × 0·2
In February	62	— (lat.—21½) × 1·2 + (long.—72) × 0·2
In March	69	— (lat.—21½) × 1·0 + (long.—72) × 0·1
In April	75	— (lat.—21½) × 0·5 + (long.—72) × 0·3
In May	81	+ (long.—72) × 0·1
In June	81	+ (long.—72) × 0·1
In July	79	+ (long.—72) × 0·2
In August	78	+ (long.—72) × 0·1
In September	77	+ (long.—72) × 0·1
In October	73	— (lat.—21½) × 0·5 + (long.—72) × 0·1
In November	64	— (lat.—21½) × 1·0 + (long.—72) × 0·2
In December	59	— (lat.—21½) × 1·2 + (long.—72) × 0·3

At places situated between the latitudes 20° and 25°, the low night temperature may be approximately determined by the use of the following formulæ :—

In January	53	— (lat.—27) × 1·4 + (long.—80½) × 0·2
In February	59	— (lat.—27) × 1·2 + (long.—80½) × 0·4
In March	65	— (lat.—27) × 1·0 + (long.—80½) × 0·2
In April	74	— (lat.—27) × 0·5 + (long.—80½) × 0·2
In May	81	+ (long.—80½) × 0·1
In June	83	+ (long.—80½) × 0·1
In July	82	+ (long.—80½) × 0·2
In August	79	+ (long.—80½) × 0·1
In September	79	+ (long.—80½) × 0·2
In October	71	— (lat.—27) × 0·5 + (long.—80½) × 0·1
In November	60	— (lat.—27) × 1·0 + (long.—80½) × 0·2
In December	55	— (lat.—27) × 1·2 + (long.—80½) × 0·3

At places situated to the north of latitude 25°, the low night temperature may be approximately determined by the use of the following formula :—

In January	53	— (lat.—27) × 1·4 + (long.—80½) × 0·2
In February	59	— (lat.—27) × 1·2 + (long.—80½) × 0·4
In March	65	— (lat.—27) × 1·0 + (long.—80½) × 0·2
In April	74	— (lat.—27) × 0·5 + (long.—80½) × 0·2
In May	81	+ (long.—80½) × 0·1
In June	83	+ (long.—80½) × 0·1
In July	82	+ (long.—80½) × 0·2
In August	79	+ (long.—80½) × 0·1
In September	79	+ (long.—80½) × 0·1
In October	71	— (lat.—27) × 0·5 + (long.—80½) × 0·1
In November	60	— (lat.—27) × 1·0 + (long.—80½) × 0·2
In December	55	— (lat.—27) × 1·2 + (long.—80½) × 0·3

Determination of the influence of Elevation on Low Night Temperature in India.

For this purpose Tables LVI. to LXII., pages 825 and 826, were formed of results from stations whose elevations exceed 1,000 feet, and less than 2,000 feet; and the remainder for each increase of 1,000 feet.

The means of each of these groups were collected together, corresponding to a mean geographical position, and these results combined with those calculated for the same latitude and longitude at the level of the sea; and the difference between these gave a series of numbers showing the individual effect of elevation on low night temperature. The means of groups of these were taken in each presidency, and the results are shown in the next table.

TABLE IX. showing the observed Mean Decrease of Low Night Temperature with Increase of Elevation.

MONTHS.	Presidency, Number of Stations, and Mean Elevation.								
	Bombay. Mean of 9 Stations, 1,450 feet.	Madras. Mean of 3 Stations, 1,524 feet.	Bombay. Mean of 3 Stations, 2,176 feet.	Madras. Bangalore, 2,874 feet.	Bengal. Cherra- poongee, 3,591 feet.	Bombay. Mean of 3 Stations, 4,018 feet.	Madras. Wellington, 5,880 feet.	Bengal. Darjeeling, 6,473 feet.	
January	0	— 0½	— 3½	— 14	— 3	— 5	— 13½	— 14	
February	0	— 4	— 3	— 12½	— 10½	— 5	— 16	— 20	
March	+ 0½	— 3½	— 5	— 8	— 10½	— 5	— 16	— 19	
April	+ 1	— 4	— 5	— 10	— 10½	— 9½	— 20	— 24	
May	— 4	— 2	— 6	— 10	— 15	— 14	— 17	— 28	
June	— 6	— 4	— 7	— 12	— 17	— 16	— 16	— 25	
July	— 4	— 6	— 6	— 10	— 14	— 15	— 18	— 24	
August	— 5	— 6	— 7	— 10	— 12	— 14	— 14	— 21	
September	— 5	— 5	— 8	— 8	— 12	— 13	— 19	— 23	
October	— 2	— 5	— 7	— 9	— 16½	— 10½	— 14	— 21	
November	+ 0½	— 0½	— 5	— 8	— 13½	— 6	— 12½	— 16	
December	0	— 1	— 4	— 10½	— 9½	— 7	— 8½	— 16	

These values, as in both the other elements, are evidently the same at different parts of India, or, in other words, the effect of elevation on the low night temperature is the same in all latitudes, and lessens those at low elevations by the same amount. The values at Bangalore in the winter months are too large.

The numbers in the preceding table were treated precisely as those in the preceding section, and the following are the final results.

TABLE X. showing the calculated Decrease of Low Night Temperature in India, with an Increase of Height up to 9,000 feet above the level of the sea, for every month.

MONTHS.	Height in Feet.								
	1,000.	2,000.	3,000.	4,000.	5,000.	6,000.	7,000.	8,000.	9,000.
January	0	3½	6½	8½	10½	13	15	17	19
February	1½	4½	7½	10½	13½	16½	20	23½	26½
March	1½	4	6½	9½	13	16½	20½	24½	28½
April	1½	4½	8	12	16½	21	25½	29½	33½
May	2½	6	9½	13½	17½	22½	29	35	41
June	3	6½	10½	14½	18	22½	26	30½	34½
July	3	6	9½	13½	16½	20½	24½	28	31½
August	3½	6½	9½	13	16	19	22	25	28
September	3½	6½	10	13½	16½	19	22	27	30½
October	2½	6	9½	12½	15½	19	22	25	28
November	0½	3	5½	8½	12½	15	17½	20	22½
December	0½	3½	6	8½	11	13½	16	18½	21

These numbers are satisfactory, and leave but little doubt on the mind as to their general accuracy, and may be used with some confidence in deducing the low night temperatures all over India.

SECTION IV.

Determination of the Mean Daily Range of Temperature of the Air at different Elevations in each of the Presidencies of Madras, Bombay, and Bengal.

Determination of the Mean Daily Range of Temperature of the Air at different Elevations in each of the Presidencies of Madras, Bombay, and Bengal.

The monthly and other periodic range of temperature at all the stations will be found in the Appendix, arranged in the order of latitude, for all the stations in each presidency. See Tables CXI., CXXI., and CXXXI.

Tables LXIII. to LXV. contain the mean daily range of temperature at stations in each presidency, arranged in the order of latitude, of less than 1,000 feet elevation, and Tables LXVI. to LXXI. at stations whose elevation exceeds 1,000 feet. The means of each these tables, with the corresponding mean latitude and longitude, have been taken, and in this way the following table has been formed.

TABLE XI. showing the Mean Daily Range of Temperature of the Air, in the three Presidencies of Madras, Bombay, and Bengal, at different Elevations.

Presidency.	Madras.				Bombay.						Bengal.				
	14° 49' N. 78° 28' E.	17° 14' N. 77° 46' E.	12° 27' N. 77° 38' E.	11° 25' N. 77° 8' E.	21° 22' N. 71° 44' E.	20° 35' N. 75° 3' E.	16° 27' N. 74° 33' E.	24° 45' N. 73° 49' E.	18° 12' N. 73° 54' E.	17° 59' N. 73° 30' E.	26° 49' N. 80° 33' E.	30° 32' N. 74° 55' E.	25° 12' N. 91° 45' E.	29° 20' N. 79° 30' E.	27° 2' N. 88° 18' E.
	126 feet.	1650 feet.	3000 feet.	6000 feet.	215 feet.	1665 feet.	2364 feet.	4000 feet.	4200 feet.	4500 feet.	527 feet.	1128 feet.	4118 feet.	6400 feet.	7000 feet.
MONTHS.	Mean of 9 Stations.	Mean of 2 Stations.	Bangalore.	Wellington.	Mean of 11 Stations.	Mean of 10 Stations.	Mean of 3 Stations.	Mount Abooc.	Pon-rundhur.	Mahabuleshur.	Mean of 10 Stations.	Mean of 4 Stations.	Cherra-poonjee.	Nyce Thal.	Darjeeling.
January	12	12	20	8	22	19	22	28	0	11	20	19	0	36	11
February	12	16	20	6	24	20	22	31	10	13	17	20	15	34	12
March	13	16	18	8	22	20	22	22	11	16	20	19	11	34	11
April	11	16	15	5	21	20	22	26	12	15	19	24	8	32	10
May	12	14	19	8	18	18	17	26	10.	14	17	20	8	31	10
June	10	9	15	8	14	15	10	26	15	6	14	16	5	24	7
July	8	9	14	12	13	9	8	16	6	4	11	15	5	18	6
August	9	9	12	10	10	9	8	12	4	4	10	16	4	18	7
September	9	10	12	16	11	10	10	10	7	7	10	17	5	22	9
October	9	10	13	9	17	13	15	10	8	2	16	19	8	30	11
November	10	10	12	4	23	18	17	24	8	13	19	22	16	33	13
December	12	12	8	10	23	20	20	30	11	12	16	10	11	32	13
Means	10	12	15	8	18	16	16	23	9	9	15	19	9	29	10

From these values, it seems that the daily range of temperature in the presidency of Madras is always small, in the winter months being but little more than one-half of that in the other presidencies, the variations in which are from 19° to 22°. In Madras in the summer months the daily range is somewhat smaller than in the winter months; in the other presidencies it becomes much smaller, till, in the months of July, August and September, the variation of daily temperature is nearly alike, and from 9° to 12° only at all parts of India. By comparing the daily range at different elevations together in the same presidency no certain difference is shown. In Madras at Bangalore, at 3,000 feet, they are larger, whilst at Wellington, at 6,000 feet, they are smaller; but no information is given as to the position of the instruments. In Bombay the results at 1,665 feet seem to be a little smaller than those at 214 feet, whilst those at 2,320 feet, are very nearly the same as those at the lowest elevation. The numbers in the next two columns, at 4,500 and 4,200 feet respectively, agree with each other; but then those at Mount Abooc, at 4,000 feet, are twice as large. The same remark applies to the numbers in the last three columns. Upon the whole it seems that the range of temperature at the higher elevations differs but little from those at the lower elevation in the same parallel of latitude.

SECTION V.

On the observed mean temperature of the Air. Monthly mean temperature at Madras for 55 years. Monthly mean temperature at Bombay for 12 years. Deduced effect of a change of one degree of latitude. Deduced effect of a change of one degree of longitude. Deduction of formulæ to calculate mean temperature at low elevations over India. Law of decrease of mean temperature with elevation.

ON THE OBSERVED MEAN TEMPERATURE OF THE AIR.

In Madras the highest temperature of the day occurs about 0^h 30^m P.M. in the months of April and May; be-

tween 1^h P.M. and 1^h 15^m P.M. in the months of January, February, March, August, September, October, November, and December; and at nearly 2^h P.M. in the months of June and July. The average maximum temperatures are as follows: January 82°, February 85°, March 89°, April 93°, May 96°, June 97°, July 94°, August 93°, September 92°, October 88°, November, 84°, and December 82°. The annual mean is 89¹/₂°.

The highest temperature in the presidency of Madras, reaches sometimes, though rarely, nearly to 110°; at Madras Observatory it was 107⁴/₁₀ on the 18th of May 1849, and it was 108° on the 10th of June of the same year. These high readings are very rare, and at such times a very hot land wind is blowing. The Thermometer at Madras seldom exceeds 98°.

The lowest temperature of each day takes place between 5^h A.M. and 6^h A.M. in the months from April to November, and between 6^h A.M. and 6^h 15^m A.M. in the remaining months. The times of minimum temperature thus precede sunrise by a few minutes.

The average minimum temperatures in each month are as follows: January 70°, February 73°, March 74¹/₂°, April 80°, May and June 82°, July 80¹/₂°, August and September 80°, October 77¹/₂°, November 75°, and December 73°.

The lowest temperature sometimes falls to 63°; it was at this reading at Madras on the 28th of January 1850. This low reading is of rare occurrence, as the temperature seldom falls below 67°.

The hottest day is about the 15th of June, when the mean temperature of the 24 hours, from several years' observations at Madras observatory, is but little short of 90°; this value has varied in different years between 82° and 95°. The coldest is about the 9th of January; the mean temperature of this day is about 74¹/₂°, the individual means varying from 72° to 77°. On the 20th of March and the 20th of October the thermometer is at its mean reading for the year.

The mean monthly temperatures in India at the same place do not undergo great variation.

The following tables show the monthly temperature of the air at the observatories at Madras and Bombay for 55 years and 12 years respectively.

TABLE XII. showing the Mean Monthly Temperature of the Air at Madras.

MONTHS.	YEARS.																
	1796.	1797.	1798.	1799.	1800.	1801.	1802.	1803.	1804.	1805.	1806.	1807.	1813.	1814.	1815.	1816.	1817.
January	75	75	75	75	76	76	76	76	79	76	75	76	77	74	73	73	74
February	78	78	80	77	78	77	79	78	81	78	76	74	78	76	78	73	76
March	80	81	81	81	81	84	84	82	81	80	73	80	78	78	78	76	78
April	83	84	83	83	85	85	85	84	86	82	83	80	85	83	87	80	81
May	87	88	88	88	86	86	86	86	89	88	86	83	90	80	90	88	87
June	85	89	89	88	87	87	90	88	90	89	85	89	87	91	85	89	88
July	83	86	87	83	83	84	87	86	89	84	86	88	87	89	84	85	87
August	82	87	84	85	84	86	85	87	85	84	84	84	84	86	85	83	85
September	83	84	84	83	83	83	87	86	85	83	66	84	83	83	85	82	82
October	81	81	83	83	82	82	83	83	83	81	83	80	82	82	80	81	81
November	78	79	78	75	80	78	79	79	81	80	81	78	78	78	77	79	77
December	75	76	76	76	75	76	75	77	77	77	76	77	74	75	74	75	77
Means	81	81	81	81	81	81	83	82	84	82	82	80	84	81	81	80	81

(continued.)

TABLE XII. showing the Mean Monthly Temperature of the Air at Madras—continued.

MONTHS.	YEARS.																
	1818.	1819.	1820.	1821.	1822.	1823.	1824.	1825.	1826.	1827.	1828.	1829.	1830.	1831.	1832.	1833.	1834.
January	76	71	74	78	77	78	78	78	78	79	77	77	77	73	74	76	75
February	77	74	77	79	80	80	80	81	79	77	79	77	77	79	76	78	78
March	78	78	78	82	84	82	82	83	81	80	79	80	81	82	82	79	80
April	82	82	84	79	85	85	85	86	85	84	82	84	83	83	86	84	81
May	90	88	84	88	89	88	89	89	87	84	85	86	82	78	89	86	88
June	90	90	87	88	88	90	90	90	83	85	87	87	85	88	90	86	85
July	83	87	86	87	85	88	90	88	84	85	84	83	83	84	87	87	81
August	80	87	85	87	84	86	88	85	82	83	83	84	83	84	78	83	81
September	83	83	84	84	84	84	88	85	83	83	82	84	84	84	82	82	81
October	81	82	83	82	81	84	81	84	84	82	82	84	83	82	80	82	81
November	77	80	80	79	79	81	81	82	80	80	81	80	79	78	78	77	77
December	75	76	77	76	80	79	79	76	78	79	78	78	77	77	78	78	76
Means	81	81	81	82	83	84	84	84	81	82	82	82	81	81	81	81	80

(continued.)

MONTHS.	YEARS.															Means, 1796 to 1850.	
	1835.	1836.	1837.	1838.	1839.	1840.	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.		1850.
January	73	73	74	74	77	76	77	76	76	76	77	76	76	75	77	77	76
February	75	75	77	77	79	77	78	77	77	78	79	79	79	78	79	78	78
March	77	76	79	80	81	80	81	81	80	82	83	82	82	82	82	81	80
April	79	80	80	84	84	85	83	84	84	86	87	86	86	86	86	86	83
May	85	86	82	86	87	88	85	88	84	87	89	87	88	89	90	88	87
June	83	85	84	86	87	88	86	87	85	89	87	88	86	90	88	89	87
July	81	82	..	86	85	85	87	86	85	86	86	85	85	87	86	88	85
August	81	79	..	85	82	85	82	84	85	85	86	85	85	86	86	87	84
September	81	81	..	85	82	83	84	82	84	83	84	86	85	85	86	85	84
October	79	81	..	82	84	82	80	81	80	81	83	82	81	83	83	84	82
November	76	76	..	77	78	77	78	78	79	79	79	79	79	79	81	79	79
December	74	74	..	76	78	77	77	76	76	77	78	77	76	77	78	77	77
Means	79	79	..	81	82	82	81	82	82	82	83	83	83	83	83	83	82

From this table we gather that the lowest and highest monthly temperatures at Madras in 55 years—
 In January were 71° in 1819, and 79° in 1804 & 1828, showing a variation in this month of 8°.
 In February were 73° in 1816, and 81° in 1804 & 1825, showing a variation in this month of 8°.
 In March were 73° in 1807, and 84° in 1801, 1802, & 1822, showing a variation in this month of 11°.
 In April were 79° in 1821, & 1835, and 87° in 1815 & 1845, showing a variation in this month of 8°.
 In May were 80° in 1814, and 90° in 1813, 1815, 1818, 1849, showing a variation in this month of 10°.
 In June were 83° in 1826 & 1835, and 91° in 1814, showing a variation in this month of 8°.

In July were 81° in 1834 & 1835, and 90° in 1824, showing a variation in this month of 9°.
 In August were 78° in 1832, and 88° in 1824, showing a variation in this month of 10°.
 In September were 81° in 1834, 1835, & 1836, and 89° in 1824, showing a variation in this month of 7°.
 In October were 79° in 1835, and 84° in 1823, 1825, 1826, 1829, 1839, 1850, showing a variation in this month of 5°.
 In November were 75° in 1799, and 81° in 1804, 1806, 1823, 1824, 1828, 1829, showing a variation in this month of 6°.
 In December were 74° in 1813, 1815, 1835, 1836, and 80° in 1822, showing a variation in this month of 6°.

TABLE XIII. showing the Mean Monthly Temperature of the Air at Bombay.

MONTHS.	YEARS.												Means, 1847 to 1858.
	1847.	1848.	1849.	1850.	1851.	1852.	1853.	1854.	1855.	1856.	1857.	1858.	
January	75	76	73	72	72	72	72	76	75	76	75	73	74
February	74	75	76	75	76	76	76	75	77	77	77	78	76
March	79	79	79	79	80	80	80	82	80	79	82	82	80
April	82	83	82	82	83	83	84	84	82	85	83	84	83
May	84	85	85	84	85	86	87	87	86	86	86	86	86
June	81	82	81	84	83	84	84	84	84	83	83	85	83
July	80	81	80	82	80	82	81	80	82	81	82	81	81
August	80	80	80	81	80	80	81	81	82	81	79	81	81
September	79	81	79	81	80	81	81	81	81	80	79	81	80
October	82	81	81	83	82	82	82	82	83	81	81	81	82
November	76	79	81	80	80	80	81	80	81	79	77	79	79
December	76	77	77	76	75	76	77	77	78	75	74	76	76
Means	79	80	80	80	80	80	81	81	81	81	80	80	80

And from the Bombay table we learn that the variation in temperature—
 In January in 12 years amounted to 4°.
 In February 4°.
 In March 3°.
 In April 3°.
 In May 3°.

In June in 12 years amounted to 4°.
 In July 2°.
 In August 3°.
 In September 2°.
 In October 2°.
 In November 5°.
 In December 3°.

ON OBSERVED MEAN TEMPERATURE OF THE AIR AT DIFFERENT STATIONS.

The mean monthly, quarterly, and other periodic values of this element will be found in the Appendix, for all the stations in each presidency, arranged in the order of latitude. See Tables CXII., CXXII., and CXXXII.

Determination of the effect of a change of 1° of Latitude on the observed Mean Temperature.

Tables LXXII. to LXXIV. contain the monthly mean temperature of the air at stations less than 1,000 feet in elevation above the level of the sea, in each presidency. The mean of all in each month has been taken, a mean geographical position, and mean elevation determined and the results are contained in the first three columns of the following table.

The numbers in the 4th column are the differences between those in the 1st and 2nd columns; those in the 5th column, the differences between those in the 2nd and 3rd columns; and those in the last column are formed from the numbers in the 1st and 3rd columns.

TABLE XIV. showing the Mean Monthly Temperature of the Air at different Latitudes.

MONTHS.	Mean Temperature of Groups			Difference of Mean Temperature of Groups		
	G	H	K	G and H	H and K	G and K
	Corresponding to a Difference of Latitude of					
Lat. - 18° 30' N.	21° 33' N.	26° 18' N.	8° 2' and 7° 21' of Long.	4° 46' and 9° 17' of Long.	12° 48' and 1° 56' of Long.	
Long. - 79° 8' E.	71° 42' E.	80° 59' E.				
Height - 126 feet.	290 feet.	509 feet.				
January	76	70	63	-6	-7	-13
February	79	73	69	-6	-4	-10
March	82	80	76	-2	-4	-6
April	85	85	85	0	0	0
May	87	89	91	+2	+2	+4
June	86	87	91	+1	+4	+5
July	83	87	87	+4	0	+4
August	83	83	85	0	+2	+2
September	82	82	84	0	+2	+2
October	81	81	79	0	-2	-2
November	78	77	71	-1	-6	-7
December	77	72	63	-5	-9	-14

From the agreement in the numbers in the last three columns of this table, it is evident that one general law prevails throughout the whole extent of India; but from the difference of signs in the different months, as well as the different amounts with the same sign, it is evident that the difference of temperature for difference of latitude is very different at different seasons of the year.

The following are the most probable values for an increase of one degree of north latitude.

- In January a decrease of 1° 0.
- In February a decrease of 0° 8.
- In March a decrease of 0° 5.
- In April no change.
- In May an increase of 0° 3.
- In June an increase of 0° 4.
- In July an increase of 0° 3.
- In August an increase of 0° 2.
- In September an increase of 0° 1.
- In October a decrease of 0° 2.
- In November a decrease of 0° 5.
- In December a decrease of 1° 1.

From these results it appears that from October to March the temperature is lower at northern stations than at southern, and from May to September they are warmer. In April the temperature seems to be very nearly the same at all stations, and there is but little difference in this respect in September. The greatest differences are in December and January, and which exceed 30° in amount, between the extreme south of the presidency of Madras, and north of that of Bengal.

Determination of the Change of Mean Temperature in India in every Month for a difference of 1° of Longitude in different parallels of Latitude.

The next investigation necessary is to determine the effect of longitude on the mean temperature: for this purpose the mean temperatures month by month of all those stations situated in or near the same latitude were compared together; in other cases, where the difference of latitude would make a sensible difference in the result, the preceding corrections for latitude have been applied to the results of one station to reduce them to the latitude of the other, and in this way a series of differences in almost every latitude were found, which were wholly due to longitude.

These were grouped together, their means taken, the results laid down on a diagram, and a curved line made to pass through or near them, giving weights proportionate to

the number of results from which each point was found, and in this way the following series of values were obtained.

TABLE XV. showing the Effect of an Increase of 1° of East Longitude, in the different parallels of Latitude in India.

MONTHS.	Latitudes N.			
	South of 15°.	15° to 20°.	20° to 25°.	North of 25°.
January	-0.7	-0.3	-0.2	-0.1
February	-0.7	-0.3	-0.1	-0.1
March	-0.6	-0.3	-0.1	-0.1
April	-0.2	-0.3	0.1	-0.1
May	+0.3	-0.1	-0.2	0.0
June	+0.8	0.0	-0.1	-0.2
July	+1.2	0.0	-0.1	-0.2
August	+1.2	-0.1	-0.1	-0.2
September	+0.8	-0.2	-0.1	-0.1
October	+0.3	-0.3	-0.1	-0.1
November	-0.2	-0.2	-0.1	-0.2
December	-0.7	-0.3	-0.2	-0.2

From the general accordance of the individual results, I think considerable confidence may be placed in these values. The numbers in the column applicable to places situated south of 15°, are remarkable, and show that the stations on the Malabar coast differ very much from those on the Coromandel coast in their monthly values, the former being of much higher temperature in the winter months, and of lower in the summer months, the change taking place between the months of April and May, and again between October and November.

In the next parallel, viz., between 15° and 20°, these particulars are much modified, those stations situated to the west being of higher temperature in winter, and differing but little from each other in the summer. In latitudes exceeding 20° the effect of longitude seems to be small, the western stations being of somewhat higher temperature.

With the knowledge we possess of the mean temperatures at moderate elevations, as found in groups G, H, and K, in Table XIV., and with the coefficients in latitudes and longitudes, as found from Table XIV., and as contained in Table XV., we are enabled to calculate the mean temperature of all places in India at the same elevations, dependent upon their geographical position, by the following formulæ:—

Formulæ for calculating the mean temperature of places situated south of 15° of north latitude, in the presidency of Madras, at moderate elevations.

January	76 - (lat. - 13½) × 1.0 - (long. - 79) × 0.7
February	79 - (lat. - 13½) × 0.8 - (long. - 79) × 0.7
March	82 - (lat. - 13½) × 0.5 - (long. - 79) × 0.7
April	85 - (long. - 79) × 0.2
May	87 + (lat. - 13½) × 0.3 + (long. - 79) × 0.3
June	86 + (lat. - 13½) × 0.4 + (long. - 79) × 0.8
July	83 + (lat. - 13½) × 0.3 + (long. - 79) × 1.2
August	83 + (lat. - 13½) × 0.2 + (long. - 79) × 1.2
September	82 + (lat. - 13½) × 0.1 + (long. - 79) × 0.8
October	81 - (lat. - 13½) × 0.2 + (long. - 79) × 0.3
November	78 - (lat. - 13½) × 0.5 - (long. - 79) × 0.2
December	77 - (lat. - 13½) × 1.1 - (long. - 79) × 0.7

Formulæ for calculating the mean monthly temperature at places situated in India, between the parallels of 15° and 20° of north latitude, at moderate elevations.

January	70 - (lat. - 21) × 1.0 - (long. - 72) × 0.3
February	73 - (lat. - 21) × 0.8 - (long. - 72) × 0.3
March	80 - (lat. - 21) × 0.5 - (long. - 72) × 0.3
April	85 - (long. - 72) × 0.3
May	89 + (lat. - 21) × 0.4 - (long. - 72) × 0.1
June	87 + (lat. - 21) × 0.3
July	87 + (lat. - 21) × 0.3
August	83 + (lat. - 21) × 0.2 - (long. - 72) × 0.1
September	82 + (lat. - 21) × 0.1 - (long. - 72) × 0.2
October	81 - (lat. - 21) × 0.2 - (long. - 72) × 0.2
November	77 - (lat. - 21) × 0.5 - (long. - 72) × 0.2
December	72 - (lat. - 21) × 1.1 - (long. - 72) × 0.3

Formulæ for calculating the mean temperature of places situated in India, between the parallels of 20° and 25° of north latitude, at moderate elevations.

January	70 - (lat. - 21) × 1.0 - (long. - 72) × 0.2
February	73 - (lat. - 21) × 0.8 - (long. - 72) × 0.1
March	80 - (lat. - 21) × 0.5 - (long. - 72) × 0.1
April	85 - (long. - 72) × 0.1
May	89 + (lat. - 21) × 0.4 - (long. - 72) × 0.2
June	87 + (lat. - 21) × 0.3 - (long. - 72) × 0.1
July	87 + (lat. - 21) × 0.3 - (long. - 72) × 0.1
August	83 + (lat. - 21) × 0.2 - (long. - 72) × 0.1
September	82 + (lat. - 21) × 0.1 - (long. - 72) × 0.1
October	81 - (lat. - 21) × 0.2 - (long. - 72) × 0.1
November	77 - (lat. - 21) × 0.5 - (long. - 72) × 0.1
December	72 - (lat. - 21) × 1.1 - (long. - 72) × 0.2

Formulae for calculating the mean temperature in India north of 25° of north latitude, at moderate elevations.

January	63	—	(lat. —26) × 1.0	—	(long. —81) × 0.1
February	69	—	(lat. —26) × 0.8	—	(long. —81) × 0.1
March	76	—	(lat. —26) × 0.5	—	(long. —81) × 0.1
April	85			—	(long. —81) × 0.1
May	91	+	(lat. —26) × 0.3	—	(long. —81) × 0.1
June	91	+	(lat. —26) × 0.4	—	(long. —81) × 0.2
July	87	+	(lat. —26) × 0.3	—	(long. —81) × 0.3
August	85	+	(lat. —26) × 0.2	—	(long. —81) × 0.2
September	84	+	(lat. —26) × 0.1	—	(long. —81) × 0.1
October	79	—	(lat. —26) × 0.2	—	(long. —81) × 0.1
November	71	—	(lat. —26) × 0.5	—	(long. —81) × 0.3
December	63	—	(lat. —26) × 1.1	—	(long. —81) × 0.2

Determination of the Influence of Elevation on Mean Temperature of the Air in India.

The determination of the correction for elevation is very important: for this purpose all the stations in each presidency were collected together whose elevations above the sea were from 1,000 to 2,000 feet in one group, from 2,000 to 3,000 in another group, and of higher elevations, step by step of 1,000 feet, in Tables LXXV. to LXXXII.; the mean of each group was taken and compared with the mean temperature for each geographical position at the level of the sea; and in this way a series of differences between these results were found due to each separate elevation; these were again grouped, and their means are shown in the following tables.

TABLE XVI. showing the observed Decrease of Mean Monthly Temperature of the Air, with Increase of Elevation.

MONTHS.	Presidency, Number of Stations, and Mean Elevation.															
	Bombay	Madras.	Bombay	Madras.	Madras.	Bengal.	Bombay	Bengal.	Bengal.	Madras.	Madras.	Bengal.	Bengal.	Bengal.	Madras.	Madras.
	Mean of 9 Stations, 1,373 ft.	Mean of 8 Stations, 1,594 ft.	Mean of 3 Stations, 2,176 ft.	Secun-derabad, 2,286 ft.	Banga-lore, 2,874 ft.	Cherra-poongee, 3,609 ft.	Mean of 2 Stations, 3,960 ft.	Ultra Mullay, 4,091 ft.	Khat-mandu, 4,141 ft.	Mercara, 4,374 ft.	Wel-lington, 5,880 ft.	Nynee Thal, 5,891 ft.	Kot-gurh, 6,125 ft.	Dar-jeeling, 6,491 ft.	Ootaca-mund, 7,235 ft.	Doda-betta, 8,614 ft.
January	-1½	-1	-5	-6	-6	-7	-10	-2	-14	-10	-12	-14	-18	-17	-24	-26
February	-0½	-2	-3	-3	-6	-10	-9	-5	-16	-9	-17	-19	-20	-25	-25	-29
March	0	-2	-3	-2	-3	-14	-9	-9	-17	-9	-16	-20	-	-24	-23	-27
April	-1	-2	-3	-2	-6	-17	-11	-17	-18	-12	-21	-23	-	-29	-22	-29
May	-2	-2	-4	-3	-7	-21	-16	-24	-20	-14	-18	-24	-25	-33	-25	-29
June	-4	-5	-6	-6	-10	-20	-15	-26	-18	-16	-16	-24	-21	-30	-26	-32
July	-7	-6	-8	-7	-8	-17	-19	-22	-11	-18	-15	-20	-18	-28	-25	-29
August	-5	-5	-7	-9	-9	-16	-17	-20	-11	-17	-12	-19	-19	-24	-25	-30
September	-4	-5	-7	-5	-7	-14	-15	-18	-12	-16	-15	-19	-20	-23	-24	-29
October	-3	-5	-6	-4	-8	-11	-12	-15	-14	-14	-12	-18	-22	-23	-23	-28
November	-3	-2	-6	-4	-6	-14	-12	-7	-15	-11	-13	-15	-18	-19	-23	-27
December	-2	-1	-7	-6	-7	-12	-12	-2	-15	-14	-9	-	-	-17	-25	-28

From these numbers it is very clear that there is no marked difference in the effect of elevation in different parts of India, or in other words, whatever may be the mean temperature due to the latitude and longitude on the plains, the effect of elevation is to depress this by the same amount. By looking over these numbers, the results in the summer months at Cherrapoongee seem to be too large, and those at Ultra Mullay are wholly discordant, being much too small in the winter, and much too large in the summer months.

By taking the means of these results below 2,000 feet, in one group, those between 2,000 and 3,000 feet in another, and so on, another table of mean values was formed. These were laid down on a diagram, with feet as abscissæ, and degrees of temperature as ordinates, and a curved line was made to pass through or near every point, and the value for every 1,000 feet of elevation was read from the curved line; and thus the next table was formed, giving the most probable amount of depression of temperature with elevation, as can be found from the observations.

TABLE XVII. showing the calculated Decrease of Mean Monthly Temperature of the Air with an Increase of Elevation up to 9,000 feet.

MONTHS.	Height in Feet.								
	1,000.	2,000.	3,000.	4,000.	5,000.	6,000.	7,000.	8,000.	9,000.
January	1½	4	6½	10	12½	16½	20	25	28½
February	1½	3½	6½	10½	14½	19½	24	27½	30½
March	1½	3½	6½	10½	15	19½	24½	29	32
April	2	4	8	13½	18½	23	27½	30	33
May	2	5	10½	16½	19½	23	27½	30	33
June	3	6	11	15½	19½	23	26½	30	33
July	3½	6½	10	13½	17	20½	23½	27½	30½
August	4½	7½	10½	14	17½	20½	24½	27½	31½
September	3½	6½	9½	13	16½	20	23	26	30
October	3	6	9	12½	15½	19	22½	25½	29
November	2½	6	8½	12	15	18½	21½	24½	28
December	2	4	7½	11½	14½	18½	22	25½	29½

These numbers I cannot but think are satisfactory, and better than at one time I thought possible to be found. By their application to the numbers in the general table the mean temperature of every month, in every place in India can be approximately determined, and I think with sufficient accuracy for the purposes of this Commission. If the height of the place whose temperature is desired be not exactly an even 1,000 feet, the amount can be taken out at sight.

The next table is formed by dividing the numbers on the top of each column by every number under it, and thus determining the number of feet of elevation required in every month, for the different heights, for a decrease of 1° of mean temperature. From this table the corrections to any particular altitude can be found by dividing the altitude in feet by the numbers in this table.

TABLE XVIII. showing the Average Increase of Elevation for a Decrease of 1° of Mean Temperature.

MONTHS.	1,000 feet.	2,000 feet.	3,000 feet.	4,000 feet.	5,000 feet.	6,000 feet.	7,000 feet.	8,000 feet.	9,000 feet.
January	667	500	444	400	408	364	337	320	319
February	570	572	480	391	339	303	292	294	298
March	570	572	462	381	333	316	298	305	311
April	500	500	375	296	274	273	283	291	300
May	500	490	286	258	254	261	272	289	300
June	333	333	273	254	256	261	262	267	273
July	286	296	350	398	394	396	395	394	393
August	235	267	279	286	286	286	289	288	286
September	246	308	308	308	303	300	304	308	300
October	333	333	333	320	318	316	315	314	311
November	343	333	343	333	333	324	326	323	321
December	500	500	387	356	339	324	318	311	305

SECTION VI.

On the calculated mean temperature of the Air. Comparison of the observed and calculated mean temperature. Meteorological elements of the climate of England. Excess of the mean monthly temperatures of India over that of England. Elevation necessary to have the same temperature month by month in India as in England, in different parts of India. Calculated high day temperature in India, its excess over that in England, and elevation necessary in India, to have the same as that in England. Calculated low night temperature in India, its excess over that in England, and elevation necessary in India, to have the same as in England.

In Section V., page 791, the formulæ for calculating the mean temperature of the air at any place in India are deduced, so far as it is dependent upon geographical position alone, and at low elevations; and the following three tables have been calculated from them.

TABLE XIX. showing the Calculated Mean Monthly and Annual Temperature of the Air in India, for every Two Degrees of Latitude from 8° North to 34° North, and for every Degree of East Longitude, in the Presidency of Madras, South of Latitude of 15° at low elevations.

MONTHS.	Latitudes North.																											
	8°		10°				12°					14°					15°											
	Longitudes E.		Longitudes E.				Longitudes E.					Longitudes E.					Longitudes E.											
	77°	78°	76°	77°	78°	79°	76°	76°	77°	78°	79°	80°	74°	75°	76°	77°	78°	79°	80°	73°	74°	75°	76°	77°	78°	79°	80°	81°
January	84	83	83	82	81	80	81	80	79	78	77	77	76	75	78	78	77	76	75	78	78	77	76	75	74	73	72	
February	85	84	85	84	83	82	83	82	81	80	79	80	79	78	82	81	80	79	78	82	81	80	79	78	77	76	75	
March	87	86	88	85	85	84	88	84	84	84	83	82	85	84	84	83	82	81	85	84	83	82	81	80	79	78	77	
April	85	85	86	86	85	85	86	86	86	85	85	84	86	86	86	85	85	84	86	86	86	86	85	85	84	84	84	
May	85	85	87	87	86	86	86	86	86	86	87	87	87	86	86	86	86	87	85	86	86	86	86	86	85	85	85	
June	82	83	81	82	83	84	82	83	84	84	85	85	82	83	84	85	86	87	82	83	84	85	86	87	87	87	86	
July	79	80	77	79	81	82	78	79	81	82	83	83	77	79	79	81	82	83	82	83	84	77	78	79	80	81	80	
August	80	81	76	79	82	83	78	79	81	82	83	83	77	79	79	81	82	83	84	76	77	78	79	80	81	81	80	
September	80	81	78	79	81	82	79	80	81	81	82	82	78	79	80	80	81	82	83	78	79	80	80	81	81	82	83	84
October	82	82	78	78	79	80	80	80	80	81	81	82	79	80	80	80	81	81	81	79	80	80	80	80	81	81	82	83
November	82	82	81	81	80	80	80	80	79	79	79	79	79	79	79	78	78	78	78	78	78	78	78	77	77	77	77	
December	85	84	84	83	83	81	82	81	80	80	79	79	81	79	79	79	76	77	77	79	78	77	76	75	74	73	73	
Mean annual temperature of the air.	83	83	82	82	82	82	82	82	82	82	82	82	81	81	81	81	81	82	82	80	81	81	81	81	81	81	81	
Difference between the hottest and coldest Months.	6	6	11	9	7	6	8	7	7	8	9	10	9	7	8	10	10	11	12	10	9	9	10	11	12	13	15	17

TABLE XX. showing the Calculated Mean Monthly and Annual Temperature of the Air for every Two Degrees of North Latitude from 16° to 26°, and every Four Degrees of Longitude between 72° and 92° East.

MONTHS.	Latitudes North.																																
	16°				18°				20°				22°				24°				26°												
	Longitudes E.				Longitudes E.				Longitudes E.				Longitudes E.				Longitudes E.				Longitudes E.												
	72°	76°	80°	84°	72°	76°	80°	84°	72°	76°	80°	84°	72°	76°	80°	84°	72°	76°	80°	84°	72°	76°	80°	84°	72°	76°	80°	84°	72°	76°	80°	84°	88°	92°
January	75	74	73	71	73	71	70	69	71	70	69	68	66	68	68	67	67	66	65	65	65	64	63	63	64	64	63	62	62	62	62	62	
February	77	76	75	74	75	73	72	71	74	73	72	71	69	72	72	72	72	71	71	70	70	70	70	69	69	68	68	68	68	68	68	68	
March	82	81	80	78	82	81	79	78	81	80	79	78	76	78	78	78	78	77	77	76	76	76	75	75	75	75	75	75	75	75	75	75	
April	85	84	83	81	85	83	82	81	85	84	83	82	81	85	85	85	85	84	84	85	85	85	84	84	81	85	85	85	84	84	84	84	
May	87	87	86	86	88	88	87	87	89	89	89	88	88	90	90	90	89	89	88	90	90	90	89	88	88	89	90	91	90	89	89	89	
June	85	85	85	85	86	86	86	86	87	87	87	87	87	89	89	89	89	88	88	91	91	90	89	89	92	92	91	90	89	89	89	89	
July	85	85	85	85	86	86	86	86	87	87	87	87	87	86	86	86	85	85	85	86	86	86	85	85	85	86	86	86	86	86	86	86	
August	82	82	81	81	82	82	81	81	83	83	83	82	82	84	84	84	83	83	83	85	85	85	84	84	84	85	85	85	84	84	83	83	
September	81	80	79	79	82	82	81	80	83	82	81	80	79	83	83	83	82	82	83	84	84	83	83	83	84	84	84	83	83	83	83	83	
October	82	81	80	78	82	80	79	78	81	80	79	78	76	80	80	80	79	79	80	80	79	78	78	78	79	79	79	78	78	78	78	78	
November	80	79	78	78	79	78	77	77	78	78	77	77	76	76	75	73	73	72	72	75	74	72	72	71	71	74	73	71	70	69	69	69	
December	78	76	75	74	75	73	72	71	73	72	71	70	68	68	68	67	66	65	65	65	65	64	64	63	61	62	63	62	61	61	61	61	
Mean Annual Temperature of the Air.	82	81	80	79	81	80	79	79	81	80	80	79	78	80	80	80	79	78	78	79	79	79	78	78	79	79	79	79	78	77	77	77	
Difference between the hottest and coldest Months.	12	13	13	15	15	17	17	18	18	19	20	20	22	22	22	23	23	23	23	26	26	25	26	26	31	30	28	28	28	28	28	28	

TABLE XXI. showing the Calculated Mean Monthly and Annual Temperature of the Air for every 2° of North Latitude from 28° to 34°, and every four degrees of Longitude from 72° to 92°.

MONTHS.	Latitudes North.															
	28°				30°				32°				34°			
	Longitudes E.				Longitudes E.				Longitudes E.				Longitudes E.			
	72°	76°	80°	84°	88°	92°	72°	76°	80°	84°	72°	76°	80°	70°	74°	78°
January	63	62	61	61	60	60	60	59	59	58	58	57	57	56	55	55
February	68	68	67	67	66	66	67	66	66	66	66	64	64	64	63	63
March	75	75	75	74	74	74	75	75	74	74	74	73	73	73	72	72
April	85	85	85	84	84	84	86	85	85	85	86	85	85	86	85	85
May	89	90	91	91	90	90	93	92	92	92	94	93	93	94	93	93
June	92	92	91	91	90	89	95	94	93	93	95	94	93	96	95	94
July	87	87	87	86	86	85	90	89	88	88	90	89	89	91	90	89
August	85	85	85	84	84	83	88	87	86	86	88	87	86	89	88	87
September	84	84	84	83	83	83	85	85	84	84	86	85	85	86	85	85
October	79	79	79	78	78	78	79	79	78	78	79	78	78	78	77	77
November	73	72	70	69	69	68	71	70	69	69	70	69	68	69	68	67
December	60	60	61	61	60	59	61	60	59	59	58	57	56	56	55	54
Mean Annual Temperature of the Air.	78	78	78	77	77	77	78	78	78	78	79	78	77	78	77	77
Difference between the hottest and coldest Months.	32	32	30	30	30	31	35	35	34	35	37	37	37	40	40	40

The numbers in these tables are under the influence of aspect, the effect of soil, and difference of geological condition; and it is very likely, indeed almost certain, that the above numbers at the low latitudes, owing to the aspect of the stations situated at the southern extremity of Madras, are too small; and it is very likely also that at stations situated within the influence of the sea, they may be somewhat too great in the summer, and too small in the winter

months. It is probable that the inland stations may be nearly true; it is however necessary before using the numbers to determine what confidence can be placed in them, and for this purpose I have selected some of the places where it is known observations have been taken with great care, as at the observatories of Madras, Bombay, and at Calcutta, with a few other places in different parallels of latitude. The comparisons are shown in the following table.

TABLE XXII. showing the Observed and Calculated Mean Monthly Temperatures of the Air, and the Difference between them, at different Stations in India, between Latitudes 12° and 31°.

MONTHS.	Cannanore.			Madras.			Vingorla.			Bombay.			Calcutta.			Lucknow.			Ferozepore.		
	Observed.	Computed.	Difference.	Observed.	Computed.	Difference.	Observed.	Computed.	Difference.	Observed.	Computed.	Difference.	Observed.	Computed.	Difference.	Observed.	Computed.	Difference.	Observed.	Computed.	Difference.
January	82	81	-1	76	76	0	78	77	-1	74	72	-2	70	65	-5	66	63	-3	59	59	0
February	82	83	+1	78	78	0	79	77	-2	76	75	-1	75	71	-4	68	68	0	66	66	0
March	84	85	+1	80	81	+1	82	82	0	80	82	+2	83	77	-6	79	76	-3	76	74	-2
April	86	86	0	83	84	+1	83	86	+3	83	85	+2	88	84	-4	88	85	-3	81	85	+4
May	85	86	+1	87	87	0	85	87	+2	86	88	+2	89	88	-1	91	91	0	94	93	-1
June	80	82	+2	87	86	-1	81	85	+4	83	86	+3	87	88	+1	90	90	0	95	95	0
July	79	78	-1	85	84	-1	79	85	+6	81	86	+5	85	85	0	88	87	-1	90	90	0
August	79	78	-1	84	84	0	79	82	+3	81	82	+1	85	83	-2	84	85	+1	86	87	+1
September	79	79	0	84	83	-1	79	81	+2	80	82	+2	85	82	-3	85	84	-1	86	85	-1
October	81	80	-1	82	82	0	81	82	+1	82	82	0	84	79	-5	79	79	0	79	79	0
November	82	80	-2	79	79	0	79	80	+1	79	79	0	78	72	-6	79	79	0	68	69	+1
December	81	82	+1	77	78	+1	78	78	0	76	74	-2	72	65	-7	60	62	+2	58	59	+1

By looking over the several columns of differences, it will be seen that those at Cannanore and Madras are small, and therefore that the calculated and observed values are very nearly accordant; at Vingorla and Bombay, the calculated values are somewhat too high in the summer months, a difference owing to some extent to the direct influence of the sea; at Calcutta the calculated numbers in the winter are too small; at the remaining two stations, viz., Lucknow and Ferozepore, the differences are generally small.

It seems to me upon the whole that they are sufficiently near for the purposes of the Commission, and more to be depended upon than any observations taken at any place for a short period, or where no information is given as to the character of the instruments, their position, or care and regularity in making the observations.

Upon the whole, however, the accordances are as good as could be expected, considering that the observations upon which the calculations are based are not equally good, in fact in some cases suspicion reigned over the observations, but there was not sufficient evidence to reject them, and where erroneous they have exercised an injurious influence

over the results. It now becomes necessary to determine those elevations, in the different parallels of latitude, where European troops could be placed with the greatest probability of continued health. These localities would be those whose meteorological conditions, particularly in temperature, approached most nearly those of England.

The following are the average value of meteorological elements as deduced from 20 years' observations at the Royal Observatory at Greenwich.

TABLE XXIII. showing the Monthly Means of Results for Meteorological Elements at the Royal Observatory, Greenwich, in the Years 1841-1860.

MONTHS.	Mean reading of the Barometer.	Temperature of the Air.							Mean Temperature of Dew-point.	Hygrometrical Deductions.					Rain.	
		Highest in Years.	Lowest in Years.	Range in Month.	Mean of all the Highest.	Mean of all the Lowest.	Mean daily Range.	Mean Temp.		Mean Elastic Force of Vapour.	Mean weight of Vapour in cubic foot of Air.	Mean additional weight required for saturation.	Mean degree of Humidity.	Mean weight of a cubic foot of Air.	Number of Rainy Days.	Amount collected on Ground.
January	29.757	57.0	4.0	53.0	48.2	33.7	9.5	38.3	35.4	.295	2.4	0.3	89	553	11	1.8
February	29.787	62.3	7.7	54.6	44.7	33.2	11.5	38.4	34.4	.291	2.3	0.4	85	554	10	1.6
March	29.793	71.5	13.1	58.4	50.9	35.3	14.7	41.7	38.4	.216	2.5	0.6	82	550	10	1.6
April	29.785	79.0	25.3	53.7	56.8	38.6	18.2	46.3	39.9	.247	2.9	0.8	79	542	10	1.6
May	29.782	86.2	28.3	57.9	64.4	44.2	20.3	52.8	45.5	.300	3.4	1.1	78	538	11	2.1
June	29.798	94.5	36.2	58.3	71.2	50.2	21.0	59.3	50.8	.373	4.2	1.5	74	531	10	1.9
July	29.804	93.3	38.9	54.4	73.8	53.2	20.6	61.9	53.9	.417	4.6	1.6	76	528	11	2.7
August	29.788	92.0	40.0	52.0	72.8	53.4	19.4	61.3	54.1	.422	4.7	1.5	77	528	11	2.4
September	29.829	86.4	32.0	54.4	67.4	48.9	18.5	56.9	51.1	.382	4.2	1.0	81	534	11	2.4
October	29.690	81.0	26.5	54.5	58.3	43.7	14.6	50.2	46.0	.312	3.6	0.6	87	539	13	2.8
November	29.756	66.3	19.4	46.9	49.3	37.7	11.6	43.4	40.1	.255	2.9	0.4	89	547	12	2.4
December	29.805	62.8	8.0	54.8	45.0	35.5	9.5	40.1	36.9	.221	2.6	0.4	89	552	11	1.9
Means	29.775	77.6	23.2	54.4	58.0	42.3	15.7	49.2	43.7	.296	3.3	0.8	82	541	12	2.3

TABLE XXIV. showing the Excess of Mean Temperature in India over that at Greenwich.

MONTHS.	Mean Temperature of Air at Greenwich.	Excess of Mean Temperature over that at Greenwich.										
		Latitudes.										
		South of 15°.	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°
January	38	38	35	33	31	29	27	25	23	21	19	17
February	38	41	37	35	34	34	33	31	29	28	26	25
March	42	40	38	38	37	36	35	34	33	33	31	30
April	46	39	37	37	37	39	39	39	39	39	39	39
May	53	34	33	34	37	36	36	37	38	39	40	40
June	59	27	26	27	29	30	31	31	32	35	35	36
July	62	21	23	24	25	24	24	24	25	27	28	28
August	61	22	20	20	22	23	24	24	24	26	26	27
September	57	25	22	24	24	26	26	27	27	28	27	28
October	50	31	30	30	29	30	29	29	29	29	28	27
November	43	36	35	35	34	30	29	28	27	27	26	25
December	40	37	35	33	31	27	25	23	21	20	17	15

From this table we learn that at all places south of latitude 22° the excess of temperature from October to May is between 30° and 40°, and from June to September between 20° and 30°.

That between the latitudes 22° and 26° the greatest excesses are from February to May, being between 30° and 40°, and from June to January being generally between 20° and 30°.

From the latitude 28° to that of 34° the greatest excesses are from March to June, being between 30° and 40°, and from July to February the least, being for the most part between 20° and 30°, but at the extreme stations it is less than 20°.

In January the excess is as large as 38° south of 15°, decreasing gradually to 17° in latitude 34°, showing lower mean temperature at northern stations by 21°.

In February the excess is as large as 41° south of 15°, decreasing gradually to 25° in latitude 34°, showing lower mean temperature at northern stations by 16°.

In March the excess is as large as 40° south of 15°, decreasing gradually to 30° in latitude 34°, showing lower mean temperature at northern stations by 10°.

In April the excesses are very nearly the same in all places, showing mean temperature alike everywhere.

In May the excess is about 34° south of 18°, and increases going northwards to 40° in latitude 34°, showing higher mean temperature at northern stations by 6°.

In June the excess is about 27° south of 18°, and increases going northwards to 36° in latitude 34°, showing higher mean temperature at northern stations by 9°.

In July the excess is about 21° south of 18°, and increases going northwards to 28° in latitude 34°, showing higher mean temperature at northern stations by 7°.

In August the excess is about 22° south of 20°, and increases going northwards to 27° in latitude 34°, showing higher mean temperature at northern stations by 5°.

In September and October the excesses are nearly alike at all places, showing mean temperatures nearly alike everywhere.

In November the excess is about 36° south of 15°, and decreases going northwards to 25° in latitude 34°, showing lower mean temperature at northern stations by 11°.

In December the excess is about 37° south of 15°, and decreases going northwards to 15° in latitude 34°, showing lower mean temperature at northern stations by 22°.

The differences between the temperatures of stations in Madras and those situated north of Bengal are thus shown to be very great in the months of January and December, the former exceeding the latter by as much as 21° and 22°, whilst in summer the differences are the other way, those stations in Madras being of lower temperature than those in Bengal by 5° to 9°.

In Section V., Table XVIII., the difference of vertical height for a decrease of one degree is given, and if the numbers in Table XXIV. be multiplied into these differences, the heights would be found, which would give the same as the average temperature for the same month in England. These heights are shown in the next table.

TABLE XXV. showing the Height in Feet, at different parallels of Latitude in India, in every Month, where the Mean Temperature is the same as that of England.

MONTHS.	Elevation in Feet in India necessary to have the same Mean Temperature as in England.										
	Latitudes.										
	South of 15°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°
January - - -	12,100	11,200	10,500	9,900	9,300	8,600	8,000	7,300	6,700	6,100	5,400
February - - -	12,200	11,000	10,400	10,100	10,100	9,800	9,200	8,600	8,300	7,700	7,500
March - - -	12,400	11,800	11,800	11,500	11,200	10,900	10,600	10,300	10,300	9,600	9,300
April - - -	11,700	11,100	11,100	11,100	11,700	11,700	11,700	11,700	11,700	11,700	11,700
May - - -	10,200	9,900	10,200	11,100	10,800	10,800	11,100	11,400	11,700	12,000	12,000
June - - -	7,400	7,100	7,400	7,600	8,200	8,500	8,500	8,700	9,500	9,600	9,800
July - - -	6,100	6,700	7,000	7,300	7,000	7,000	7,000	7,300	7,900	8,200	8,200
August - - -	6,300	5,700	5,700	6,300	6,600	6,900	6,900	6,900	7,400	7,400	7,700
September - - -	7,500	6,600	7,200	7,200	7,800	7,800	8,100	8,100	8,400	8,100	8,400
October - - -	9,600	9,300	9,300	9,000	9,300	9,000	9,000	9,000	9,000	8,700	8,400
November - - -	11,600	11,200	11,200	10,900	9,600	9,300	9,000	8,700	8,700	8,300	8,000
December - - -	11,300	10,700	10,100	9,400	8,200	7,600	7,000	6,400	6,100	5,200	4,600
Means - - -	9,900	9,400	9,300	9,300	9,200	9,000	8,800	8,700	8,800	8,600	8,400

From these numbers it seems necessary that the heights above the sea be different in the different seasons, as well as in the different latitudes, to obtain the same approximate mean temperature month by month, as would be obtained in England.

By grouping the numbers together, we learn that the same approximate mean monthly temperature as in England would be obtained,—

South of Latitude 20°,

From October to May, at a height of about 11,000 ft.
From June to September, at a height of about 6,500 ft.

Between Latitudes 20° and 26°,

From February to May, at a height of about 11,000 ft.
From June to January, " " 8,000 ft.

North of Latitude 28°,

In January and December, at a height of about 5,000 ft.
In February and from July to November, at a height of about 7,500 ft.

From March to June, at a height of about 11,500 ft.

In the lowest line of the Table the mean height is given at which the same mean annual temperature would be obtained as in England, though at this fixed height the monthly temperature would be somewhat differently distributed.

From them we find that the same mean annual temperature as in England would be obtained,—

South of Latitude 20°,

At an elevation of about 9,500 ft.
At this height the months from October to May would be somewhat warmer, and those from June to September somewhat colder than in England.

Between Latitudes 20° and 26°,

The same annual temperature would be obtained as in England, at a height of about 9,000 ft.

The months from October to January would be very nearly the same as in England, those from February to May somewhat colder, and those from June to September somewhat warmer.

Between the Latitudes 26° and 30°,

The same annual temperature as in England would be obtained, at the height of about 8,700 ft.

At this elevation the months of January, February, June, July, August, September, October, November, and December, would differ but little from those in England, whilst the remaining three months, viz., March, April, May, and June would be somewhat warmer.

North of Latitude 30°,

The same annual temperature as in England would be obtained at an elevation of 8,500 ft.

At this elevation January and December would be some degrees colder than in England; the months of February and those from July to November, would be nearly the same as in England, whilst those of March, April and May would be somewhat warmer.

As these heights cannot be everywhere attained, and other circumstances may prevent their use, the heights most desirable are those which approach the most nearly to those mentioned.

By reference to the following investigations it will be seen that the elevations necessary to obtain the same high day temperatures as in England are always less than those to obtain the same mean temperature, and the elevations necessary to obtain the same low night temperature as in

England are much greater in the southern latitudes than those for mean temperature in the same parallels; that at latitude 28° they are very nearly the same; and that in extreme north latitudes they are of less altitude.

If, therefore, the altitudes found be adopted as necessary for the mean temperature, they would answer quite well for the maximum temperature, which would be somewhat of lower high day temperature than in England; and the low night temperature would be somewhat of higher low night temperature than in England.

In Section II., page 786, are given formulæ for calculating high day temperature at different parts of India in every month, and the following table has been calculated from them.

TABLE XXVI. showing the Calculated Mean Monthly High Day Temperatures of the Air in India, for every two degrees of Latitude from 16° to 34°, and 80° of Longitude.

MONTHS.	Latitudes.									
	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°
	Longitudes.									
	80°	80°	80°	80°	80°	80°	80°	80°	80°	80°
January - -	82	80	79	77	75	74	72	71	69	68
February - -	87	85	84	80	78	77	75	74	73	72
March - -	90	89	88	87	86	85	85	84	83	83
April - -	93	93	93	93	93	93	93	94	94	94
May - -	95	96	96	97	97	98	98	99	99	100
June - -	93	94	94	95	96	97	97	98	99	100
July - -	90	91	91	91	92	93	93	94	95	96
August - -	87	88	88	89	89	89	89	90	91	92
September - -	86	86	87	88	88	89	89	89	90	90
October - -	86	87	87	87	87	87	87	88	88	88
November - -	85	84	83	81	80	79	79	78	78	77
December - -	84	82	80	77	75	72	70	68	66	63
Mean annual high day temperature of the air.	88	88	87	87	86	86	86	86	85	85
Difference between hottest and coldest months.	13	16	17	20	22	26	28	31	33	37

The high day temperature for other longitudes may be found from these—

By adding if longitude be less than 80°, and by subtracting if more than 80°,—

In January, February, March, and October 0·4° for every degree of longitude from 80°.

In November 0·5° for every degree of longitude from 80°.

In April 0·3° for every degree of longitude from 80°.

In September 0·1° for every degree of longitude from 80°.

In December 0·6° for every degree of longitude from 80°.

In the months of May to August there is very little difference in high day temperature in different longitudes.

By taking the difference between the high day temperature in England, and the numbers in the preceding Table, the next table is formed.

TABLE XXVII. showing the Excess of High Day Temperature in India, in every Month, over English High Day Temperature.

MONTHS.	Mean Maximum Temperature of the Air at Greenwich.	Excess of Maximum Temperature of the Air over that at Greenwich.									
		Latitudes.									
		16°	18°	20°	22°	24°	26°	28°	30°	32°	34°
January - -	43	39	37	36	34	32	31	29	28	26	25
February - -	45	43	40	39	35	33	32	30	29	28	27
March - -	50	40	39	38	37	36	35	35	34	33	33
April - -	57	86	86	86	86	86	86	86	87	87	87
May - -	64	31	32	32	33	33	34	34	35	35	36
June - -	71	22	23	23	24	25	26	26	27	28	29
July - -	74	16	17	17	17	18	19	19	20	21	22
August - -	73	14	15	15	16	16	16	17	17	18	19
September - -	67	19	19	20	21	21	22	22	23	23	23
October - -	58	28	29	29	29	29	29	29	30	30	30
November - -	49	36	35	34	32	31	30	30	29	29	28
December - -	45	39	37	35	32	30	27	25	23	21	13

The greater heat by day in India over England—

In January is 39° in latitude 16°, decreasing to 25° at latitude 34°.

In February is 42° in latitude 16°, decreasing to 27° at latitude 34°.

In March is 40° in latitude 16°, decreasing to 33° at latitude 34°.

In April is nearly alike at all places, amounting to 36°.

In May is 31° in latitude 16°, increasing to 36° at latitude 34°.

In June is 22° in latitude 16°, increasing to 29° at latitude 34°.

In July is 16° in latitude 16°, increasing to 22° at latitude 34°.

In August is 14° in latitude 16°, increasing to 19° at latitude 34°.

In September is 19° in latitude 16°, increasing to 23° at latitude 34°.

In October is nearly alike at all places.

In November is 36° in latitude 16°, decreasing to 28° at latitude 34°.

In December is 39° in latitude 16°, decreasing to 18° at latitude 34°.

In Section II., Table VI., the effect of elevation on high day temperature is given for every 1,000 feet, by means of which, combined with Table XXVII., the heights in the different months have been found, at which a close approximation to English high day temperature would be obtained. The results are shown in the next table.

TABLE XXVIII. showing the Height in Feet, at different parallels of Latitude in India, in every Month, where the Mean Maximum Temperature is the same as that of England.

MONTHS.	Latitudes.									
	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°
	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.
January - - - -	11,000	10,400	10,100	9,500	9,000	8,700	8,200	8,000	7,500	7,300
February - - - -	10,200	9,700	9,400	8,700	8,200	8,000	7,600	7,400	7,200	7,000
March - - - -	9,000	8,800	8,600	8,500	8,300	8,100	8,100	8,000	7,800	7,800
April - - - -	7,200	7,200	7,200	7,200	7,200	7,200	7,200	7,400	7,400	7,400
May - - - -	6,400	6,500	6,500	6,700	6,700	6,800	6,800	6,900	6,900	7,000
June - - - -	4,800	5,000	5,000	5,200	5,400	5,600	5,600	5,800	6,000	6,200
July - - - -	3,600	3,900	3,900	3,900	4,100	4,400	4,400	4,600	4,800	5,000
August - - - -	3,900	4,100	4,100	4,500	4,500	4,500	4,500	4,800	5,000	5,300
September - - - -	5,600	5,600	5,800	6,100	6,100	6,300	6,300	6,300	6,600	6,600
October - - - -	7,500	7,700	7,700	7,700	7,700	7,700	7,700	8,000	8,000	8,000
November - - - -	10,300	10,100	9,800	9,300	9,100	8,800	8,800	8,600	8,600	8,300
December - - - -	14,000	13,400	12,700	11,400	10,600	9,400	8,600	7,800	7,000	5,900
Means - - - -	7,800	7,700	7,600	7,400	7,200	7,100	7,000	7,000	6,900	6,800

These heights follow closely, but are less than those required for Mean Temperature.

In Section III., pages 787 and 788, are given formulae for calculating the low night temperature at different parallels of latitude in India. The following table has been calculated from them.

TABLE XXIX. showing the Mean Monthly Low Night Temperature of the Air in India, for every two degrees of Latitude, in Longitude 80°.

MONTHS.	Latitudes.									
	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°
	Longitudes.									
	80°	80°	80°	80°	80°	80°	80°	80°	80°	80°
January	69	68	68	68	67	67	66	66	65	65
February	70	68	66	65	63	62	61	60	59	58
March	75	74	72	70	68	66	64	62	60	58
April	80	79	78	77	76	75	74	73	71	70
May	82	82	81	81	81	81	81	81	81	81
June	82	82	82	82	82	82	82	82	82	82
July	81	81	81	81	81	81	81	81	81	81
August	79	79	79	79	79	79	79	79	79	79
September	78	79	79	79	79	79	79	79	79	79
October	77	76	75	74	73	72	71	70	69	67
November	72	70	68	65	63	61	59	57	55	53
December	68	65	63	61	59	56	54	51	49	47
Mean annual low night temperature of the air	76	75	74	73	72	71	70	68	67	66
Difference between hottest and coldest months	14	17	19	23	26	29	31	34	37	40

The low night temperatures may be inferred from these for other places, by adding if the longitude be less than 80°, or subtracting if greater than 80°—

- In January, July, and November 0°·2
 - In February 0°·2 south of 20°, and 0°·4 north of 20°.
 - In March 0°·1 south of 20°, and 0°·2 north of 20°.
 - In April 0°·3 south of 20°, and 0°·2 north of 20°.
 - In May, June, August, September, and October, 0°·1.
 - In December 0°·3.
- } for every degree of temperature from 80°.

By taking the difference between the low night temperature in England, and the numbers in the preceding table, the next table is formed.

TABLE XXXI. showing the Height in Feet at different Parallels of Latitude in India, in every Month, where the Mean Minimum Temperature is the same as that of England.

MONTHS.	Latitudes.									
	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°
January	17,000	15,500	14,000	12,500	11,000	9,500	8,500	7,000	5,600	4,200
February	12,200	11,500	11,000	10,700	10,000	9,200	8,600	7,600	7,000	6,400
March	13,100	12,900	12,200	11,600	11,000	10,400	9,800	9,200	8,500	7,900
April	10,800	10,600	10,300	10,000	9,800	9,600	9,300	8,800	8,600	8,400
May	8,500	8,500	8,300	8,300	8,300	8,300	8,300	8,300	8,300	8,300
June	8,400	8,400	8,400	8,700	8,700	8,700	8,700	8,700	8,700	8,700
July	8,000	8,000	8,000	8,300	8,300	8,300	8,300	8,300	8,300	8,300
August	8,300	8,300	8,300	8,300	8,300	8,300	8,300	8,300	8,300	8,300
September	8,600	8,800	8,800	8,800	8,800	8,800	8,800	8,800	8,800	8,800
October	10,700	10,300	10,000	9,700	9,000	8,900	8,700	8,300	8,000	7,300
November	13,600	12,800	12,000	10,800	10,000	9,600	8,400	7,600	6,800	6,000
December	13,400	12,800	11,400	10,600	9,800	8,200	7,800	6,600	5,800	5,000
Means	11,000	10,700	10,200	9,900	9,500	9,000	8,600	8,100	7,700	7,300

These heights are greater than those required to obtain English high day temperature in all cases, and much greater than required for English mean temperature at places situated south of 26°; very nearly the same at 28°, and are less at higher latitudes.

SECTION VII.—On the Hygrometrical States of the Air in India.

The trustworthy observations for determining the hygrometrical states of the atmosphere are but few in number. This is to be regretted, as the more or less moisture in the air exercises a very considerable influence upon the health of man. The observations which I have found available have been those of the dry and wet-bulb thermometers, and no direct determination of the temperature of the dew point has been met with, made either by Daniell's or Regnault's hygrometers. Our knowledge of the laws of the distribu-

TABLE XXX. showing the Excess of Low Night Temperature in India, in every Month, over English Low Night Temperature.

MONTHS.	Mean Minimum Temperature of the Air at Greenwich.	Excess of Minimum Temperature over that at Greenwich.									
		Latitudes.									
		16°	18°	20°	22°	24°	26°	28°	30°	32°	34°
January	34	35	32	29	26	23	20	18	15	12	9
February	33	37	35	33	32	30	27	25	22	20	18
March	35	40	39	37	35	33	31	29	27	25	23
April	39	41	40	39	38	37	36	35	33	32	31
May	44	38	38	37	37	37	37	37	37	37	37
June	50	32	32	32	33	33	33	33	33	33	33
July	53	28	28	28	29	29	29	29	29	29	29
August	49	26	26	26	26	26	26	26	26	26	26
September	49	29	30	30	30	30	30	30	30	30	30
October	44	33	32	31	30	29	28	27	26	25	23
November	38	34	32	30	27	25	23	21	19	17	15
December	36	32	29	27	25	23	20	18	15	13	11

The greater heat by night in India, over that in England, therefore,—

- In January is 35° in latitude 16°, decreasing regularly to 9° in latitude 34°.
- In February is 37° in latitude 16°, decreasing regularly to 18° in latitude 34°.
- In March is 40° in latitude 16°, decreasing regularly to 23° in latitude 34°.
- In April is 41° in latitude 16°, decreasing regularly to 31° in latitude 34°.
- In May is 38° and nearly alike everywhere.
- In June is 32°
- In July is 28°
- In August is 26°
- In September is 29°
- In October is 33° in latitude 16°, decreasing to 23° in latitude 34°.
- In November is 34° in latitude 16°, decreasing to 15° in latitude 34°.
- In December is 32° in latitude 16°, decreasing to 11° in latitude 34°.

In Section III., page 788, Table X., the effect of elevation on low night temperature is given for every 1,000 feet; by means of which, combined with Table XXX., the heights in the different parallels of latitude have been found at which low night temperature approximate to that of England may be obtained. The results are contained in the next table.

tion of water in the atmosphere is so limited, that at all elevated places some direct observations of this element should be taken, and not trust entirely to the inferential results derivable from the dry and wet-bulb alone. At moderate elevations it is possibly better to use the dry and wet thermometers than either of the above hygrometers; and it may prove to be so at great elevations, when sufficient simultaneous observations have been made of direct and inferential determinations.

The hygrometrical elements most desirable to be known are,—

The temperature of the dew point.

The amount of water mixed with a certain mass of air in the invisible shape of vapour.

The amount of water required to saturate a certain mass of air, and

The degree of humidity of the air.

Before treating of the observations to determine these elements, I will speak of each separately.

The temperature of the dew point, or that degree of temperature to which the temperature of the air must be reduced so that the air becomes saturated by the quantity of water mixed with it in the invisible shape of vapour.

If, therefore, the temperature of the air be higher than that of the dew point, the air is not saturated; if these temperatures be alike the air is saturated; and if the temperature should decline, some rain must fall.

The amount of water necessary to saturate a mass of air, say, one cubic foot, varies with its temperature. At 32° air is saturated by a little more than 2 grs.; at 42°, by 3 grs.; at 49°, by 4 grs.; at 56°, by 5 grs.; at 61°, by 6 grs.; at 66°, by 7 grs.; at 70°, by 8 grs.; and so on, till at about 100° the capacity of air for moisture is such that 20 grs. nearly can be held in solution before the air is saturated.

The difference between the amount of water in the air and that amount which could be in the air at that temperature shows the amount short of saturation.

The degree of humidity of the air expresses the ratio between the amount of water then mixed with it and the greatest amount possible to be held in solution at its then temperature, upon the supposition that the latter or saturated air is represented by 100, and when deprived of all

moisture by 0. Thus, suppose the water mixed with a certain mass of air to be one-half of the quantity which could be present in the same mass of air at its then temperature, the degree of humidity would in such a case be represented by 50, and would imply that there were present 50 hundredth-parts of the quantity of water which would then saturate the air. At the temperature of 32° the degree of humidity would be 50 when one grain of water was mixed with a cubic foot of air; whilst at 100° it would require 10 grs. to be present in the same mass of air to have the same degree of humidity.

The best series of hygrometrical observations in my possession made in India, are those at the observatories of Madras and Bombay.

From these it seems that the atmosphere is least moist upon the average of the whole year about two hours after noon, but this varies at different times of the year. The most moisture in the 24 hours is at a little before six in the morning, and the air is in a mean state about 9 or 10 o'clock both in the morning and evening. The daily curve of humidity is very nearly the opposite to that of temperature, the dryest time being about 1 or 2 p.m., at about the time of maximum temperature, and the wettest about sunrise, or minimum temperature; except in the months of June and July, when the moisture is greatest about midnight; and in August and September the increase of moisture after midnight is very small.

The monthly values of the hygrometrical elements at Madras for 18 years, and at Bombay for 12 years, are shown in the following tables:—

TABLE XXXII. showing the Mean Monthly Temperature of the Dew Point at Madras

MONTHS.	YEARS.															Means, 18 Years.		
	1833.	1834.	1835.	1836.	1838.	1839.	1840.	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.		1849.	1850.
January -	64	65	70	68	—	69	66	70	73	71	66	67	66	66	65	67	67	67
February -	68	68	72	68	—	69	69	70	70	70	68	69	69	69	66	67	66	68
March -	69	68	75	69	—	73	72	74	74	73	72	73	72	70	70	70	68	71
April -	72	73	79	73	—	76	77	78	79	76	76	76	75	75	76	75	73	76
May -	73	77	78	71	—	76	75	78	77	77	76	73	76	73	73	74	73	76
June -	71	78	78	70	—	74	73	76	74	75	78	72	72	71	71	72	69	73
July -	71	79	78	72	—	73	73	74	73	73	73	71	72	72	71	71	70	73
August -	73	79	78	74	—	75	75	77	74	75	73	71	73	72	71	73	72	74
September -	74	79	79	74	—	77	76	77	79	77	73	74	73	70	73	71	72	75
October -	74	76	76	69	74	74	74	73	76	77	73	73	74	74	73	73	74	74
November -	71	74	74	—	74	71	72	73	73	72	67	69	69	71	71	71	69	71
December -	70	71	69	—	69	68	69	70	69	71	70	71	67	69	69	66	67	69
Means -	71	74	75	—	—	73	72	74	74	74	72	71	71	71	71	71	70	72

TABLE XXXIII. showing the Mean Monthly Temperature of the Dew Point, at Bombay.

MONTHS.	YEARS.											Means.	
	1847.	1848.	1849.	1850.	1851.	1852.	1853.	1854.	1855.	1856.	1857.		1858.
January -	65	64	63	62	60	56	56	62	63	66	65	64	64
February -	62	65	66	63	64	64	64	60	65	63	66	65	64
March -	71	69	69	69	68	68	67	68	69	70	70	70	68
April -	72	73	72	70	73	71	71	72	70	73	71	74	73
May -	76	75	73	74	73	73	74	74	76	75	76	78	75
June -	78	75	79	77	76	76	76	77	77	65?	76	75	76
July -	77	76	77	77	77	75	76	77	77	76	75	78	76
August -	75	75	75	76	75	75	74	76	74	74	76	76	74
September -	74	74	76	74	73	74	74	76	74	73	74	74	74
October -	75	76	74	75	74	74	74	74	75	73	73	74	74
November -	67	69	74	67	67	67	68	68	68	67	67	67	67
December -	64	67	62	66	63	64	62	67	64	65	62	66	64
Means -	71	72	72	71	70	70	70	71	71	70	71	72	71

TABLE XXXIV. showing the Mean Monthly Amount of Vapour in a Cubic Foot of Air at Madras.

MONTHS.	YEARS.															Means.		
	1833.	1834.	1835.	1836.	1838.	1839.	1840.	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.		1849.	1850.
January -	6.1	6.6	7.8	7.4	—	7.2	6.8	8.0	8.6	8.2	6.8	7.1	6.8	6.8	6.6	7.1	7.1	7.2
February -	7.3	7.3	8.4	7.4	—	7.6	7.5	7.8	8.0	8.0	7.3	7.6	7.6	7.6	6.9	6.8	6.9	7.3
March -	7.6	7.4	9.5	7.7	—	8.6	8.8	9.1	9.1	8.8	8.4	8.6	8.4	7.9	7.9	7.9	7.2	8.1
April -	8.5	8.6	10.6	8.8	—	9.4	9.7	10.2	10.8	9.4	9.5	9.3	9.0	9.0	9.5	9.0	8.5	9.4
May -	8.5	9.6	10.3	8.1	—	9.3	9.1	10.3	9.1	10.0	9.3	8.4	9.3	8.6	8.4	8.7	8.6	9.3
June -	8.1	10.3	10.2	7.8	—	8.8	8.6	9.5	8.8	9.2	8.4	8.3	8.1	8.1	7.8	8.1	7.5	8.5
July -	7.9	10.7	10.1	8.4	—	8.7	8.7	8.8	8.5	8.7	8.5	8.1	8.3	8.3	7.9	8.1	8.1	8.7
August -	8.6	10.7	10.1	9.0	—	9.4	9.2	9.9	8.9	9.2	8.7	8.1	8.7	8.3	8.1	8.5	8.3	8.9
September -	8.9	10.7	10.7	9.1	—	9.9	9.7	10.0	10.5	10.0	8.6	8.9	8.5	7.8	8.7	8.1	8.3	9.1
October -	8.9	9.5	9.5	7.6	8.9	8.9	8.9	8.8	9.5	9.8	8.6	8.6	8.9	9.1	8.6	9.1	8.9	8.9
November -	8.2	8.9	9.2	—	8.9	8.2	8.4	8.7	8.7	8.5	7.2	7.6	7.6	8.0	8.0	8.1	7.6	8.2
December -	7.8	8.2	7.6	—	7.7	7.3	7.5	8.0	7.7	8.2	8.0	8.2	7.1	7.7	7.5	6.9	7.1	7.5
Means -	8.0	9.0	9.5	—	—	8.6	8.6	9.9	9.8	9.0	8.3	8.2	8.2	8.1	8.0	8.0	7.8	8.4

TABLE XXXV. showing the Mean Monthly Amount of Vapour in a Cubic Foot of Air, at Bombay.

MONTHS.	YEARS.											Means.	
	1847.	1848.	1849.	1850.	1851.	1852.	1853.	1854.	1855.	1856.	1857.		1858.
January -	6.6	6.4	6.2	5.9	5.6	5.0	5.0	6.1	6.2	6.8	6.6	6.6	6.4
February -	6.0	6.6	6.8	6.2	6.4	6.4	6.4	5.5	6.7	6.3	6.9	6.6	6.4
March -	8.0	7.6	7.6	7.6	7.4	7.4	7.1	7.4	7.6	7.9	7.9	7.8	7.4
April -	8.4	8.6	8.4	7.9	8.6	8.2	8.0	8.5	7.9	8.7	8.2	8.9	8.6
May -	9.4	9.2	8.7	8.9	8.7	8.5	8.8	8.8	9.5	9.0	9.5	10.1	9.0
June -	10.1	9.4	10.7	10.0	9.7	9.4	9.4	10.0	10.0	6.5	9.7	9.2	9.7
July -	9.8	9.5	9.8	9.9	9.8	9.4	9.5	9.8	9.9	9.5	9.4	10.1	9.5
August -	9.3	9.3	9.3	9.5	9.3	9.3	9.1	9.5	8.9	9.1	9.5	9.5	9.1
September -	9.0	9.1	9.5	9.1	8.8	9.1	9.1	9.5	9.1	8.8	9.0	9.1	9.1
October -	9.4	9.5	9.1	9.1	8.9	8.9	7.9	8.9	9.1	8.6	8.6	9.1	8.9
November -	7.2	7.6	8.6	7.0	7.4	7.0	7.2	7.2	7.2	7.2	7.1	7.2	7.2
December -	6.4	7.1	5.9	6.8	6.2	6.4	5.9	7.1	6.5	6.6	6.0	6.8	6.4
Means -	8.3	8.3	8.4	8.2	8.1	7.9	7.0	8.2	8.2	7.9	8.2	8.4	8.2

TABLE XXXVI. showing the Mean Monthly Amount of Vapour required to saturate a Cubic Foot of Air at Madras.

MONTHS.	YEARS.															Means.		
	1833.	1834.	1835.	1836.	1838.	1839.	1840.	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.		1849.	1850.
January -	3.6	2.8	1.0	1.4	—	2.5	2.9	2.0	1.1	1.5	2.9	2.9	2.9	2.8	2.9	2.9	2.5	
February -	3.0	3.0	1.0	2.0	—	3.0	2.5	2.0	2.0	3.0	3.0	3.0	3.0	3.4	3.4	3.4	3.0	
March -	3.0	3.6	0.5	2.0	—	2.7	2.2	2.2	1.7	3.3	3.4	3.3	3.8	3.8	3.8	4.1	3.2	
April -	3.9	2.7	0.0	2.2	—	3.0	3.1	1.8	1.9	3.0	3.7	4.3	4.2	4.2	3.7	4.2	4.7	3.0
May -	4.7	4.4	2.5	5.1	—	4.3	4.9	2.5	4.9	2.4	4.3	6.0	4.3	5.4	6.0	6.1	5.4	4.3
June -	5.1	2.5	1.8	5.0	—	4.8	5.4	3.7	4.8	3.6	6.0	5.3	5.9	5.1	7.0	5.9	6.9	4.7
July -	5.7	0.6	1.2	3.3	—	4.1	4.1	4.8	4.7	4.1	4.7	5.1	4.5	4.5	5.7	5.1	5.9	4.1
August -	3.4	0.6	1.2	1.6	—	2.3	3.6	1.8	3.5	3.6	4.1	5.1	4.1	4.5	5.1	4.7	5.3	3.5
September -	2.8	0.6	0.6	2.2	—	1.8	2.3	2.4	1.2	2.4	3.4	3.5	4.7	5.0	4.1	5.1	4.5	2.9
October -	2.8	1.8	1.1	3.7	2.8	3.5	2.8	2.2	1.8	1.2	2.7	3.4	2.8	2.2	3.4	3.4	3.5	2.8
November -	2.1	1.1	0.5	—	1.1	2.1	1.6	1.6	1.6	2.1	3.4	3.0	3.0	2.6	2.6	3.2	3.0	2.1
December -	2.5	1.5	1.5	—	—	2.0	3.0	2.5	2.0	1.5	2.0	2.1	2.9	2.0	2.5	3.4	2.9	2.5
Means -	3.5	2.1	1.0	—	—	3.1	3.2	2.5	2.6	2.4	3.6	4.0	3.8	3.7	4.1	4.2	4.3	3.2

TABLE XXXVII. showing the Mean Monthly Amount of Vapour required to saturate a Cubic Foot of Air at Bombay.

MONTHS.	YEARS.											Means.	
	1847.	1848.	1849.	1850.	1851.	1852.	1853.	1854.	1855.	1856.	1857.		1858.
January -	2.8	3.3	2.6	2.6	2.9	3.5	3.5	3.6	3.2	2.9	2.8	2.2	2.7
February -	3.1	2.8	2.9	3.2	3.3	3.3	3.3	3.9	3.3	3.7	3.4	2.8	3.3
March -	2.6	3.0	3.0	3.0	3.6	3.6	4.6	3.6	3.0	3.8	3.8	3.2	3.6
April -	3.3	3.4	3.3	3.8	3.4	3.8	4.4	3.9	3.8	4.1	3.8	3.5	3.4
May -	3.0	3.6	4.1	3.5	4.1	4.7	4.8	4.8	3.7	4.2	3.7	3.1	4.2
June -	1.2	2.3	0.6	2.4	2.3	3.0	3.0	2.4	2.4	5.5	2.3	3.6	2.3
July -	1.2	1.8	1.2	1.8	1.2	2.3	1.8	1.2	1.8	1.8	2.3	1.2	1.8
August -	1.7	1.7	1.7	1.8	1.7	1.7	2.2	1.8	2.8	2.2	1.1	1.8	2.2
September -	1.6	2.2	1.1	2.2	2.2	2.2	2.2	1.8	2.2	2.2	1.6	2.2	1.2
October -	2.3	1.8	2.2	2.9	2.8	2.8	8.8	2.8	2.9	2.7	2.7	2.2	2.8
November -	2.5	3.0	2.7	4.0	3.6	4.0	3.6	3.6	4.1	3.4	2.9	3.4	3.4
December -	3.3	2.9	4.1	2.9	3.2	3.3	4.1	2.9	3.8	2.8	3.1	2.9	3.3
Means -	2.4	2.7	2.5	2.8	2.9	3.2	3.4	3.0	3.1	3.3	2.8	2.7	2.9

TABLE XXXVIII. showing the Mean Degree of Humidity at Madras.

MONTHS.	YEARS.																Means.	
	1833.	1834.	1835.	1836.	1838.	1839.	1840.	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.		1850.
January - -	63	70	89	84	—	75	71	79	89	84	71	71	71	71	70	71	71	75
February - -	71	71	89	79	—	71	75	75	79	79	71	71	71	71	67	67	67	71
March - -	71	67	94	79	—	76	75	80	80	80	72	72	72	68	68	68	64	72
April - -	68	76	100	80	—	76	76	85	85	76	72	69	68	68	72	68	64	76
May - -	64	69	80	61	—	69	65	80	65	80	69	58	69	61	58	59	61	69
June - -	61	80	90	61	—	65	61	72	65	72	58	61	58	61	53	58	52	64
July - -	58	95	90	72	—	68	68	65	64	68	64	61	64	64	58	61	55	68
August - -	72	95	90	85	—	80	72	85	72	72	68	61	68	64	61	64	61	72
September -	76	95	95	80	—	85	80	80	90	80	72	72	64	61	68	61	64	76
October - -	76	85	90	68	76	72	76	80	85	90	76	72	76	80	72	72	72	76
November -	79	89	94	—	89	79	84	84	84	80	67	71	71	75	75	72	71	79
December -	75	84	84	—	79	71	75	79	79	84	79	79	71	75	75	67	75	75
Means - -	69	81	91	—	—	74	73	79	79	78	69	68	67	68	66	65	65	72

TABLE XXXIX. showing the Mean Degree of Humidity at Bombay.

MONTHS.	YEARS.												Means.
	1847.	1848.	1849.	1850.	1851.	1852.	1853.	1854.	1855.	1856.	1857.	1858.	
January - -	70	67	70	69	65	57	57	63	66	71	70	74	70
February - -	66	70	71	66	67	67	67	58	67	63	67	70	67
March - -	75	71	71	71	67	67	60	67	71	68	68	71	67
April - -	72	72	72	68	72	68	64	68	68	68	68	72	69
May - -	76	72	68	72	68	64	65	65	72	68	72	76	68
June - -	90	80	95	80	80	76	76	80	80	54	80	72	80
July - -	90	85	90	85	90	80	85	90	85	85	80	90	85
August - -	85	85	85	85	85	85	80	85	76	80	90	85	80
September -	85	80	90	80	80	80	80	85	80	80	85	80	83
October - -	80	85	80	76	76	76	68	76	76	76	76	80	77
November -	75	71	76	63	67	63	64	67	64	67	71	67	67
December -	67	71	59	71	66	67	59	71	63	70	66	71	67
Means - -	78	76	77	74	74	71	69	73	72	71	74	76	73

The monthly temperatures of the dew point have varied in—

- January from 64° to 73° at Madras, and from 56° to 65° at Bombay.
- February from 66° to 72° at Madras, and from 60° to 66° at Bombay.
- March from 68° to 75° at Madras, and from 67° to 71° at Bombay.
- April from 72° to 79° at Madras, and from 70° to 74° at Bombay.
- May from 71° to 78° at Madras, and from 73° to 78° at Bombay.
- June from 69° to 78° at Madras, and from 65° to 78° at Bombay.
- July from 70° to 79° at Madras, and from 75° to 78° at Bombay.
- August from 71° to 79° at Madras, and from 74° to 76° at Bombay.
- September from 70° to 79° at Madras, and from 73° to 76° at Bombay.
- October from 69° to 77° at Madras, and from 73° to 76° at Bombay.
- November from 67° to 74° at Madras, and from 67° to 74° at Bombay.
- December from 66° to 71° at Madras, and from 62° to 67° at Bombay.

- Thus the change in this element one year with another—
- In January amounts to 9° at both places.
 - In February " 6° " " " " "
 - In March " 7° at Madras and 8° at Bombay.
 - In April " 7° " 4° " " "
 - In May " 7° " 5° " " "
 - In June " 9° " 13° " " "
 - In July " 9° " 3° " " "
 - In August " 8° " 2° " " "
 - In September " 9° " 3° " " "
 - In October " 8° " 3° " " "
 - In November " 7° at both places.
 - In December " 5° " " " " "

The mean monthly amount of vapour in a cubic foot of air varied in—

- January from 6.1 grs. to 8.6 grs. at Madras, and from 5.0 grs. to 6.8 grs. at Bombay.
- February from 6.8 grs. to 8.4 grs. at Madras, and from 5.5 grs. to 6.9 grs. at Bombay.

- March from 7.2 grs. to 9.5 grs. at Madras, and from 7.1 grs. to 8.0 grs. at Bombay.
- April from 8.5 grs. to 10.8 grs. at Madras, and from 7.9 grs. to 8.9 grs. at Bombay.
- May from 8.1 grs. to 10.3 grs. at Madras, and from 8.5 grs. to 10.1 grs. at Bombay.
- June from 7.5 grs. to 10.2 grs. at Madras, and from 6.4 grs. to 10.7 grs. at Bombay.
- July from 7.9 grs. to 10.7 grs. at Madras, and from 9.4 grs. to 10.1 grs. at Bombay.
- August from 8.1 grs. to 10.7 grs. at Madras, and from 8.9 grs. to 9.5 grs. at Bombay.
- September from 7.8 grs. to 10.7 grs. at Madras, and from 8.8 grs. to 9.5 grs. at Bombay.
- October from 7.6 grs. to 9.8 grs. at Madras, and from 8.6 grs. to 9.5 grs. at Bombay.
- November from 7.2 grs. to 9.2 grs. at Madras, and from 7.0 grs. to 8.6 grs. at Bombay.
- December from 6.9 grs. to 8.2 grs. at Madras, and from 5.9 grs. to 7.1 grs. at Bombay.

Thus the change in this element one year with another—

- In January amounts to 2.5 grs. at Madras, and to 1.8 gr. at Bombay.
- In February amounts to 1.6 gr. at Madras, and to 1.4 gr. at Bombay.
- In March amounts to 2.3 grs. at Madras, and to 0.9 gr. at Bombay.
- In April amounts to 2.3 grs. at Madras, and to 1.0 gr. at Bombay.
- In May amounts to 2.2 grs. at Madras, and to 1.6 gr. at Bombay.
- In June amounts to 2.7 grs. at Madras, and to 4.3 grs. at Bombay.
- In July amounts to 2.8 grs. at Madras, and to 0.7 gr. at Bombay.
- In August amounts to 2.6 grs. at Madras and to 0.6 gr. at Bombay.
- In September amounts to 2.9 grs. at Madras, and to 0.7 gr. at Bombay.
- In October amounts to 2.2 grs. at Madras, and to 0.9 gr. at Bombay.
- In November amounts to 2.0 grs. at Madras, and to 1.6 gr. at Bombay.
- In December amounts to 1.3 gr. at Madras, and to 1.2 gr. at Bombay.

The mean monthly amount of vapour required to saturate a cubic foot of air varied in—

January from 1.0 gr. to 3.6 grs. at Madras, and from 2.2 grs. to 3.6 grs. at Bombay.

February from 1.0 gr. to 3.4 grs. at Madras, and from 2.8 grs. to 3.9 grs. at Bombay.

March from 0.5 gr. to 3.8 grs. at Madras, and from 2.6 grs. to 4.6 grs. at Bombay.

April from 0.0 to 4.7 grs. at Madras, and from 3.3 grs. to 4.4 grs. at Bombay.

May from 2.5 grs. to 6.1 grs. at Madras, and from 3.0 to grs. to 4.8 grs. at Bombay.

June from 1.8 gr. to 7.0 grs. at Madras, and from 0.6 gr. to 5.5 grs. at Bombay.

July from 0.6 gr. to 5.9 grs. at Madras, and from 1.2 gr. to 2.3 grs. at Bombay.

August from 0.6 gr. to 5.3 grs. at Madras, and from 1.1 gr. to 2.8 grs. at Bombay.

September from 0.6 gr. to 5.1 grs. at Madras, and from 1.1 gr. to 2.2 grs. at Bombay.

October from 1.1 gr. to 3.7 grs. at Madras, and from 1.8 gr. to 3.8 grs. at Bombay.

November from 0.5 gr. to 3.4 grs. at Madras, and from 2.5 grs. to 4.1 grs. at Bombay.

December from 1.5 gr. to 3.4 grs. at Madras, and from 2.8 grs. to 4.1 grs. at Bombay.

Thus the change in this element one year with another—

In January amounts to 2.6 grs. at Madras, and to 1.4 gr. at Bombay.

In February amounts to 2.4 grs. at Madras, and to 1.1 gr. at Bombay.

In March amounts to 3.3 grs. at Madras, and to 2.0 grs. at Bombay.

In April amounts to 4.7 grs. at Madras, and to 1.1 gr. at Bombay.

In May amounts to 3.6 grs. at Madras, and to 1.8 gr. at Bombay.

In June amounts to 5.2 grs. at Madras, and to 4.9 grs. at Bombay.

In July amounts to 5.3 grs. at Madras, and to 1.1 gr. at Bombay.

In August amounts to 4.7 grs. at Madras, and to 1.7 gr. at Bombay.

In September amounts to 4.5 grs. at Madras, and to 1.1 gr. at Bombay.

In October amounts to 2.6 grs. at Madras, and to 2.0 grs. at Bombay.

In November amounts to 2.9 grs. at Madras, and to 1.6 gr. at Bombay.

In December amounts to 1.9 gr. at Madras, and to 1.3 gr. at Bombay.

The mean monthly degree of humidity of the air has varied in—

January from 63 to 89 at Madras, and from 57 to 74 at Bombay.

February from 67 to 89 at Madras, and from 58 to 71 at Bombay.

March from 64 to 94 at Madras, and from 60 to 75 at Bombay.

April from 64 to 100 at Madras, and from 64 to 72 at Bombay.

May from 58 to 80 at Madras, and from 64 to 76 at Bombay.

June from 52 to 90 at Madras, and from 54 to 95 at Bombay.

July from 55 to 95 at Madras, and from 80 to 90 at Bombay.

August from 61 to 95 at Madras, and from 76 to 90 at Bombay.

September from 61 to 95 at Madras, and from 80 to 90 at Bombay.

October from 68 to 90 at Madras, and from 68 to 85 at Bombay.

November from 67 to 94 at Madras, and from 63 to 76 at Bombay.

December from 67 to 84 at Madras, and from 59 to 71 at Bombay.

Thus the change in this element one year with another.

In January amounts to 26 at Madras, and to 17 at Bombay.

In February " 22 " 13 "

In March " 30 " 15 "

In April " 36 " 8 "

In May " 22 " 12 "

In June " 38 " 41 "

In July " 40 " 10 "

In August " 34 " 24 "

In September " 34 " 10 "

In October " 22 " 17 "

In November " 27 " 13 "

In December " 21 " 12 "

Table XL. showing the Mean Monthly Hygrometrical Values at Madras and Bombay.

MONTHS.	Temperature of the Dew Point.				Weight of Vapour in a Cubic Foot of Air.		Weight of Vapour required to saturate a Cubic Foot of Air.		Degree of Humidity.	
	Madras.	Bombay.	Below the Temperature of the Air.		Madras.	Bombay.	Madras.	Bombay.	Madras.	Bombay.
			Madras.	Bombay.						
January	67	64	9	10	7.2	6.4	2.5	2.7	75	70
February	68	64	10	12	7.3	6.4	3.0	3.3	71	67
March	71	68	9	12	8.1	7.4	3.2	3.6	72	67
April	76	73	7	10	9.4	8.6	3.0	3.4	76	72
May	76	75	11	11	9.3	9.0	4.3	4.2	69	68
June	73	76	14	7	8.5	9.7	4.7	2.3	64	80
July	73	76	12	5	8.7	9.5	4.1	1.8	68	85
August	74	74	10	7	8.9	9.1	3.5	2.2	72	80
September	75	75	9	5	9.1	9.3	2.9	1.7	76	85
October	74	74	8	8	8.9	8.9	2.8	2.8	76	76
November	71	67	8	12	8.2	7.2	2.1	3.4	79	67
December	69	64	8	12	7.5	6.4	2.5	3.3	75	67
Means	72	71	9.6	9.3	8.4	8.1	2.6	2.5	73	74

The numbers in the second and third columns show the monthly temperature of the dew point, and those in the fourth and fifth columns its depression below the temperature of the air at Madras and Bombay respectively; this depression is generally small. It is nearly uniform throughout the year at Madras, but differs at Bombay, where it is much larger in the winter than in the summer months. The numbers in the next two columns show the very large quantity of water mixed with the air, and which is differently distributed at the two places: the numbers in the next two columns show the amount of water needed to saturate a cubic foot of air; and a great difference exists between the amount at the two places in the summer months: and the last two columns show the monthly degree of humidity.

At Madras the driest month is June, and the most humid November. At Bombay the driest period of the year is from November to May, there being but little difference in the monthly degrees of humidity in the intervening months.

A great change takes place from April to May, and the air is very humid from June, the most so in July, and continues humid till October, when a considerable change takes place. The contrast in respect to the humidity between Madras and Bombay is very remarkable; in the summer months, at Madras the air is least moist, and is the most so in winter, while the reverse of this takes place at Bombay.

The average yearly results are shown in the bottom line of the several tables.

The variation of the mean annual temperature of the dew point is from 71° to 74° at Madras, and from 71° to 72° at Bombay.

Amount of water in a cubic foot of air, is from 7·8 grs. to 8·9 grs. at Madras, and from 7·0 grs. to 7·4 grs. at Bombay.

Amount required to saturate a cubic foot of air, is from 1·0 gr. to 4·3 grs. at Madras, and from 2·4 grs. to 3·4 grs. at Bombay.

Degree of humidity of the air, is from 65° to 79° at Madras, and from 69° to 78° at Bombay.

Thus the variations of the hygrometrical states of the air at the same place varies a good deal from year to year, and also varies very much at different places in the same year. Therefore no valuable deductions can be made from the observations I have collected. See Tables CXIV. to CXVII., CXXIV. to CXXVII., and CXXXIV. to CXXXVII.

The monthly and other periods of the several hygrometrical results will be found in the Tables LXXXIII. to LXXXVI. The monthly values are collected together in the following tables, arranged in the order of latitude, proceeding from south to north.

By looking over the results in these tables, there is no regular increase or decrease with either latitude or longitude in any section. The effect of elevation is everywhere clearly shown by the almost proportional lower reading of the dew point, less water present with the air, a nearer approach to saturation, and a higher degree of humidity; but very little can be inferred or used beyond these deductions. In no instance, as before remarked, has a direct determination of the dew point been made at high elevations; but in every case where such observations have been made, the dry and wet-bulb thermometers have alone been used.

TABLE XLI. showing the Average Hygrometrical State of the Air as deduced from 20 years' observation at the Royal Observatory, Greenwich.

MONTHS.	Dew Point Temperature.	Weight of Vapour in a Cubic Foot of Air.	Additional Weight required for Saturation.	Degree of Humidity.
January	35	2·4	0·3	89
February	34	2·3	0·4	85
March	36	2·5	0·6	82
April	40	2·9	0·8	79
May	45½	3·4	1·1	76
June	51	4·2	1·5	74
July	54	4·6	1·6	76
August	54	4·7	1·5	77
September	51	4·2	1·0	81
October	46	3·6	0·6	87
November	40	2·9	0·4	89
December	40	2·6	0·4	89
Means	44	3·3	0·8	82

The average hygrometrical states of the air at different stations, or at small groups of stations near together, where their results have been accordant with each other, have been taken, and the general state of the moisture of the air over India will most readily be seen by glancing the eye over the following tables. At the same time their differences from England may also as readily be seen by comparing them with those of England, which are shown in the preceding table.

TABLE XLII. showing the Hygrometrical States of the Atmosphere at different Stations, or at small Groups of Stations near together.

MONTHS.	Dodabetta.				Madras.				Belgaum and Sattara.			
	Lat. 11° 25' N. Long. 77° 5' E.				Lat. 13° 6' N. Long. 80° 21' E.				Lat. 16° 48' N. Long. 73° 58' E.			
	8,640 feet.								2,260 feet.			
	Temperature of Dew Point.	Mean Amount of Vapour in a Cubic Foot of Air.	Short of Saturation in a Cubic Foot of Air.	Degree of Humidity Saturation = 100.	Temperature of Dew Point.	Mean Amount of Vapour in a Cubic Foot of Air.	Short of Saturation in a Cubic Foot of Air.	Degree of Humidity Saturation = 100.	Temperature of Dew Point.	Mean Amount of Vapour in a Cubic Foot of Air.	Short of Saturation in a Cubic Foot of Air.	Degree of Humidity Saturation = 100.
January	40	2·8	1·6	64	67	7·2	2·5	75	57	5·0	3·6	58
February	50	4·1	0·3	93	68	7·3	3·0	71	56	4·9	4·9	51
March	45	3·4	1·5	70	71	8·1	3·2	72	59	5·4	5·3	50
April	50	4·1	0·9	81	76	9·4	3·0	76	60	5·6	6·1	48
May	53	4·5	0·7	87	76	9·3	4·3	69	66	6·8	4·1	61
June	51	4·2	0·3	93	73	8·5	4·7	64	68	7·5	2·0	79
July	51	4·2	0·3	93	73	8·7	4·1	68	67	7·3	1·9	80
August	51	4·2	0·3	93	74	8·9	3·5	72	69	7·4	1·2	87
September	51	4·2	0·3	93	75	9·1	2·9	76	67	7·3	1·6	80
October	51	4·2	0·3	93	74	8·9	2·8	76	63	5·2	3·0	68
November	50	4·1	0·3	93	71	8·2	2·1	79	61	5·9	3·3	64
December	47	4·6	0·6	86	69	7·5	2·5	75	57	5·2	3·2	61
Means	49	4·0	0·6	87	72	8·4	3·2	63	62	6·2	3·9	66

(continued.)

MONTHS.	Bellary and Secunderabad.				Mahableshwur.				Dapoolie and Bombay.			
	Lat. 17° 14' N. Long. 77° 46' E.				Lat. 17° 59' N. Long. 73° 30' E.				Lat. 18° 20' N. Long. 73° 4' E.			
	1,650 feet.				4,600 feet.				832 feet.			
	Temperature of Dew Point.	Mean Amount of Vapour in a Cubic Foot of Air.	Short of Saturation in a Cubic Foot of Air.	Degree of Humidity Saturation = 100.	Temperature of Dew Point.	Mean Amount of Vapour in a Cubic Foot of Air.	Short of Saturation in a Cubic Foot of Air.	Degree of Humidity Saturation = 100.	Temperature of Dew Point.	Mean Amount of Vapour in a Cubic Foot of Air.	Short of Saturation in a Cubic Foot of Air.	Degree of Humidity Saturation = 100.
January	54	4·5	5·3	47	51	4·1	3·7	53	66	6·9	2·3	75
February	56	4·8	6·2	44	47	3·5	4·5	44	67	7·2	2·6	73
March	59	5·2	8·2	39	49	3·8	5·6	40	71	8·2	2·9	73
April	64	6·4	6·9	49	53	4·3	6·0	41	75	9·5	2·9	76
May	62	5·8	7·7	45	61	5·7	4·0	59	77	10·0	3·1	76
June	67	7·0	6·2	54	66	6·9	1·4	83	73	8·7	4·0	69
July	68	7·5	3·8	66	65	6·9	0·9	88	76	9·5	1·8	85
August	69	7·4	3·8	66	65	6·8	0·5	94	75	9·3	1·6	85
September	66	7·0	4·3	62	63	6·2	1·3	83	75	9·3	1·4	87
October	66	7·0	3·6	65	64	6·6	0·9	88	73	8·7	2·4	78
November	62	6·1	3·0	67	54	4·7	2·6	64	69	7·8	2·2	78
December	57	5·0	3·6	58	53	4·4	2·9	60	64	6·4	3·0	69
Means	63	6·2	4·6	55	57	5·3	2·8	66	71	8·4	2·5	77

(continued.)

TABLE XLII. showing the Hygrometrical States of the Atmosphere at different Stations—continued.

MONTHS.	Poona, Dhoolia, Ahmednuggur, and Seroor.				Rajcote Kurrachoe, Deesa, and Hyderabad.				Thyet Myo.			
	Lat. 20° 27' N. Long. 74° 48' E.				Lat. 24° 28' N. Long. 73° 16' E.				Lat. 20° 18' N. Long. 92° 46' E.			
	1,613 feet.				244 feet.				240 feet.			
	Temperature of Dew Point.	Mean Amount of Vapour in a Cubic Foot of Air.	Short of Saturation in a Cubic Foot of Air.	Degree of Humidity. Saturation = 100.	Temperature of Dew Point.	Mean Amount of Vapour in a Cubic Foot of Air.	Short of Saturation in a Cubic Foot of Air.	Degree of Humidity. Saturation = 100.	Temperature of Dew Point.	Mean Amount of Vapour in a Cubic Foot of Air.	Short of Saturation in a Cubic Foot of Air.	Degree of Humidity. Saturation = 100.
January -	55	4.6	3.6	57	48	3.7	3.7	50	46	3.4	4.9	41
February -	52	4.2	5.2	44	51	4.1	4.7	47	47	3.5	7.1	32
March -	50	3.9	7.3	36	56	4.8	6.8	42	45	3.2	8.5	27
April -	57	5.0	8.4	37	61	5.7	8.2	42				
May -	63	6.3	7.0	48	69	7.3	7.8	48	69	7.4	5.4	58
June -	68	7.3	4.3	64	73	8.4	6.4	57	67	7.0	4.0	63
July -	70	7.8	2.5	76	75	9.0	4.5	67	75	9.4	2.3	80
August -	69	7.6	2.3	78	74	8.9	3.3	73	74	8.9	2.8	76
September -	69	7.7	2.1	78	71	8.1	4.0	67	75	9.1	2.9	76
October -	63	6.4	3.8	63	64	6.4	5.6	53	74	9.1	2.2	80
November -	55	4.8	4.5	52	50	3.9	6.1	39	65	6.6	2.8	70
December -	49	3.9	4.3	48	47	3.6	4.4	46	61	5.8	3.0	66
Means -	61	6.1	4.3	59	61	6.3	5.7	56	62	6.5	4.7	58

(continued.)

MONTHS.	Calcutta and Fort William.				Hazareebaugh and Kherwarrah.				Darjeeling.			
	Lat. 22° 34' N. Long. 88° 25' E.				Lat. 25° 21' N. Long. 82° 18' E.				Lat. 27° 2' N. Long. 88° 10' E.			
	585 feet.				1,550 feet.				7,000 feet.			
	Temperature of Dew Point.	Mean Amount of Vapour in a Cubic Foot of Air.	Short of Saturation in a Cubic Foot of Air.	Degree of Humidity. Saturation = 100.	Temperature of Dew Point.	Mean Amount of Vapour in a Cubic Foot of Air.	Short of Saturation in a Cubic Foot of Air.	Degree of Humidity. Saturation = 100.	Temperature of Dew Point.	Mean Amount of Vapour in a Cubic Foot of Air.	Short of Saturation in a Cubic Foot of Air.	Degree of Humidity. Saturation = 100.
January -	62	5.9	2.5	69	50	4.1	3.0	58	38	2.6	0.7	77
February -	64	6.4	3.5	64	54	4.5	3.8	55	41	2.9	0.5	85
March -	72	8.3	3.9	68	57	4.9	4.8	50	45	3.4	0.8	80
April -	76	9.5	4.3	69	60	5.4	7.2	43	48	3.8	0.9	80
May -	79	10.4	3.5	75	67	7.1	6.8	55	54	4.7	0.7	87
June -	81	11.0	2.6	80	66	6.8	6.8	50	59	5.6	0.4	94
July -	80	10.7	1.9	85	69	7.4	5.2	60	60	5.8	0.4	94
August -	80	10.8	1.5	87	75	9.3	1.7	85	60	5.8	0.4	94
September -	81	11.0	1.6	87	71	8.2	2.9	74	58	5.4	0.4	94
October -	76	9.7	2.4	80	63	6.3	3.4	64	49	3.9	1.3	75
November -	69	7.7	2.6	75	52	4.5	3.1	59	43	3.1	1.1	74
December -	61	6.0	2.6	69	53	4.5	2.2	68	40	2.8	0.5	84
Means -	73	8.9	2.7	75	61	5.9	4.1	60	49	4.1	0.7	84

(continued.)

MONTHS.	Benares and Meerut.				Landour.				Peshawur.			
	Lat. 27° 9' N. Long. 80° 30' E.				Lat. 30° 27' N. Long. 78° 10' E.				Lat. 34° 20' N. Long. 71° 29' E.			
	585 feet.				7,000 feet.				1,056 feet.			
	Temperature of Dew Point.	Mean Amount of Vapour in a Cubic Foot of Air.	Short of Saturation in a Cubic Foot of Air.	Degree of Humidity. Saturation = 100.	Temperature of Dew Point.	Mean Amount of Vapour in a Cubic Foot of Air.	Short of Saturation in a Cubic Foot of Air.	Degree of Humidity. Saturation = 100.	Temperature of Dew Point.	Mean Amount of Vapour in a Cubic Foot of Air.	Short of Saturation in a Cubic Foot of Air.	Degree of Humidity. Saturation = 100.
January -	51	4.2	2.3	65	27	1.7	1.6	49	39	2.7	1.3	67
February -	54	4.7	2.6	65	32	2.1	1.1	65	43	3.1	1.4	69
March -	58	5.3	4.9	55	36	2.4	2.8	45	56	4.9	1.5	77
April -	58	5.1	8.5	38	41	2.9	3.9	42	66	7.0	2.4	74
May -	71	8.1	6.8	54	53	4.4	3.9	53	62	6.0	6.4	48
June -	77	9.7	5.8	62	57	5.1	3.7	58	72	8.1	7.2	53
July -	82	11.7	2.0	86	63	6.3	1.7	78	74	8.8	6.9	56
August -	75	9.5	3.1	74	64	6.6	0.9	88	74	8.9	5.5	61
September -	77	10.1	2.1	82	59	5.5	1.5	78	65	6.4	6.8	49
October -	73	8.8	1.3	87	46	3.4	1.8	65	56	5.0	3.5	57
November -	61	5.8	2.3	72	34	2.3	1.7	57	45	3.3	2.5	58
December -	51	4.2	2.0	67	29	1.8	1.5	54	39	2.7	1.3	67
Means -	66	7.2	2.1	67	44	3.7	2.2	61	57	5.6	3.9	61

The places whose hygrometrical state seems to be the nearest to that of England are Dodabetta and Darjeeling. Landour, at the same elevation as Darjeeling, has the same annual temperature of the dew point, and the amount of water mixed with the air is nearly the same, but the amount of water required to saturate a cubic foot of air is three times as large as in England, and therefore the air is very much less humid than in England.

At all the other stations, the dew point is a great deal higher than in England, the water present in the air is everywhere greater, and the water required to saturate the air is also greater, so that the air is upon the whole year much less humid than in England, and particularly so in the winter months.

At some stations it is also less humid all the year round, as at Madras a little less; at Bellary and Secunderabad, always much less; and at Rajcote, Kurrachee, Deesa, Hyderabad, and the country intervening and adjacent, very much less: this part of India is the least humid of any, and at the extreme northern station of Peshawur.

At other stations, such as Belgaum and Sattara, Mahabeshwur, Dapoolce, Bombay, Thyet Myo, Calcutta, and adjacent country, and so up to Benares and Meerut, the air is more humid in the summer months, and less humid in the winter months, than in England.

Upon the whole it seems that the heights ranging for the same hygrometrical states of the air as in England, differ but little if any from those ranging for the same temperature of the air as in England.

SECTION VIII.

On the Fall of Rain in India.

On the Fall of Rain in India.

The monthly, quarterly, half-yearly, and yearly falls of rain in the three presidencies, arranged in the order of latitude, will be found in the Tables CXXXIX. to CXLI., pages 920 to 943.

An inspection of the tables will show the fall of rain in every month: the most remarkable are at Mercara 55 inches in July; at Mahabeshwur 92 inches in July, followed by 72 inches in August; at Malcolm Pait 72 inches in July. In the southern part of the coast rain seems to fall in every month; whilst in the northern parts, little or none falls in the months from November to April.

The following tables have been arranged in three divisions:—

1st. Those stations situated in the order of latitude on the west coast, forming Group I.

2nd. Those stations situated in the order of latitude on the east coast, forming Group II.

3rd. Groups of stations near to each other in the interior of the country, within certain limiting parallels of latitude and longitude, forming Groups III. to XIX.

By an inspection of the monthly falls of rain at stations in Group I., Table LXXXVII., it will be seen that generally the heaviest falls occur in June and July, but chiefly in the latter month. The largest fall in the table is 92 inches in July at Mahabeshwur, with 42 inches in the preceding and 72 inches in the following months; thus in June, July, and August, the fall at this station is no less than 221 inches. At Malcolm Pait, in the same three months, the fall amounts to 187 inches, 72 of which fell in July. At several of the other stations the amount in this month is greater than 30 inches, at a few it exceeds 40 inches, and at Mercara in July the amount is 56 inches. These amounts exceed the annual fall at the extremity of the peninsula. In contrast, the fall of rain at Kotri and Kurrachee is exceedingly small; the largest in one month was 1½ inch at Kotri; and 1½ inch at Kurrachee.

In this group most singular differences therefore occur, starting from Cape Comorin and Vaurioor, at the southern extremity of Madras, the fall is small, amounting in the year only to 25 or 28 inches. Passing up the coast to Trevandrum the fall increases to 65 inches, to 85 at Quilon, to 105 at Cochin; then at all the stations on the coast south of 17° north latitude, the falls exceed 120 inches, excepting at Vingorla, which was about 1½ inch less, whilst at Mercara the fall was as large as 143 inches. Passing still higher up the coast the falls exceeded 120 inches, till at Mahabeshwur, the fall is no less than 254 inches. This station is at an elevation of 4,500 feet, in latitude 17° 59' N., and longitude 73½° E. Still passing northwards, at Bombay the fall is decreased to 73 inches, but at Tanna a little more north the fall is as large as 105 inches. Passing still more north the fall diminishes in amount; at Baroda it amounts to 35 inches only, at Rajcote to 27 inches, at Ahmedabad it is 24 inches; and following the same direction, we come to the driest part of India, where scarcely any

rain falls at all; at Kotri, for instance, in latitude 23° 54' N., and longitude 68½° E., less than 2 inches fall in the year, and at Kurrachee less than 5 inches.

We thus see that there are very remarkable discrepancies in the fall of rain on the Malabar coast, varying in amount from 28 inches at Cape Comorin to 143 inches at Mercara; and stations situated near together give very different results, so much so that no grouping of means can be taken, as applying to any extent of coast line.

An inspection of the tables forming Group II., Table LXXXVIII., will show the fall of rain monthly at several stations on the east coast of India. The largest in the table in one month is 32 inches in November at Nellore; the next in order 19½ inches at Poonamallee, also in November; and south of latitude 14° the heaviest falls of rain seem to take place in this month; whilst on the opposite coast the heaviest falls occur in July: north of this parallel, viz., 14°, the heaviest falls occur in July and August, the largest of which, 14½ inches, took place at Pooree.

Starting again from Cape Comorin, with its fall of 28 inches, and passing up the east or Coromandel coast, the fall of rain increases in amount, but to a much less extent than on the Malabar coast; at Palamcottah it amounts to 56 inches, at about Madras to 50 inches, reaching to 60 inches at Nellore: at more northern stations it varies between 34 inches and 50 inches; at Balasore, on the coast, in latitude 21½° N. and longitude 87° E., the fall amounts to 31 inches only; and at a little higher up, and inland, at Midnapore to 22½ inches.

These falls exhibit a great contrast to the very large falls on the opposite coast, but the same wide differences in the amount collected at adjacent places are shewn on this coast as was found to be the case on the western coast.

Group III., Table LXXXIX., includes all those stations from which I have returns, which are situated between the Malabar and Coromandel coasts, south of latitude 15°.

In this part of the country rain falls generally to small amounts in every month of the year, varying in amount from 20½ inches at Combatoore to 37 inches at Shenkottah. The average fall at the several stations, omitting that at Dodabetta is 28½ inches. At Dodabetta, from two years' observations, at an elevation of 8,640 feet, the annual fall amounts to 101 inches, of which 20 fall in April, and about 12 inches in each of the last three months of the year.

By comparing the falls in this portion of the country with those at places on the adjacent coasts similarly situated with respect to latitude, we learn the following particulars:—

On the Malabar coast, with a mean longitude of about 75° 50', the annual rain-fall varies from 105 to 143 inches, of which the greater part falls in the months from May to September.

In the central portion of the district, with a mean longitude of about 77½°, the annual fall varies from 21 to 37 inches, spread almost equally over the year.

On the Coromandel coast, with a mean longitude of about 79°, the annual fall varies from 42 to 56 inches, October and November being the wettest months.

Group IV., Table XC., includes stations in Bombay situated between latitudes 15° 50' and 17° 40' N., and longitudes 74° to 77° E.

The heaviest falls in this group, as in Group I., take place in the months of June, July, and August, but to a much less amount than in that group. The largest falls were at Belgaum; in the three months ending August the fall amounts to 31 inches, of which 15 inches were in July. The next in amount is Sattara, a station of very nearly the same elevation as Belgaum, in July nearly 12 inches, fall. Within this group rain generally falls during nine months of the year, the three months December to February being nearly free from rain.

The annual fall at Belgaum is about 51½ inches, and the average of the other stations is about 30 inches.

Group V., Table XCI., is comprised between the latitudes 15° 50' and 18° 50' N., and longitudes 77° and 78½° E.

At Kurnool, within this group, the largest monthly fall is in July, viz. 17 inches, and in the three months ending August at the same station 40 inches, the annual fall amounting to 72 inches nearly. At Bellary and Seroor the fall is about 21 inches, whilst at Secunderabad it amounts to 34½ inches. The mean of these three stations gives 25½ inches, as the average fall of rain over this part of the country.

Group VI., Table XCII., is comprised of stations in Bombay between latitudes 18° and 18½° N., and longitudes 73½° and 74½° E.

The mean annual fall of rain at the two lower stations is 24½ inches, whilst at the third station, Poorundhur, at the height of 4,200 feet, it amounts to 72½ inches, of which 23 inches fall in July, and nearly 50 inches in the three months ending August.

Group VII., Table XCIII., consists of three stations only, between the latitudes $19\frac{1}{2}^{\circ}$ and 21° N., and longitudes $73\frac{1}{2}^{\circ}$ and $75\frac{1}{2}^{\circ}$ E.

These results differ very much, varying from $28\frac{1}{2}$ inches at Nassik to three times as much at Dhoolia, viz., $83\frac{1}{2}$ inches, whilst at Aurungabad the amount is intermediate, viz., 44 inches. The mean of the three is $52\frac{1}{2}$ inches nearly. The greatest monthly fall is 21 inches, in July, at Dhoolia; in the four months ending September the fall at this station amounts to 66 inches. At Malligaum, a station between Nassik and Dhoolia, but nearer to the latter than the former station, a small fall of rain in the year is reported to take place, but I have been unable to obtain sufficient information to speak decidedly upon this point.

Group VIII., Table XCIV., comprises stations situated to the east of Group VII., between the latitudes 21° and $23\frac{1}{2}^{\circ}$ N., and longitudes 78° and 80° E.

At all the six stations comprising this group, the heaviest falls occur in July. The four wet months are June to September. The results agree pretty well together. The mean annual fall is about 40 inches.

Group IX., Table XCV., is comprised of stations between the latitudes $23\frac{1}{2}^{\circ}$ and $25\frac{1}{2}^{\circ}$ N., and from longitudes 69° to 75° E.

This group of stations includes Mount Aboo, at the height of 4,000 feet, where the fall of rain in the four months ending September amounts to 62 inches, 26 of which fall in July.

The annual fall at the other stations varies from 16 to 34 inches, and averages 24 inches in the year. The fall at Mount Aboo in the year is 65 inches nearly, the excess of 41 inches is due to its elevation.

Group X., Table XCVI., is comprised of stations between latitudes 20° and $27\frac{1}{2}^{\circ}$ N., and longitudes $91\frac{1}{2}^{\circ}$ and 93° E.

The fall of rain throughout this extent of country is very large, and it includes that remarkable station at which, so far as I know, the heaviest falls of rain take place at any place in India, viz., Chirrapoongee, at an elevation of 4,500 feet: the fall of rain at this station in April is 22 inches, in May 62 inches, in June 195 inches, in July, 121 inches, in August $103\frac{1}{2}$ inches, in September 75 inches nearly, and in October 29 inches; within the seven amounting to a fall of no less than 608 inches: there, none falls in November and December, and less than 5 inches in the first three months of the year. Very heavy falls take place at some of the other stations: at Akyab $59\frac{1}{2}$ inches fell in June; at Sylhet the falls are very heavy, and but one month, viz., November, is free from-rain.

The annual fall of rain at eight other stations, omitting Sylhet and Chirrapoongee, is 78 inches; at Sylhet the fall is 210 inches, and Chirrapoongee $612\frac{1}{2}$ inches in the year.

Group XI., Table XCVII., comprises stations situated W. of the last group, and nearly parallel to it, between latitude $23\frac{1}{2}^{\circ}$ and $26\frac{1}{2}^{\circ}$ N., and longitudes $89\frac{1}{2}^{\circ}$ and $91\frac{1}{2}^{\circ}$ E.

These stations yield results of a similar character to those of Group IX., Table XCV., the fall is large at all of them, and not differing very greatly from each other. The falls in June are the heaviest, varying from 19 inches to 43 inches. No rain falls in the last two months of the year, and but little in the first four months. The average fall from the six stations is $93\frac{1}{2}$ inches, and for the district of country between $91\frac{1}{2}$ and $91\frac{1}{2}$ may very fairly be assumed to have a fall varying from 78 to 92 inches; and if so, the very large area of 5° of longitude and 7° or 8° of latitude, partakes of these very heavy falls.

In Group XII., Table XCVIII., stations are situated to the west of the last group, and comprise the country between latitudes $22\frac{1}{2}^{\circ}$ and $23\frac{1}{2}^{\circ}$ N. and longitudes $88\frac{1}{2}^{\circ}$ and $89\frac{1}{2}^{\circ}$ E.

This space includes Calcutta, immediately round which rain falls heavily in the four months ending September, amounting to very nearly the annual fall. Some rain, however, seems to fall in every month at Calcutta, the average annual amount is about 60 inches. At two stations in the same longitude, a little to the N., the average annual fall is about 38 inches, and perhaps the mean fall within the above limits may be considered as about $49\frac{1}{2}$ inches. At Midnapore, a station nearly in the same parallel of latitude as Calcutta, but $1\frac{1}{2}^{\circ}$ W. of it, the fall of rain in one year 1851, was $22\frac{1}{2}$ inches only.

Group XIII., Table XCIX., consists of four stations only, between latitudes $24\frac{1}{2}^{\circ}$ and $26\frac{1}{2}^{\circ}$ N., and longitudes 85° to $85\frac{1}{2}^{\circ}$ E.

The fall of rain at these stations is small, amounting to an average in the year less than 30 inches: the fourth station, viz., Uttra Mullay, has a fall of 230 inches, but this increased amount is accounted for by its height of 4,600 feet. At this station rain falls in every month of the year, in October to the amount of 50 inches.

Group XIV., Table C., includes stations between latitudes $25\frac{1}{2}^{\circ}$ and $23\frac{1}{2}^{\circ}$ N., and longitudes 87° and $88\frac{1}{2}^{\circ}$ E.

The results of these four stations agree pretty well among themselves, and the average fall may be considered for this part of the country as 45 inches.

Group XV., Table CI., is comprised of three stations, situated a little to the north and west of Calcutta, between latitudes $23\frac{1}{2}^{\circ}$ and $23\frac{3}{4}^{\circ}$ N., and longitudes 87° and 88° E.

The results are accordant with each other, and about one-half only of the fall at Calcutta; the average annual fall is $30\frac{1}{2}$ inches.

Group XVI., Table CII., comprises five stations, situated N.E. and W. of Calcutta, between the latitudes $23\frac{1}{2}^{\circ}$ and $24\frac{1}{2}^{\circ}$ N., and longitudes $85\frac{1}{2}^{\circ}$ and $88\frac{1}{2}^{\circ}$ E.

The results, with the exception of that from Bauliah, the extreme north station of the group, are accordant with each other. The heaviest monthly falls are in June and July, and the average fall for the year from all the stations is $46\frac{1}{2}$ inches. At Darjeeling, a station some degrees N. of Bauliah, in latitude $22^{\circ} 25'$ N., and longitude $87^{\circ} 19'$ E., at an elevation of 7,000 feet, the fall of rain in the year amounts to 124 inches, a small amount for its elevation.

Group XVII., Table CIII., includes stations between latitudes 25° and $26\frac{1}{2}^{\circ}$ N., and longitudes $81\frac{1}{2}^{\circ}$ and $83\frac{1}{2}^{\circ}$ E.

There are five wet months within these limiting parallels; the largest fall, $61\frac{1}{2}$ inches, is at Goruckpore, the height of which I do not know; the mean of the five stations is 42 inches, and is probably near the truth for this part of the country.

Group XVIII., Table CIV., comprise those stations, within the latitudes 26° and $30\frac{1}{2}^{\circ}$ N., and longitudes $76\frac{1}{2}^{\circ}$ and $79\frac{1}{2}^{\circ}$ E.

Within these limits there are 12 stations, one of which, Nynee Tal, is 6,400 feet in height, and, as was to be expected, yields the largest rain-fall in the group. In the four wet months, June to September, at this station, the falls amount to $79\frac{1}{2}$ inches, of which 23 inches fall in July and 29 in August. The fall for the year is 96 inches.

The station Meerut, within this group, seems remarkable for its small fall of rain, 18 inches only in the year, but this result is entitled to but little weight, as the observations are for one year only, and I cannot learn anything about the position of the gauge, and the same remarks apply to Roorkee. The mean of all, excepting Nynee Tal, give $30\frac{1}{2}$ inches as the annual fall of rain for this district.

A little greater elevation than Nynee Tal, viz. 7,000 feet, and situated N.E. of it, in latitude $30^{\circ} 27'$ N. and longitude $78^{\circ} 10'$ E., the annual fall of rain at Landour is 93 inches nearly.

Group XIX., Table CV., is comprised of three stations, between the latitudes $30^{\circ} 34'$ and $30^{\circ} 57'$ N., and longitudes 74° and $78\frac{1}{2}^{\circ}$ E., and the four extreme north stations are added to the group.

The three stations are Mean Meer, Loodiana, and Ferozepore: rain falls in small amounts in the first nine months of the year, and none or to very small amounts in the remaining three months, the annual falls are $16\frac{1}{2}$ inches, $16\frac{1}{2}$ inches, and $18\frac{1}{2}$ inches, respectively, giving a mean annual fall of 17 inches only.

In nearly the same longitude as Mean Meer, but at a little more than a degree greater north latitude, the fall at Punjab amounts to nearly 57 inches in the year, 23 inches of which fall in July.

At Meera, which is in $32^{\circ} 37'$ N. and $70\frac{1}{2}^{\circ}$ E., the annual fall of rain is 50 inches nearly, 23 inches of which fall in July.

At the two extreme north stations, viz., Rawul Pindi, in latitude $33^{\circ} 34'$ N. and longitude $73^{\circ} 5'$ E., at an elevation of 1,500 feet, the fall returned for the year 1859 was $17\frac{1}{2}$ inches only; and at Peshawur, in latitude $34^{\circ} 20'$ N. and longitude $71^{\circ} 29'$ E., and at an elevation of 1,056 feet, the annual fall of rain is less than 14 inches.

REMARKS ON THE CLIMATE OF STATIONS IN THE PRESIDENCY OF BENGAL.

Bengal Presidency.

Lies between latitude 20° and 31° N., and longitude 74° and 91° E., and is within the basin of the Ganges. This presidency is much the largest of the three into which India is divided. It includes the districts of Assam, Cachar, Arakin, the Tenasserim provinces, and the possessions in the straits of Malacca, as Penang, Singapore, &c.: the most southern of which reaches within one degree of the Equator. The high table lands and high districts lie to the west and north. The climate presents every variety.

Straits Settlements.—Singapore.

Latitude, $1^{\circ} 16'$ N. Longitude, $103^{\circ} 53'$ E.

Height above sea, 30 ft.

The nearest hill of any height is Bukel Timee, 5 or 6 miles distant from the station, which is open and freely

exposed to the winds. A gentle breeze almost daily moderates the heat; the land or jungle wind is the coldest; the sea breeze being sensibly warmer, and often produces lassitude, and sometimes fever.

The climate is moist, moderately hot; not variable; and is damp from the constant rain and its proximity to the sea. Dust is seldom troublesome.

Straits Settlements.—Penang.

Latitude, between 5 14' and 5° 29' N.
Longitude, 100° 25' E.

Height above sea, a few feet.

A hill 2,500 ft. in height, is 4 miles distant. The station, is exposed to the sea breeze only, which is generally light and healthy.

It rains frequently, though not constantly, all the year round, this, with the sea air, and occasional light breezes, renders the climate decidedly good. In comparison with India generally the thermometer averages 5° or 10° less. These good effects are somewhat counteracted by the relaxing nature of the climate, owing to a powerful sun converting the moisture into steam, and to the remarkable absence of motion in the air, particularly in the evening.

Mergui.

Latitude, 12° 27' N. Longitude, 98° 42' E.
Height above sea, 200 ft.

There are hills of some height on the opposite bank of the river.

The station is open to both land and sea breezes. The former blow from May to October, and the latter during the other months of the year.

The climate is considered the best in Burmah. The air is moist and the temperature variable. The nights are always cool, and hence sleep is refreshing.

Tavoy.

Latitude, 14° 7' N. Longitude, 98° 18' E.
Height above sea, 12 ft.

The nearest mountain is the Ox's Hump, between 30 and 40 miles east of the station, which is exposed to a sea breeze during the earlier months, and to a cold easterly land wind towards the end of the year.

Shway Gheen, Martaban, Province Burmah.

Latitudes, 18° 6' N.; 16° 30' N.
Longitudes, 96° 46' E.; 97° 40' E.
Height above sea, 125 ft.

There are mountains about 20 miles distant from the station, which is freely exposed to all winds. The sea breeze is occasionally felt.

The climate is dry only during the months of February, March, April, and the early part of May. It is very damp during the rest of the year, and being never very hot or very cold, its variability is not great. Fogs are rare. During the dry season the air is loaded with smoke and particles of burnt matter, from the jungles being on fire on all sides.

Tonghoo.

Latitude, 18° 57' N., 40 miles from Burmese frontier.
Longitude, 96° 30' E., 160 miles from the coast.
Height above sea 300 ft.

The nearest range of mountains are distant about 12 miles.

From November to February cold northerly land winds prevail. During the cold season dysentery cases are aggravated, and during the southerly winds fevers prevail.

The climate for a tropical one is good; from November to February the nights and mornings are cold; during the day it is dry and hot, with heavy dews at night, and fogs in the morning. From the 1st of March till the end of May it is hot and sultry. From June to October close and damp. During the hot season the station is enveloped in clouds of dust.

Rangoon. British Burmah.

Latitude, 26° 48' N. Longitude, 96° 10' E.
Height above sea varies from a few feet to 80 ft.

There are no mountains within 100 miles of the station, which is open and freely exposed; there are no ungenial cold, variable, or land winds; the sea breeze blows freely at certain seasons.

The climate is dry from the middle of October until the middle of May. Heavy dews and mists prevail during January, February, and March. The day heat is excessive from March till May, but a refreshing sea breeze generally sets in about 4 p.m.; the nights and mornings are cool. The temperature usually varies about 20° in the 24 hours.

Thyet Myo.

Latitude, 20° 18' N. Longitude, 92° 46' E.
Height above sea 240 ft.

There is a range of small hills, 3 miles S.S.W. of the station, which is open where houses are built, but the jungle grows close up to the confines, and therefore it is not freely exposed to the winds. There is no sea breeze.

The character of the climate, as compared with Indian stations generally, is that of greater moisture of atmosphere and more clouded state of sky.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 84° in December to 101° in April.

The low night temperature varies from 53° in January to 78° in May, August, and September.

The mean annual temperature of the air is about 80; the mean daily range 19°.

The annual fall of rain is about 48 in., of which 17 in. fall in the month of June, and 33 in. in the three months, June, July, and August.

Cuttack.

Latitude, 20° 28' N. Longitude, 85° 55' E.
Height above sea, 80 ft.

A range of mountains extends within 20 miles of the station, which is, generally speaking, fully exposed to the winds. The land wind is prevalent during the N.W., and a sea breeze during the S.W. monsoon. The latter, by modifying the temperature during the hot season, exercises a salutary effect.

The following are the approximate mean monthly values of temperature.

The high day temperature varies from 76° in December to 96° in May.

The low night temperature varies from 61° in December to 81° in June.

The mean annual temperature is about 79°; mean daily range 13°.

Seetabuldee.

Latitude, 21° 10' N. Longitude, 79° 9' E.
Height above sea, 939 ft.

The nearest mountain is Ramakonah, 25 miles distant from the station, which is open and freely exposed to the winds.

The climate is good. It is hot from March 15 to June 15; wet till September 30, and during the remainder of the year moderately cool.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 74° in December to 99° in May.

The low night temperature varies from 61° in January to 92° in May.

The mean annual temperature is about 82°, mean daily range 8°.

The annual fall of rain is about 47 in., of which 13 in. fell in June, 12½ in. in July, and 11 in. in August, making 43½ in. in the three months.

Latitudes, 22° to 34°.

Dera Ismael Khan.

Latitude, 22° N. Longitude, 71° E.

This station is situated at the northern extremity of the Dera, and on the right bank of the Indus.

There is considerable variation of climate between the different seasons in this part of the trans-Indus country. During the warm weather, for five or six months of the year, the heat is generally intense, and of a dry character, while during the winter months the weather is sometimes extremely cold; a sharp cutting wind blowing from the W. over the snow-covered tops of the Saliman range. The rainy season is of very short duration, and but little rain falls during the year.

The following are the approximate mean monthly values of temperature.

The high day temperature varies from 81° in January to 97° in May.

The low night temperature varies from 62° in January to 84° in June.

The mean annual temperature is about 80°, mean daily range 14°.

Fort William, Calcutta.

Latitude, 22° 34' N. Longitude, 88° 25' E.
Height above sea, 18 ft.

Nearest elevation, the Rajmahal Hills, 130 miles distant. During the cold season the prevailing N. and N.W. winds are bracing and invigorating. In the hot weather

the prevailing S. and S.S.E. winds are from the sea, and their usual beneficial effect is much lower. The temperature of the station is high, but the extremes of heat are moderated by contiguity to the ocean, rivers, and lakes. The atmosphere is generally moist. The elevation of the thermometer during the hot, and depressions during the cold seasons, are not so great as up the country, and the climate is more equable though more humid.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 77° in December to 94° in May.

The low night temperature varies from 59° in December to 81° in June.

The mean annual temperature of the air is about 82°; mean daily range 13°.

The annual fall of rain is about 61 inches, of which 40 inches fell in three months ending August.

Dum Dum.

Latitude, 22° 38' N., 8 miles from Calcutta.

Longitude, 88° 30' E., 10 miles from Barrackpore.

Height above sea, 18 ft.

Nearest mountain is Parisnath, 121 miles from the station, which, as a general rule, is not exposed to cold or variable winds, but is under the influence of the N.E. and S.W. monsoons; the latter is the sea-breeze.

The climate of Dum Dum, as of all Lower Bengal, is very moist. The weather is not very cold, as in the N.W. provinces, and never so hot, dry, and trying, even in the hot season, as up the country. There is a thick mist nearly every morning, hanging over the station, for a month before the hot season commences. There is no dust at any time sufficient to render the air impure, or other admixture affecting the atmosphere unfavourably.

The temperature about Calcutta is more tropical than in several of the districts of India further south.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 72° in December to 97° in May.

The low night temperature varies from 58° in January to 82° in June and July.

The mean annual temperature of the air is about 78°; mean daily range 14°.

The fall of rain averages about 60 in. in the year.

Barrackpore.

Latitude, 22° 45' N. Longitude, 88° 23' E.

This station is situated on the left bank of the Hooghly, 16 miles above Calcutta.

The rainy season commences generally about the 20th of June.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 72° in December to 97° in May.

The low night temperature varies from 58° in January to 82° in June and July.

The mean annual temperature of the air is about 78°; mean daily range 14°.

Raneegunge.

Latitude, 23° 35' N. 126 miles N.W. of Calcutta.

Longitude, 87° 10' E.

Height above sea, 370 ft.

Nearest mountain 30 miles distant from the station, which is open and freely exposed to the prevailing winds.

The climate is good, with no great or unusual variability, but is subject to heavy storms of sand and dust.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 71° in December to 97° in May.

The low night temperature varies from 56° in January to 82° in June and July.

The mean annual temperature of the air 78°; mean daily range 14°.

The annual fall of rain is about 60 in.

Hazareebaugh.

Latitude 24° N. Longitude, 85° 24' E.

Height above the sea, 1,900 feet. Elevated table land.

With the exception of the little detached hills from 300 to 600 feet high, there are no considerable mountains, or higher table-lands in the vicinity.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 72° in December to 97° in May.

The low night temperature varies from 56° in January to 83° in June.

The mean annual temperature is about 78°; mean daily range 14°.

The annual fall of rain is about 53 in.

Berhampore.

Latitude, 24° 5' N. 118 miles from Calcutta.

Longitude, 88° 17' E.

Height above sea, 76 ft.

The Ragmahal range of hills are 40 miles distant from the station, which is exposed to land winds from the W. and N.W., from October to March, and to E. and S.E. from April to September. Squalls with rain from the N.W. frequently occur in April and May, and their effect is always beneficial.

The climate is damp. There are frequent fogs in the early mornings, especially during the cold weather. The heat is very oppressive during April, May, and June, but is often reduced for two or three days at a time, by squalls from the N.W.

The temperature of this station is recorded as low as 44° in January, but in June it is as high as 109°.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 75° in December to 100° in June.

The low night temperature varies from 51° in January to 77° in December.

The mean annual temperature of the air is 77°; mean daily range 22°.

The annual fall of rain is about 50 inches, of which 30½ inches fall in the three months ending August, and 11 inches in three months ending November, the wettest month is July, the rain fall amounting to 13½ inches.

Goonah.

Latitude, 24° 39' N. Longitude, 77° 17' E.

Height above sea, 1,800 ft.

450 miles from the sea.

192 " " Mhow.

179 " " Indore.

191 " " Agra.

During the hot season the wind blows from the S.W. generally; during the rainy season the S.E. is prevalent; and during the cold season, the N.W. The west wind is hot, the east wind damp, and the N.W. cold and dry. During the prevalence of the hot winds there is generally a lull from sunset to sunrise. Previous to the setting in of the rainy season calms often occur, and the heat then is oppressive.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 76° in January to 97° in May.

The low night temperature varies from 57° in January to 83° in June.

The mean annual temperature is about 79°; the mean daily range 14°.

The annual fall of rain is about 30 inches.

Chunar.

Latitude, 25° 5' N., 16 miles from Benares.

Longitude, 83° E.

Height above sea, 250 ft.

The nearest table-land is 1½ mile distant from the station, and is about 200 ft. above its level.

The fort in which the troops are mostly located, from its great elevation, is freely exposed to winds. The rest of the station is open to winds only from the river side. The station is very little exposed to cold or variable winds, or to land winds, except in the fort; it is, however, exposed to the river breeze, which is pleasant, and generally healthy; but sometimes induces colds and fevers at the termination of the rainy season.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 76° in January to 103° in June.

The low night temperature varies from 53° in December to 81° in June.

The mean annual temperature is 80°; mean daily range 22°.

The annual fall of rain is about 50 inches; of which 36 inches fall in three months, June, July, and August.

Hameerpore.

Latitude, 25° 10' N. Longitude, 74° 43' E.

Distant 40 miles from Cawnpore.

84 " " Lucknow.

In the hot season the weather is very sultry indeed, but tempered to a great degree by the presence of trees. Dust

storms frequently occur; during the cold season the nights and mornings are sometimes very cold, fires being acceptable.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 77° in December to 96° in June.

The low night temperature varies from 57° in January to 83° in June.

The mean annual temperature is about 79°; mean daily range 15°.

The annual fall of rain is about 30 inches.

Chirrapoongee; Khasia Hills.

Latitude, 25° 14' N. Longitude, 91° 45' E.

Height above sea, 4,118 ft.

The station is open, and freely exposed to every wind. The climate is healthy, but the moisture is excessive during six months of the year. The temperature is equable; during the rainy and cold seasons, however, it is foggy. The air is cold and invigorating, and there is no impurity from dust.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 58° in December to 74° in May.

The low night temperature varies from 47° in December to 68° in July.

The mean annual temperature is about 64°; mean daily range 9°.

The average fall of rain is about 613 inches, of which 490 fall in the three months ending August; the wettest month is June, the fall being about 243 inches.

Dehree.

About six miles to the E. of the Kymore Hills.

This station is situated on the Grand Trunk Road, 86 miles from Benares:

Shinghoty.

This is a station on the Grand Trunk Road, for the reception of troops passing along by bullock train.

The climate seems good for Europeans. The cool season is pleasant, and during the hot season there is always cool air at night.

Benares.

Latitude 25° 17' N., 74 miles E. of Allahabad.

Longitude, 83° 4' E.

Height above sea, 270 ft.

The Hill fort of Rhotasgurb is on the nearest higher ground.

The station is not exposed to cold or variable winds. The prevailing winds are east and west, the latter being the more prevalent throughout the year; sudden vicissitudes are rare.

The climate of Benares, like its geographical position, is intermediate between that of Bengal and the North-western Provinces. The cold is less intense, and the heat less scorching than that of the North-west Provinces, and it is much drier than Bengal. It is not subject to sudden changes of temperature, but there are considerable diurnal alterations, especially at the commencement of the cold season. The atmosphere is generally loaded with dust during the hot westerly winds.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 68° in December to 98° in May.

The low night temperature varies from 59° in December to 88° in May.

The mean annual temperature is about 78°; mean daily range 7°.

The annual fall of rain is about 37 inches, of which 29 fall in the six months, April to September.

Allahabad.

Latitude, 25° 27' N. Longitude, 81° 50' E.

Height above sea, 368 ft.

Due south from this, running east and west, are the Kymore Hills, upwards of 2,000 ft. in height. From Mirzapore, on the Ganges, a branch of this range, in some places 1,000 ft. high, is within 15 miles.

In the dry season the air is frequently heavily laden with dust, and dust storms, at times violent, occur.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 71° in December to 98° in May.

The low night temperature varies from 54° in January to 83° in June.

The mean annual temperature is about 78°; the mean daily range 15°.

The annual fall of rain is about 35 inches.

Jhansi.

Latitude, 25° 32' N. Longitude, 78° 34' E.

Height above sea, 765 ft.

The surrounding country is void of vegetation and the soil rocky.

The prevalent winds are W. and S.W.

The climate is one of peculiar and intense heat.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 73° in December to 98° in May.

The low night temperature varies from 55° in January to 83° in June.

The mean annual temperature is about 79°; mean daily range 15°.

The annual fall of rain is about 35 inches.

Dinapore.

Latitude, 25° 38' N., 375 miles from Calcutta.

Longitude, 85° 1' E.

Height above sea, 212 ft.

Nearest mountain, Burhee, distant 120 miles from the station, which is tolerably open. The prevailing winds are the east before and during the rains, April to September, and the west for the rest of the year.

The climate is generally a medium one, between the damp of Bengal and the drought of the N.W. provinces. It is tolerably dry in the cold weather, yet not so much as to wither up the grass; neither is the heat in April, May, and June, nor the cold in November, December, and January, so great as in the north-west. It is tolerably free from dust, and moderately variable only. Fog occasionally in November and December.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 69° in December to 98° in May.

The low night temperature varies from 53° in January to 83° in June.

The mean annual temperature is about 78°; mean daily range 15°.

The annual fall of rain is about 30 inches.

Ghazeepore.

Latitude, 25° 49' N. Longitude, 80° 48' E.

The station lies on the banks of the Ganges.

The nearest mountain range is the Kyanore, 70 miles from the station, which is open. The wind varies much between the E., N.W., and W. The station is quite out of the influence of the sea breeze.

The climate is not very variable; the cold season is bracing. During the hot season, when the wind is from the W., it is dry and hot, and there is much dust in the air.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 74° in December to 105° in May.

The low night temperature varies from 56° in December to 83° in July.

The mean annual temperature is about 82°; mean daily range 20°.

The annual fall of rain is about 47 inches.

Lucknow, Roy Bareilly, Fyzabad, Gondah, Seetapore.

Latitudes, 26° N. Longitudes, 81° E.

Heights above sea, 360 ft. about.

The distance of Lucknow from the nearest hills is 100 miles; Roy Bareilly, 150 miles; Fyzabad, 70 miles; Gondah, 50 miles; and Seetapore, 70 miles.

The climate of the provinces, as in most other parts of India, is divisible into the cold, hot, and rainy seasons. The cold season sets in at the beginning of October, and is at its height in December, when the night temperature is low enough to freeze water. Ice is also made in January, and sometimes even so late as towards the end of February. The cold season ends in March. Heavy dew often falls in the winter months, and there are not unfrequent showers of rain. The hot season sets in towards the end of April, and hot winds blow throughout May and June till the rains commence, which they commonly do at the end of June. During this season dust storms are frequent, and

often very violent, and while it lasts the air in the day is more or less charged with fine dust.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 66° in December to 100° in May.

The low night temperature varies from 53° in January to 82° in June and September.

The mean annual temperature is about 79°; mean daily range 16°.

The annual fall of rain averages from 30 to 40 inches.

Goruckpore.

Latitude, 26° N. Longitude, 82° E.

Contiguous on the west to the Oude territory.

The hot westerly winds which are generally so prevalent in the more westerly stations in April, May, and June, seldom occur at Goruckpore.

From its proximity to the lower range of the Himalaya, much rain usually falls in this district; the fall, however, is not confined to the regular rainy season of other stations, as there is rain throughout the year, though in greater abundance during the season from June to September.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 71° in December to 98° in May.

The low night temperature varies from 53° in January to 83° in June.

The mean annual temperature is about 78°; mean daily range 15°.

The annual fall of rain is about 62 inches.

Azringhur.

Latitude, 26° 10' N. Longitude, 83° 15' E.

59 miles N.E. of Benares.

44 miles N.W. of Ghazeeepore.

Morar.

Latitude, 26° 15' N., 75 miles from Agra.

Longitude, 78° E.

The hot westerly wind generally commences here in April, at first blowing only during the day, but afterwards continuing during the greater part of the night. Frequent dust storms occur during this season of the year, accompanied with rain, hail, and thunder; they come on suddenly, and though severe are but of short duration. The hot winds cease about the middle of June, and are succeeded by the rains, which continue till September, the average annual fall being 50 inches.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 73° in December to 98° in May.

The low night temperature varies from 54° in January to 83° in June.

The mean annual temperature is about 79°; mean daily range, 15°.

The annual fall of rain is about 50 inches.

Seepree.

Latitude, 26° 21' N. Longitude, 84° 30' E.

Height above sea, 1,700 ft.

70 miles south of Gwalior, on the high road from Agra to Bombay.

*The station is open on all sides. The prevailing winds are,—in the cold season, N.W.; in the hot season, W.; and in the rainy season, S.E.; but variable.

The climate of Seepree is good; cool and pleasant throughout the year; while Morar is parched and dried up, excessively hot, and requiring punkahs night and day, Seepree is green and fresh to a degree seldom seen in India, and so cool that a punkah is seldom required.

The following are the approximate mean monthly values of temperature:—

The mean high day temperature varies from 70° in December to 97° in May.

The mean low night temperature varies from 53° in January to 83° in June.

The mean annual temperature is about 78°; mean daily range, 15°.

The annual fall of rain is about 35 inches.

Kherwarrah.

Latitude, 26° 42' N. Longitude, 79° 12' E.

Height above sea, 1,200 ft.

The nearest mountain is the Kummulnath, about 30 miles distant from the station, which is open, and much

exposed to land winds, but not immediately to the sea-breeze. The land wind from the east is unhealthy.

During March, April, May, and till the 20th June, the climate is hot and dry; from the 20th June till the 20th September, the temperature is lower, more equable, and the air loaded with exhalations; from the 20th of September to the 20th of November the vicissitudes are of daily occurrence. The air is cold, the weather variable, and fogs prevail.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 74° in January and December to 103° in May.

The low night temperature varies from 52° in December to 84° in May.

The mean annual temperature is about 78°; mean daily range 18°.

The annual fall of rain is about 27 inches; of which, 20 fall in the three months, June to August; 12 inches fall in the month of July.

Shahjehampore.

Latitude, 27° N. Longitude, 80° E.

This station is situated between the provinces of Rohilcund and Oude.

The N. and E. wind often blow for weeks together in the hot season. They are very unhealthy from blowing over an extent of jungle.

The climate is fitful, and the rains are less prolonged and regular than at other stations.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 71° in December to 98° in May.

The low night temperature varies from 53° in January to 83° in June.

The mean annual temperature is about 78°; mean daily range, 16°.

The annual fall of rain is about 32 inches.

Darjeeling.

Latitude, 27° 2° N. 36 miles from nearest part of the plains.

Longitude, 88° 18' E.

Height above sea, 7,000 ft. to 7,600 ft.

The station is situated on the western side of a mountain, surrounded by much more elevated mountains at a considerable distance.

The station is open and freely exposed to the wind; but there is very little. It chiefly blows from the S. and S.E., and its effect is beneficial.

The climate is temperate and damp; there is much fog and mist in the rainy season.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 50° in January to 65° in June, August, and September.

The low night temperature varies from 39° in December, January, and February, to 58° in July, August, and September.

The mean annual temperature is about 54°; mean daily range, 10°.

The annual fall of rain is about 124 inches.

Agra.

Latitude, 27° 11' N. Longitude, 77° 53° E.

Height above sea, 800 ft.

Nearest mountain land is at Futterpore Seckra.

The station is not exposed to cold or variable winds.

The climate from the end of October to the beginning of April is cool, clear, and healthy; it is very hot and dry, and not unhealthy, till the end of June, when exposure to the sun must be avoided. Till the end of September it is hot and moist.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 73° in December to 98° in May.

The low night temperature varies from 53° in January to 83° in June.

The mean annual temperature is about 78°; mean daily range, 15°.

The annual fall of rain is about 28 inches.

Delhi.

Latitude, 28° 39' N. Longitude, 77° 18' E.

Height above sea, 800 ft.

The climate is malarious and unhealthy for Europeans. Delhi is considered one of the hottest places in India. The hot winds blow with great fury for three or four months in the year. The rainy and cold seasons are tolerably agreeable, but all the year round it is infected with hordes of small

flies, which with the dust, form one of its plagues. The rains commence generally in the latter end of June, and last, with many intermissions, to the end of September, sometimes extending to November, and vary in quantity as much as in duration. In some seasons so low a quantity as 10 inches has been measured.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 70° in December, to 99° in May.

The low night temperature varies from 50° in January, to 83° in June.

The mean annual temperature is about 78°, mean daily range 17°.

The annual fall of rain, 25 inches.

Meerut.

Latitude, 28° 59' N. Longitude, 77° 46' E.

Height above sea, 900 ft.

Nearest mountains, Sewalek range, 70 miles from the station, which is open, and freely exposed to cold winds in the months of November, December, January, and February. There are land winds also, generally from east or west, the latter being the more prevalent and healthy.

The climate is good, being dry for a great portion of the year and not variable. Fogs are very rare. There is much dust during the dry seasons.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 69° in December to 103° in May.

The low night temperature varies from 50° in January and November to 85° in July.

The mean annual temperature is 77°; mean daily range 19°.

The annual fall of rain is about 18 inches; the rain fall at this station is not very remarkable, it being about the quantity which falls in a dry year on the east coast of England.

Nynee Til.

Latitude, 29° 20' N. Longitude, 79° 30' E.

Height above sea, 6,400 ft.

The station is in a valley in the heart of the mountains, it is perfectly open, and exposed to winds which are bracing and conducive to health.

The climate is excellent. In the rains the air is damp; but at other times it is remarkably dry and pure.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 64° in January to 83° in May.

The low night temperature varies from 28° in January to 59° in July.

The mean annual temperature is 60°; mean daily range 29°.

The annual fall of rain is about 96 inches; of which 67 fall in the three months ending with August; the wettest month is August, the fall being 29 inches.

Roorkee.

Latitude, 29° 53' N. Longitude, 77° 57' E.

The Himalaya mountains, are distant about 40 miles from the station, which is generally very open. A cool wind in the hot weather blows at nights from the north, and is pleasant and healthy.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 69° in December to 99° in May.

The low night temperature varies from 50° in January to 83° in June.

The mean annual temperature is about 78°; mean daily range 17°.

The annual fall of rain is about 10 inches.

Dera Ghazee Khan.

Latitude, 30° 4' N. Longitude, 70° 54' E.

Height above sea, 200 ft.

The nearest mountains are the Sooliman range, 40 miles west of the station, which is not exposed to cold or variable winds, or to land or sea breezes.

As a rule very little rain falls in the district, and the climate may be said to be dry, though the air is always more or less charged with moisture from the proximity of canals, irrigated fields, and the river Indus. For the same reason

also the temperature is lower, and the air freer from dust than in other parts of the district, beyond the influence of the cultivation.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 73° in December to 99° in May.

The low night temperature varies from 51° in January to 83° in June.

The mean annual temperature is about 78°; mean daily range 18°.

The annual fall of rain is about 15 inches.

Umballa.

Latitude, 30° 23' N. Longitude, 76° 44' E.

Height above sea, 1,050 ft.

The nearest mountain land is the Himalaya, 35 miles from the station, which is not exposed to cold or variable winds, or to the sea breeze, and the hot land winds that prevail at one season of the year, are not unhealthy.

The climate is generally a healthy one. It is dry and hot for three months of the year, moist and hot for three more, temperate for two, and cold and bracing for the remaining four. It is neither variable nor foggy; the atmosphere, however, of the entire district is more or less affected by dust from April till July.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 76° in December to 113° in June.

The low night temperature varies from 37° in January and December to 76° in June and August.

The mean annual temperature is 79°; mean daily range 39°.

The annual fall of rain is about 26 inches.

Landour (Convalescent Depot).

Latitude, 30° 27' N. Longitude, 78° 10' E.

Height above sea, 7,000 ft.

The station is exposed to winds from the plains, and more frequently from the interior hills.

The climate of Landour, like that of most hill stations, is very moist for some months of the year, but there is no peculiarity in the nature of the atmosphere excepting that due to elevation.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 69° in December to 99° in May.

The low night temperature varies from 50° in January to 83° in June.

The mean annual temperature is about 78°; mean daily range 18°.

The annual fall of rain is about 93 inches.

Mean Meer.

Latitude, 30° 34' N., 6 miles S.E. of Lahore.

Longitude, 74° 4' E.

Height above sea, 1,128 ft.

The nearest mountain range is 100 miles distant from the station, which is remarkably open. A cold N.E. wind blows during the cold months, which augments considerably the sensation of cold.

The climate is dry. The thermometer in a northerly-covered verandah stands at 107° at 4h. p.m. in hot weather; after a dust storm the fall may be 19°. Fogs during the cold weather are rare. During the hot weather the air is loaded with dust.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 64° in January to 98° in May.

The low night temperature varies from 45° in January to 82° in June.

The mean annual temperature is 75°; mean daily range 19°.

The annual fall of rain is about 16 inches, of which 13½ fall in the six months ending September.

Kussowlie.

Latitude, 30° 54' N. Longitude, 77° 3' E.

Height above sea, 6,650 ft.

The station of Kussowlie is situated on the lower range of the Himalayas, and is free without undue exposure to the wind, from almost every quarter.

The climate is very good, except during the S.W. monsoon.

The annual fall of rain is about 70 inches.

Ferozepore.

Latitude, 30° 55' N. Longitude, 74° 35' E.

Height above the sea, 720 ft.

The nearest mountain is Kangra, 90 miles from the station, which is open to the land winds but no sea-breeze. During the summer months frequent dust storms arise with great violence from every quarter, without rain, loading the atmosphere with dust, which on subsiding leaves the air pure, and contributes greatly to the healthiness of the station.

The climate is dry; free from any great variation. From December to March inclusive are the most healthy months, and August and September the most unhealthy. Fevers, particularly those of an intermittent kind, are the prevailing diseases, and in severe hot weather Europeans may suffer, though rarely, from attacks of heat apoplexy.

Rain falls less frequently than in the generality of other stations, except those of Sind.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 72° in January to 106° in June.

The low night temperature varies from 47° in January to 84° in June.

The mean annual temperature is 78°; mean daily range, 22°.

The annual fall of rain is about 14 inches.

Loodiana.

Latitude, 30° 55' N. Longitude, 75° 54' E.

Height above sea, 900 ft.

Nearest mountains, the Himalayan range, 70 miles N.E. of the station, which is exposed sometimes to hot land winds from the west, but most frequently from the east.

The climate is dry and the heat great from April to October. In the winter season the nights are cold, and it sometimes freezes to a slight extent. Fogs are rare. During the hot season the air is frequently laden with dust and small sand.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 69° in December to 99° in May.

The low night temperature varies from 48° in January to 83° in June.

The mean annual temperature is about 78°; mean daily range 18°.

The annual fall of rain is about 17 inches.

Jullundur.

Latitude 31° 21' N. Longitude, 75° 31' E.

Height above the sea, 937 ft.

The nearest mountains are 28 miles north; a broken ridge, extending for 70 miles N., and varying from 2,000 to 5,000 ft. above the level of the sea.

The station is open to all the winds that blow, and their effect upon health is good.

The climate is good, with only three months of rainy season, July, August, September; the other months are generally dry, with occasional dust and thunderstorms; the nights become cold about October.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 70° in December to 99° in May.

The low night temperature varies from 49° in January to 83° in June.

The mean annual temperature is about 78°; mean daily range 18°.

The annual fall of rain is about 57 ins.

Punjab.—Umritsir and Gorindgurh.

Latitude, 31° 40' N. Longitude, 74° 45' E.

Height above sea, 900 ft.

The station is open, and freely exposed to the prevailing winds. The prevailing winds blow about N.W. and S.E.; those from the N. and W. are generally designated the hot winds, during the months of April, May, and June, and prevail generally, with occasional intervals, the whole year.

The S.E. winds prevail in the rainy months, July, August, September, and part of October. The N.W. winds are healthy, even when the heat is excessive, and this can be easily accounted for, by the air being so dry and free from moisture. The S.E. winds are loaded with moisture, and when they begin to blow, towards the end of June, are indicative of the rainy season, and certainly act, from this

cause alone, on the general health, as well as being the medium through which malaria is conveyed to the lives.

The following are the approximate mean monthly values of temperature:—

The high day temperature varied from 61° in January to 92° in June.

The low night temperature varied from 44° in December to 86° in June.

The mean annual temperature is about 73°; mean daily range 13°.

The annual fall of rain is about 57 inches; of which 52½ inches fall in the six months ending September; the heaviest fall occurred in the month of July, viz., 23 inches.

Kangra.

Latitude, 32° 5' N. Longitude, 76° 18' E.

Height above plains, 2,500 feet.

The European soldiers have had uninterruptedly good health at this station. Its situation is favourable in every way, and conducive to health, sheltered and shaded by the surrounding hills, yet in an elevated position, 2,500 ft. above the level of the plains, and open to the snowy range of the Kooloo Hills, from which cool breezes blow at night-time nearly all the year round.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 68° in December to 99° in May.

The low night temperature varies from 47° in January to 83° in June.

The mean annual temperature is about 78°; mean daily range 18°.

The annual fall of rain is about 25 inches.

Sealkote.

Latitude, 32° 29' N., 63 miles N.N.E. of Lahore.

Longitude, 74° 33' E.

Height above sea, 900 ft.

Nearest mountain land 30 miles from the station, which is open, and freely exposed to the winds.

The climate of this station is remarkably healthy, and suited to the European constitution; very variable, June, July, and August being very hot. Monsoon not very heavy; the cold is very great in December, January, February, and for five months of the year. The air is particularly free from dust and impurities.

The following are the approximate mean monthly values of temperature:—

The high day temperature varied from 63° in January to 98° in June.

The low night temperature varied from 51° in January and February to 81° in June.

The mean annual temperature is about 75°; mean daily range 17°.

The annual fall of rain is about 29 inches.

Jhelum.

Latitude, 32° 56' N. Longitude, 73° 47' E.

Height above sea, 1,000 feet.

100 miles N.N.W. from Lahore.

66 miles S.S.E. from Rawul Pindi.

The station is generally surrounded by high ground.

The climate appears to be a desirable one for six months of the year, from November to May. The temperature during the hot season is high, averaging from 80° to 90°, but not so oppressive as at Lahore. The station of Rawul Pindi appears for convalescents more favourable than this station.

Jhelum, is conveniently situated on the Grand Trunk road, between Peshawur and Lahore.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 68° in December to 100° in May.

The low night temperature varies from 45° in January to 83° in June.

The mean annual temperature is about 78°; mean daily range 18°.

Rawul Pindi.

Latitude, 53° 34' N., 50 miles from Attock.

Longitude, 75° 5' E., 20 miles from Himalaya's lower range.

Height above sea, 1,500 ft.

There is a range of mountains 15 miles distant from the station, which is open and freely exposed to the winds. The

winds that prevail are wholesome dry winds, generally from the N.W.; the S.E. winds indicate rain.

The climate of Rawul Pindi has been proved by 10 years' experience to be decidedly the finest in the plains of India.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 68° in December to 100° in May.

The low night temperature varies from 46° in January to 83° in June.

The mean annual temperature is about 79°; mean daily range 18°.

The annual fall of rain is about 18 inches.

Murree.

Latitude, 34° N. Longitude, 73° E.

Height above sea, 7,800 ft.

The upper portion of Murree is open and freely exposed to every wind; the lower part is sheltered from N.E. and E. winds. During the winter and spring months N. and N.E. winds prevail, and their effect upon health is invigorating. During the summer months W. and N.W. winds prevail, and bring with them dense fogs and rains.

This station is a sanitarium.

Peshawur.

Latitude, 34° 20' N. Longitude, 71° 29' E.

Height above sea, 1,056 ft.

The mountain of Tarturrah, about 10 miles distant from the station, which is situated where it is freely exposed to such winds as circulate in the valley. It is not exposed to cold or variable winds, but during the cold season the wind blowing off the snow is naturally sharp, but it has no injurious effect on health.

The climate of Peshawur is exceedingly trying to weak constitutions, chiefly owing to the great changes from heat to cold and from dryness to moisture; it is this variability of climate that affects the health of the troops. The air is generally free from dust.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 60° in January to 102° in June.

The low night temperature varies from 44° in January to 81° in July.

The mean annual temperature is about 74°; mean daily range 19°.

The annual fall of rain is about 14 inches.

Nowshera.

Latitude, 34° 20' N. Longitude, 73° 54' E.

This station is nearly equidistant between Attock and Peshawur. It is situated in a valley on the right bank of the Cabul river, and is surrounded by high land.

The climate is dry and hot. It is subject to dust storms. In August 1858 the station was entirely submerged by the overflow of the Indus, causing the destruction of all the private bungalows and the native lines; from its low situation such inundations are not unlikely, either from the overflow of the Cabul or Indus rivers.

REMARKS ON THE CLIMATE OF DIFFERENT STATIONS IN THE PRESIDENCY OF BOMBAY.

Bombay Presidency.

Lies between latitude 14° and 29°, and between longitude 66° and 77°, comprising a narrow strip of the peninsula on the W. and N.W. sides. This presidency is the smallest of the three into which India is divided. A part of the great table land of the Deccan belongs to it, and to the north of them a part of the Malwah table land bounded N.W. by the Arrawulli mountain range, which separate the basins of the Ganges and Indus. Among the hill ranges and upon the higher tracts there are many fine valleys and plains. The climate for the most part is pretty good, owing to the influence of the sea, and the extended coast, and elevated land of the interior, except in Scindia, some low tracts on the west, in the neighbourhood of Bombay, the Indus delta, and part of Guzerat

Aden.

Latitude, 12° 45' N. Longitude, 45° 15' E.

Height above sea 123 ft. (the cantonment).

There are high and lofty hills in the distance.

The station is exposed to no cold winds. With S.W. monsoon from May to September the heat is excessive. At the other seasons a fresh cool sea-breeze blows constantly.

From its vicinity to the sea the climate is equable throughout the year, and in general there is much moisture in the atmosphere. The temperature is pretty high, and the sun's rays are always very powerful. At times, especially during the hot months, clouds of dust envelop the camp.

Jacobabad.

Height above sea, 220 ft.

The nearest mountain is 60 miles distant from the station, which is perfectly open. It is exposed to fresh dry cold winds in the winter months, and in the summer to fiery hot winds.

The climate during the greater part of the year is the driest in the world. The heat in summer is excessive, rendering it quite unfit as a station for European soldiers.

The following are the approximate mean monthly values of temperature:—

High day temperature varies from 77° in January to 109° in June.

Low night temperature varies from 44° in January to 90° in June.

Mean annual temperature is about 81°; mean daily range 27°.

Annual fall of rain is about 8½ inches.

BOMBAY PRESIDENCY.

Stations on or near the coast ranging between 15° N. and 19° N.

Vingoria.

Latitude, 15° 50' N., 215 miles S. of Bombay.

Longitude 73° 41' E.

Height above sea, 20 ft.

A few small hills only within sight of the station; it is well exposed to the sea breeze, a compound of the west, which are the prevailing winds. The land wind, which is that from the E.N.E., is usually of short duration.

There is no considerable variation in the climate. It is never very cold, and the heat is moderate, but from heavy dews it is occasionally damp at night.

The following are the approximate mean monthly values of temperature:—

High day temperature varies from 82° in August and September to 88° in April and May.

Low night temperature varies from 72° in January to 80° in May.

The mean annual temperature is about 85°; mean daily range 9°.

Annual fall of rain is about 118 inches; of which 41 inches fall in the month of July, and 115 inches in the six months, April to September.

Dharwar.

Latitude, 15° 50' N. Longitude, 75° 10' E.

Height above sea, 2,482 ft.

There is no mountain near the station, which is exposed to the sea breeze. The land or east wind blows from December to February.

The climate is good from November to February; it is dry and cool. There is a great deal of moisture in the air from March to June when the rains commence. From February to June the climate is generally hot by day but cool at night. The climate is never very cold; fog prevails occasionally in the mornings of the hot season.

The following are the approximate mean monthly values of temperature:—

High day temperature varies from 77° in August and September to 92° in March.

Low night temperature varies from 61° in January to 77° in May.

The mean annual temperature is about 80°; mean daily range 13°.

Annual fall of rain is about 34 inches, of which 20½ inches fall in the three months, June to August, 9.7 inches falling in August.

Belgaum.

Latitude, 15° 52' N. Longitude, 74° 42' E.

Height above sea, 2,260 ft.

70 miles from the coast, 30 miles from Western Ghats. During the monsoon the wind blows from the W.; in the cold season the prevailing wind is from the E., and during the hot season from the same quarter, veering however to the W. during the latter part of the day.

The heat is greatest during April and May, but a sea breeze generally rises during the afternoon, continuing throughout the night.

The following are the approximate mean monthly values of temperature:—

High day temperature varies from 78° in August to 97° in April.

Low night temperature varies from 57° in January and December to 66° in April, May, June, and July.

The mean annual temperature is about 74°; mean daily range 23°.

Annual fall of rain is about 50 inches; about 15 inches fall in July, and 34 inches in June, July, and August.

Kulladghee.

Latitude, 16° 11' N., 71 miles E.N.E. of Belgaum.

Longitude, 75° 33' E.

Height above sea, 1,750 ft.

The nearest mountain is 50 or 60 miles distant from the station, which is open and freely exposed to winds.

The climate throughout the year may be considered tolerably good. It is dry, with the exception of the monsoon months.

The following are the approximate mean monthly values of temperature:—

High day temperature varies from 85° in December to 104° in April.

Low night temperature varies from 60° in January and December to 74° in March, April, and May.

The mean annual temperature is about 81°; mean daily range 24°.

Annual fall of rain is about 24 inches.

Kolapore.

Latitude, 16° 42' N., 185 miles S.E. from Bombay.

Longitude, 74° 18' E., 70 miles S. of Sattara.

Height above sea, 1,797 ft.

The nearest mountain is three miles distant from the station, which is open and freely exposed to the prevailing winds. They are generally strong; the land or N.E. wind blows from November to February. The sea breeze or S.W. wind commences in March, and blows during the greater part of the day and night.

During the cold season, from November to February, the climate is dry, the winds blowing generally from the N. and E.; dews fall in the early morning, which are moist and fresh till an hour after sunrise. The climate generally is temperate, there is no severe cold during any of the seasons. The atmosphere is not rendered impure by dust, except very temporarily, and the climate is good.

The following are the approximate mean monthly values of temperature:—

High day temperature varies from 77° in January, July, August, and December to 89° in May.

Low night temperature varies from 67° in January and December to 77° in May.

The mean annual temperature is about 76°; mean daily range 9°.

Annual fall of rain is about 39 inches; 6½ inches fall in July, and 12½ inches in three months, June, July, and August.

Rutnagherry.

Latitude, 17° 0' N. Longitude, 73° 20' E.

Height above sea, 150 ft.

The nearest mountains are the Syndree range of Ghauts, at a distance of 30 miles from the station, which is open to all winds. The heat of the summer months is moderated by fresh northerly sea breezes. The climate is damp during the monsoon, and dry in the forenoon during the prevalence of land winds from November to February. The climate may be described as generally moist, warm, and relaxing, with an annual range of about 20°, and a diurnal range not exceeding 12°. It is not affected by dust, and other admixtures affecting the atmosphere.

The following are the approximate mean monthly values of temperature:—

High day temperature varies from 84° in August to 93° in May.

Low night temperature varies from 70° in January and December to 77° in May, June, and September.

The mean annual temperature is about 81°; mean daily range 14°.

Annual fall of rain is about 127 inches; 41½ inches fall in June, and 93½ inches in June, July, and August.

Sattara.

Latitude, 17° 40' N., 60 miles from coast.

Longitude, 74° 2' E.

Height above sea, 2,320 ft.

The fort hill is distant about 1½ mile from the station, which is open; subject to land winds (E. and N.E.) and to the sea breeze (W.S.W.), the latter modified by distance from the ocean; both prevail with tolerable regularity, according to the season and time of day.

The climate generally considered is good for three months. The air is hot and dry, but not very exhausting. In the rains it is fresh, not damp or chilly, and the temperature very equable. The cold in the winter months is not invigorating.

The following are the approximate mean monthly values of temperature:—

High day temperature varies from 74° in August to 92° in April.

Low night temperature varies from 63° in December to 75° in April and May.

The mean annual temperature is about 76°; mean daily range 12°.

Annual fall of rain is about 38 inches; about 13 inches fall in July, 25½ inches fall in June, July, and August.

Dapoolie.

Latitude, 17° 48' N. 55 miles N. of Rutnagherry.

Longitude, 73° 16' E.

Height above sea, 600 ft.

The nearest table land is that of the Deccan.

The station is not exposed to cold or variable winds, nor freely to land winds, but fully to sea breezes.

The climate is divided into three seasons; 1st, the cold season, from December to the end of February; 2nd, the hot season, from March till June, increasing in heat; and the 3rd, or rainy season, from June till October. October and November are close hot months.

The following are the approximate mean monthly values of temperature:—

High day temperature varies from 80° in August to 93° in April.

Low night temperature varies from 61° in January and December to 76° in May.

The mean annual temperature is about 81°; mean daily range 18°.

Annual fall of rain is about 122 inches; 97 inches fall in June, July, and August, of which 4½ inches fall in July.

Poorundhur (Sanitarium).

Latitude, 18° 12' N. Longitude, 73° 54' E.

Height above sea, 4,200 ft.

The climate of this station is good and equable, the monthly mean temperature of the year ranging from 60° to 80°. The year is divided into the three seasons, hot, rainy or monsoon, and the cold. The hot season begins in March, and terminates about the middle of June; the station at this season is marked by the general absence of hot winds, and the almost total exemption from hot nights, a cool fresh breeze from the N.W. generally blowing from sunset to sunrise. The rainy season extends from June to October; the gloomy state of the weather, the absence of all sunshine for weeks together, combined with the impossibility of the men taking exercise without getting wet through, tend to produce an injurious influence and great depression of spirits. During this season one or two breaks generally occur in the weather, and continue for a week or ten days; and then it is difficult to imagine a more beautiful climate. During the cold season a strong dry wind prevails.

The following are the approximate mean monthly values of temperature:—

High day temperature varies from 68° in August to 83° in April.

Low night temperature varies from 59° in December to 71° in April.

The mean annual temperature is about 67°; mean daily range 9°.

Annual fall of rain is about 72 inches; 23 inches fall in July, and about 50 inches in the three months ending August.

Poona.

Latitude, 18° 30' N. Longitude, 74° 0' E.

Height above sea, 1,800 ft.

The nearest mountain is Singhur, 13 miles distant from the station, which is open and freely exposed to the winds. From November to February cold land winds prevail, with occasional sea breezes; from March to June hot, scorching, variable winds; and for the rest of the year the prevailing winds are from the sea.

The climate is good; there is almost a total freedom from fogs, and dampness is only observable during the rains, and then mild in degree. Dust storms are rare.

The following are the approximate mean monthly values of temperature:—

High day temperature varies from 78° in August to 95° in April.

Low night temperature varies from 58° in January and December to 74° in May.

The mean annual temperature is about 77°; mean daily range 18°.

Annual fall of rain is about 22 inches.

Kirkee.

Latitude, 18° 30' N., 70 miles S.E. of Bombay.

Longitude, 74° 15' E., 50 miles E. of the coast.

Height above sea, 1,900 feet.

The nearest mountain is Surghur, 15 miles distant from the station, which is open and freely exposed to winds. From November to February cold land winds prevail, with occasional sea breezes; from March to June there are hot, scorching, variable winds, and for the rest of the year the prevailing winds are from the sea. The cold and rainy seasons are beneficial to the health of the troops, but the hot season is injurious.

The climate is good. There is almost a total absence of fog; dampness is only observable in the rains, and then is mild in degree. Dust storms are very rare, and do not affect perceptibly the purity of the atmosphere.

Colaba.

Latitude, 18° 53' N. Longitude, 72° 52' E.

The climate is equable, neither so hot in summer nor so cold in winter as most other places in India. The greatest temperature noted during the 10 years, 1850 to 1860, was 97°; the lowest on record was 53°, in February 1847. January is the coolest month; December and February, somewhat less so, are much alike; then November and March; April and May are the hottest months. The monsoon months, June to September, vary little in temperature.

The land winds (S.E.) prevail during the dry season. A S.W. wind or sea breeze prevails during the monsoon months, sometimes with great strength.

Wet-bulb thermometer.

The temperature of evaporation or wet-bulb thermometer increases, though irregularly, from the month of January to July, and falls from July to December. About the middle of June the sun attains its extreme southerly declination, and the rain, which falls in torrents, keeps the atmosphere saturated with humidity.

In June and July the temperature of evaporation coincides with the mean annual temperature of air. The presence of clouds in the sky has the effect of increasing the temperature of evaporation.

BOMBAY PRESIDENCY.

Stations on or near the sea-coast, ranging between 21° N. and 25° N.

Surat.

Latitude, 21° 10' N., 150 miles N. of Bombay.

Longitude, 72° 52' E., 130 miles S. of Ahmedabad.

Height above sea, 33 ft.

The nearest mountain is Songhur, 42 miles E. of the station.

From March to October the sea breeze prevails, and during the remainder of the year the land wind is predominant.

For about nine months in the year the climate may be said to be decidedly moist, the wind coming from the direction of the sea, which is 10 miles distant. It is never very cold, and the temperature rises considerably, as elsewhere, during the months of April and May. There is but little if any fog in the camp, though it is sometimes observed on the other side of the river, which is a lower level. There are occasional dust storms, but, generally speaking, the atmosphere is fine.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 78° in January to 108° in May.

The low night temperature varies from 59° in January to 80° in May and June.

The mean annual temperature is about 82°; mean daily range 20°.

Baroda.

Latitude, 22° 16' N., 68 miles S.E. of Ahmedabad, 81 miles N. of Surat.

Longitude, 73° 14' E., 166 miles W. of Mhow.

Height above sea, 90 ft.

The hill fort of Powagurh, distant 26 miles, is the only high ground within sight of the station, which is so encumbered with trees, that it is not sufficiently exposed to the breeze, which blows from the direction of the sea for the greater part of the year; from November to March the land wind blows from the E. and N.E.

The climate is very damp in the rains; at other times comparatively moist. Fogs prevail till the end of November, and during the hot season winds and dust prevail; it is never very cold.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 84° in January to 105° in May.

The low night temperature varies from 56° in February to 83° in May.

The mean annual temperature is about 81°; mean daily range 21°.

The annual fall of rain is about 35 inches; about 16 inches fall in July, 30 inches generally fall in June, July, and August.

Rajcote.

Latitude, 22° 18' N., 125 miles S.W. of Ahmedabad.

Longitude, 70° 50' E., 150 miles W. of Baroda.

Height above sea, 450 ft.

The nearest mountain is the Girnar, 56 miles to the S.W. of the station, which is thoroughly open to the sea breeze, which blows steadily during eight months of the year. From November to February the winds are northerly and north-easterly.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 78° in January to 99° in May.

The low night temperature varies from 59° in January to 83° in May and June.

The mean annual temperature is about 81°; mean daily range 15°.

The annual fall of rain is about 27 inches; 21 inches fall in June, July, and August, of which 8.3 and 8.9 inches fall in July and August respectively.

Ahmedabad.

Latitude, 23° N. Longitude, 72° E.

Height above sea, 320 ft.

Nearest mountain, Aboo, is 150 miles distant from the station, which is exposed to hot and cold winds from the W.S.W. and N.E.

The climate is dry, except during the monsoon. Sand storms occasionally occur during the hot season.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 78° in January to 108° in May.

The low night temperature varies from 60° in December to 86° in May.

The mean annual temperature is about 83°; mean daily range 18°.

The annual fall of rain is about 23 inches; 11 inches fall generally in July, very little rain falls during the first and last three months of the year.

Ahmednuggur.

Latitude, 23° 34' N., 91 miles N. of Baroda.

Longitude, 73° 1' E.

Height above sea, 1,900 ft.

The nearest hill is six miles distant, and is 617 feet elevation above the station, which, generally speaking, is well exposed to the prevailing winds. It is singularly exempt from variable winds; and is freely exposed to the sea breeze, which diminishes the temperature.

The climate is dry, like that of the Deccan generally, which is attributable to the great elevation. Occasionally dust storms occur during the hot months, March, April, and May.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 80° in December to 98° in April and May.

The low night temperature varies from 59° in January and December to 76° in May.

The mean annual temperature is about 77°; mean daily range about 18°.

The annual fall of rain is about 25 inches.

Kurrachee.

Latitude, 24° 51' N. Longitude, 67° 2' E.

Height above sea, 27 ft.

A low mountain range, about six miles distant from the station, which is not exposed to cold or variable winds. Land and sea breezes prevail in spring and autumn, and the climate is good. The month of November is characterised by dryness, July and August by humidity; December, January, and February being the cold months. From May to September is the hot season, during which time strong westerly monsoon winds prevail. Damp cannot be said to exist at any time.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 74° in February to 95° in August.

The low night temperature varies from 44° in December to 82° in August.

The mean annual temperature is about 78°; mean daily range 19°.

The annual fall of rain is about 5 inches; the heaviest monthly fall of rain is in July, viz., 1·8 inches.

BOMBAY PRESIDENCY.*Inland Stations.**Sholapore.*

Latitude, 17° 40' N., 165 miles S.E. of Poona.

Longitude, 76° 0' E.

Height above sea, 1,821 ft.

There is no higher ground within 30 miles of the station, which is completely open, and exposed to the prevailing winds. The sea breeze is not felt at Sholapore; and the only wind that may be said to be unhealthy is that from the east.

The climate is warm and dry during the greater part of the year, the mean annual temperature being about 80°. May is generally the hottest, and December the coldest month. Fogs occasionally occur during the months of February and March towards evening. The atmosphere is pure.

The following are the approximate mean monthly values, of temperature:—

The high day temperature varies from 78° in December to 93° in April, and May.

The low night temperature varies from 66° in December to 79° in April.

The mean annual temperature is about 74°; mean daily range 9°.

The annual fall of rain is about 33 inches, of which nearly 15 inches fall in July, August and September.

Seroor.

Latitude, 18° 50' N., 30 miles S.W. by W. of Ahmednuggur.

Longitude, 77° 25' E.

Height above sea, 1,752 ft.

The hill fort of Poorundhur is situated on the nearest table land.

The station generally is remarkably open and exposed to the prevailing winds. The W. wind is most commonly prevalent at the station.

The climate is on the whole, and with the exception of the monsoon months, dry, but not excessively so, being

within the influence of the sea breeze which generally blows tolerably strongly towards the evening. The variations of cold and heat, dryness and moisture, are moderate and not sudden. The air is generally free from dust and other impurities, but dust storms do occasionally occur during the hot season.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 84° in September to 107° in April.

The low night temperature varies from 50° in January and December to 69° in May and June.

The mean annual temperature is about 75°; mean daily range 33°.

The annual fall of rain is about 21 inches; of which 8 inches fall in the three months ending August.

Mulligawn.

Latitude, 20° 32' N., 154 miles N.E. of Bombay, on the Trunk road from Bombay to Agra.

Longitude, 74° 30' E.

Height above sea, 1,300 ft.

Nearest mountain 35 miles distant from the station, which is open and freely exposed to all winds, except those from the sea.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 81° in January to 96° in May.

The low night temperature varies from 64° in January to 82° in June.

The mean annual temperature is about 81°; mean daily range 14°.

Dhoolia.

Latitude, 20° 54' N., 181 miles N.E. of Bombay, on the route from Bombay to Agra.

Longitude, 74° 45' E.

Height above sea, 1,000 ft.

The nearest high land is the hill fort of Galna, 24 miles distant from the station is open, and would be freely exposed to the winds, if not so encumbered with trees, &c. It is exposed to N.W., and occasionally to N. and N.E. winds in December, January, and February, veering to W. in March, and S.W. with monsoon.

The climate is hot and close; there are but few dust storms.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 80° in January to 97° in May.

The low night temperature varies from 62° in January to 83° in June.

The mean annual temperature is about 80°; mean daily range 13°.

The annual fall of rain is about 84 inches; about 20 inches fall in the months of July and September.

Mhow.

Latitude, 22° 33' N. Longitude, 75° 46' E.

Height above sea, 1,862 ft.

The station is open and freely exposed to variable winds, which in the cold season are northerly. The prevailing wind, however, is from the W.

The climate has always been considered good, dry, and cool. The atmosphere is seldom loaded with dust.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 74° in December to 95° in May.

The low night temperature varies from 65° in January to 79° in April.

The mean annual temperature is about 74°; mean daily range 10°.

Nemuch.

Latitude, 24° 27' N., 155 miles N.W. of Mhow, 371 miles S.W. of Delhi.

Longitude, 74° 54' E., 306 miles W. of Saugor.

Height above sea, 1,476 ft.

The nearest mountains are distant 70 miles.

The western side of the camp is well exposed to the prevailing winds, the eastern portion is shut out by the bazaar. For four months of the year N. and N.E. winds prevail, and for the remainder of the year W. and S.W. winds.

The dry N.E. winds appear predisposed to rheumatism, &c.

The climate varies with the season of the year. From November 15 to February 15 the air is cold, dry, and bracing; and from the middle of February to the middle of June the heat gradually increases, the maximum being obtained during the month of May, when fierce hot winds prevail. During the monsoon the climate is mild and pleasant. In October the heat again increases, decreasing at the latter end of the month. The diurnal variation of the temperature is great, the nights being generally cool and pleasant, owing to the elevation.

The atmosphere contains but little moisture, even during the monsoon, and the air is free from dust and other impurities.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 62° in January to 94° in May.

The low night temperature varies from 49° in January to 78° in June.

The mean annual temperature is about 71°; mean daily range 14°.

The annual fall of rain is about 34 inches, of which 29½ inches fall in June, July, and August.

Deesa.

Latitude, 25° 14' N., 301 miles N.W. of Mhow.

Longitude, 72° 5' E., 251 miles W. of Neemuch.

Height above sea, 400 ft., 370 miles N. of Bombay.

The nearest mountain, Aboo, is 16 miles distant from the station, which is open and freely exposed to the winds. The sea-breeze (S.W.) blows from about the middle of March to the end of June, but reaches this station exceedingly dry and scorching. The winds are more variable from July to October, but generally from the S. and W.; this is the wet season. Between October and March N. winds are most frequent, and four months of this period are dry, cool, and bracing.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 79° in January to 106° in May.

The low night temperature varies from 48° in December to 79° in June and July.

The mean annual temperature is about 80°; mean daily range 26°.

The annual fall of rain is about 25 inches; 19 inches fall generally in June, July, and August.

Hyderabad. Sinda.

Latitude, 25° 30' N. Longitude, 69° 5' E.

Height above sea, 99 ft.

The nearest mountain is about 20 miles distant from the station, which is freely exposed to the winds. Cold and variable winds affect the health of the station more or less.

The climate is exceedingly dry, even when heavy showers of rain fall about July and August. The heat is extreme from the middle of March to the middle of October, and during the day a hot breeze blows from the westward, and dust storms are frequent, but the mornings are clear, cool, and refreshing, except in September and October, when the whole 24 hours are disagreeably oppressive.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 71° in January to 99° in May and June.

The low night temperature varies from 58° in January and December to 85° in June.

The mean annual temperature is about 81°; mean daily range 14°.

The annual fall of rain is about 21 inches; 15 inches fall in August.

Nusseerabad.

Latitude, 26° 20' N., 222 miles W. of Agra.

Longitude, 74° 50' E., 350 miles N.W. of Saugor.

Height above sea, 1,500 ft., 143 miles N. of Neemuch.

There is a range of hills six miles from the station, which is open, and freely exposed to the winds. During the hot season, from the middle of March to the middle of July, the prevailing winds are from the S. and S.W., these are scorching, and in order to keep the barracks cool khus-khus tatties are used. During the monsoon the winds are variable and pleasant. In the cold season, from November to March, the winds are from the N. and N.E.

With regard to the climate, the temperature ranges very high for about five or six months, in July sometimes rising to 120°, and during the hot season there is a hot wind

blowing constantly, day and night from the W. During the hot season, the station is visited with severe dust storms, causing great discomfort.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 65° in January to 99° in June.

The low night temperature varies from 59° in December to 88° in June.

The mean annual temperature is about 79°; mean daily range 9°.

The annual fall of rain is about 16 inches; 8 inches fall in August, 13 inches in the three months ending August.

REMARKS on the CLIMATE of different STATIONS in the PRESIDENCY of MADRAS.

Madras Presidency.

This presidency extends from Cape Comorin, in latitude 8° 4' to the N. extremity of Ganjam, in latitude 20° 18'; and from longitude 74° 9' to 85° 15' E, and is bounded N. and N.W. by the presidencies of Bengal and Bombay and the kingdoms of Nagpore and Berar.

It is in size intermediate between the two other presidencies.

Palamcottah.

Latitude, 8° 43' N., 3 miles E. of Tinnivelly.

Longitude, 77° 48' E., 88 miles S. of Madura.

Height above sea, 120 ft., 160 miles S.W. of Trichinopoly.

The nearest mountains are between 20 and 25 miles distant from the station, which being situated so near to the apex of the peninsula is exposed to winds which are, except during the very hottest months, moderately cool. The S.W. wind, which sets in towards the close of May continuing to the end of August, passes over an extensive tract of cultivated land, and is thus rendered cool, although disagreeable at times on account of its violence, and raising dust storms.

The following are the approximate mean monthly values of temperature:—

High day temperature varies from 86° in January and December to 94° in April and May.

Low night temperature varies from 76° in January to 84° in April, May, and June.

Mean annual temperature is about 81°; mean daily range 10°.

Annual fall of rain is about 22 inches, 10 inches of which fall in September, October, November.

Trichinopoly.

Latitude, 10° 20' N. Longitude, 77° 10' E.

Height above sea, 250 ft.

The nearest mountains are some 25 miles distant from the station, which is open and freely exposed to winds. Hot land winds blow during the months of April, May, and June, and cold N.E. winds during the monsoon.

The monthly temperature varies from 78° to 87°.

The mean annual fall of rain is about 30 inches.

There is often a dry and sultry atmosphere for months together. Whirlwinds accompanied by clouds of dust and sand, occur at short intervals in May, June, and July.

Wellington.

Latitude, 11° 5' N. Longitude, 77° 5' E.

Height above sea, 6,000 ft.

The nearest mountain is Dodabetta, 9 miles distant from the station, which is open and freely exposed to the winds; they are from the land, principally from the N.E. and S.W.

The following are the approximate mean monthly values of temperature:—

High day temperature varies from 66° in February to 75° in August and September.

Low night temperature varies from 59° in September to 65° in May and June.

The mean annual temperature is about 62°; the mean daily range is about 9°.

The annual fall of rain is about 31 inches.

Salem.

Latitude, 11° 39' N., 100 miles S.E. of Bangalore.

Longitude, 78° 12' E., 170 miles S.W. of Madras.

Height above sea, 800 ft.

The Shevaroy hills are 5 miles distant from the station, which is not open to any wind or to the sea breeze.

Bangalore.

Latitude, 12° 57' N. Longitude, 77° 38' E.

Height above sea, 3,000 ft.

Nundydroog, 36 miles distant from the station, which is freely exposed to winds. There is no sea breeze, and the land wind is not hot like that up the country. The winds are very dry.

The following are the approximate mean monthly values of temperature:—

High day temperature varies from 79° in January to 91° in May.

Low night temperature varies from 59° in January to 72° in May.

The mean annual temperature is about 73°; the mean daily range 16°.

The annual fall of rain is about 25 inches; 13 inches fall in June, July, and August.

Hurryhur.

Latitude, 14° 31' N., 160 miles N.W. of Bangalore.

Longitude, 75° 51' E., 181 miles N.E. of Mangalore.

Height above sea, 1,831 ft., 85 miles S.W. of Bellary.

The nearest table lands are the Babadbooder hills and Mercara, lying south by west from this station, both at a considerable distance.

The station is sufficiently open to all the prevailing winds, which generally are neither cold nor variable, and the more prevalent are from the N.E. and S.W., at the seasons respectively constituting the corresponding monsoons. There are occasionally westerly winds towards the after part of the day, which are generally agreeable, and are usually looked upon as sea breezes. The N.E. and E. winds, which usually blow in the early part of the year, are mostly hot and dry.

The climate of Hurryhur is dry, with a considerable diurnal range of temperature, especially in the cold months of the year. In all essential respects the atmosphere seems to be pure.

Ramandroog.

Latitude, 15° 8' N. Longitude, 76° 33' E.

Height above sea, 3,400 ft.

This station is 37 miles from Bellary.

The climate is good. The station is situated under the influence of both monsoons, without suffering excessively from either; it is near enough to the western coast to have the benefit of the sea breeze, which in the hot season moderates the temperature. It is situated on an isolated range. The wet season commences in June with the S.W. monsoon, and continues with intermissions till September. After a short interval the N.E. monsoon sets in and lasts till November, the average quantity of rain being from 34 to 40 inches. From November to February the air is clear, and easterly winds prevail.

Kurnool.

Latitude, 15° 50' N., 90 miles N.E. by E. of Bellary.

Longitude, 78° 5' E.

Height above sea, 800 ft.

There is a range of small hills about 4 miles distant from the station, which is open and freely exposed to the winds.

The following are the approximate mean monthly values of temperature:—

High day temperature varies from 79° in December to 93° in April and May.

Low night temperature varies from 74° in December to 90° in April.

The mean annual temperature is about 84°; mean daily range 4°.

The annual fall of rain is about 72 inches; 40 inches of which fall in June, July, and August, 17 inches fall generally in July.

Bellary.

Latitude, 17° 0' N. Longitude, 77° 0' E.

Height above sea, 1,500 ft.

No table land; but about six miles from the station there is a range of small hills, and among these a peak, rising to 1,000 ft. above the station.

The station is open and freely exposed to cold E. and N.E. winds, in November, December, and January. It is also exposed to warm land winds from February to June. The rest of the year a pleasant strong W. wind generally is prevalent.

The climate is dry and temperature not very high; not being humid, the heat is bearable; range not great. No fogs. Dust storms occasionally occur, but the air is usually clear.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 78° in January and December to 92° in May.

The low night temperature varies from 65° in February to 77° in May.

The mean annual temperature is about 75°; mean daily range 12°.

The annual fall of rain is about 22 in.; 11 in. fall in the three months ending November, of which 6 in. fall in October.

Secunderabad.

Latitude, 17° 28' N., 6 miles N. of Hyderabad.

Longitude, 78° 32' E.

Height above sea, 1,800 ft.

The table land of Bedur is 70 miles distant from the station, which is open, and free currents of air everywhere exist. It is much exposed to cold and variable winds during and after the rainy monsoon, and when the rains have quite passed away; there is an extreme dryness combined with cold, parching yet chilling the surface.

The climate may be characterized as remarkably dry. The average number of days on which rain falls is about 50. From January to June the air is dry; the first two months being cool and variable in temperature. From March to June hot land winds blow, and the heat is great. Fogs are unfrequent, and dew seldom deposited. The air is generally clear; but liable, in the hot season, to occasional dust storms.

The following are the approximate mean monthly values of temperature:—

The mean high day temperature varies from 77° in December to 95° in May.

The mean low night temperature varies from 64° in January to 82° in May.

The mean annual temperature is about 74°; mean daily range 12°.

The annual fall of rain is about 28 inches.

MADRAS PRESIDENCY.

Malabar, or West Coast Stations.

Quilon.

Latitude, 8° 53' N., 38 miles N.W. of Trevandrum.

Longitude, 76° 39' E., 225 miles S.E. of Cannanore.

Height above sea, 40 ft., 385 miles S.W. of Madras.

The nearest mountains are the Wurrakally hills, about 12 miles distant from the station, which is open and well exposed to sea and land winds. The sea is about 250 yards distant from the station.

The effects of the climate on Europeans is renovating. During the rains, the weather is close; during the dry weather, parching but free from dust.

Cochin.

Latitude, 9° 11' N. Longitude, 76° E.

Height above sea, 40 ft.

Nearest high ground is about 30 miles distant. The hills rise to a height of 6,000 ft. above the level of the sea.

The station is exposed to cold and variable winds from the land side, during the dry season, beginning in November, about 7 p.m., and gradually becoming later, until, in February, its commencement is about 2 a.m.

The climate is variable; the breeze from the land, owing to its coming over a large expanse of water, is moist and chilly. It is occasionally very sultry.

Tellicherry.

Latitude, 11° 45' N., 95 miles S.W. of Seringapatam.

Longitude, 75° 33' E.

Height above sea,

The Wynaad range of hills is 30 miles distant from the station, which is on the sea coast, and exposed to the sea breeze. The land wind is excluded by trees, houses, and gardens.

The climate is moist, especially during the monsoon. The hottest months are March, April, and May; but it is cooler than at most other Indian stations. The air is generally pure. The wet season, from May to September, is the most unhealthy.

Cannanore.

Latitude, 11° 52' N. Longitude, 75° 30' E.

Height above sea, 15 ft.

The nearest mountain range is the Western Ghats, 30 to 40 miles distant from the station.

During November, December, and January a strong land

wind blows from shortly after sunset until the earth has been sufficiently heated by the sun of next day, when a current almost invariably sets in from the sea.

The climate at this station is, on the whole tolerably equable, it is occasionally variable and chilly, and during the wet season it is moist and debilitating.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 82° in August to 90° in April.

The low night temperature varies from 76° in October to 82° in April.

The mean annual temperature is about 82°; mean daily range, 7°.

The annual fall of rain is about 121 inches, of which about 85 inches fall in June, July, and August.

Mercara.

Latitude, 12° 24' N., 47 miles N.E. of Cannanore.

Longitude, 75° 48' E., 130 miles S.E. of Mangalore.

Height above sea, 4,500 ft., 315 miles W. of Madras.

The station is exposed to every wind that blows. The sea breeze is distinctly felt. The east wind is dreaded as parching and destroying young trees.

The climate of Mercara is excellent. The temperature during the hottest season ranging from 62° to 75°. For six months of the year it rains heavily, but the roads are dusty whenever rain is long withheld.

French Rocks.

Latitude, 12° 31' N., 5 miles N. of the River Cauvery, at Seringapatam.

Longitude, 76° 45' E.

Height above sea, 2,560 ft.

There are no mountains or high lands near the station which is exposed to variable winds, not to sea breeze.

The climate is good, being dry during eight months of the year, and somewhat moist during the monsoon. It is not very variable, and pretty free from fog or damp. There are occasional dust storms, which last but a short time.

Mangalore.

Latitude, 12° 50' N. Longitude, 75° 0' E.

Height above sea, 40 ft., on the coast W.

The nearest mountain is about 50 miles distant from the station, which is exposed to land and sea breezes.

MADRAS PRESIDENCY.

Coromandel or East Coast Stations.

Arcot.

Latitude, 12° 30' N. Longitude, 79° 8' E.

Height above sea, 550 ft.

The nearest table land is at Palamanair, 50 miles off, and about 1000 feet higher than this station.

The climate is generally a dry heat. In the monsoon and cold weather, the station is subject to fogs on the lower ground, which extend on to the irrigated land. In the hot weather occasional dust storms take place.

Vellore.

Latitude, 12° 55' N., 220 miles N. of Madura.

Longitude, 79° 11' E., 104 miles E. of Bangalore.

Height above sea, 675 ft., 94 miles N.W. of Cuddalore, 79 miles W. of Madras.

The nearest hill is about $\frac{1}{4}$ of a mile from the cantonment and has an elevation of 780 feet.

The prevailing winds in February are northerly; after March S.E. winds are prevalent, they are hot during the day, but occasionally cool towards early morning. The sea breeze occasionally in the afternoon is strong, but it is generally light, or is replaced by long-shore winds direct.

This is a hot station.

Palaveram.

Latitude, 12° 58' N., 11 miles S.W. of Madras.

Longitude, 80° 15' E.

Height above sea, 40 ft.

There are no hills of any extent nearer than the Neilgherries.

The station would be open were it not for the two hills on the sea or south side, which in a great measure exclude the sea breeze or only cool wind, whereas it is quite exposed to the land or hot winds. This is one of the hottest stations

in India, the thermometer seldom being below 80°, there is no cold season.

The observations of the Madras Observatory would apply here, except that the air is always much closer.

Saint Thomas' Mount.

Latitude, 13° 0' N., 252 miles N.E. of Madura.

Longitude, 80° 15' E., 95 miles N. of Cuddalore,

Height above sea, 60 feet, 178 miles E. of Bangalore, 10 S.W. of Madras.

St. Thomas' Mount rises close behind the barracks.

The station is exposed both to the sea breeze and land wind.

The climate is dry for at least nine months, and hot all the year round, varying from 71° to 95°. There are heavy rains during the months of October and November, and occasional showers from July till September. The average annual fall is between 30 and 40 inches. The climate is very equable; fogs are rare, the air very dusty during the dry season.

Poonamallee.

Latitude, 13° 2' N., 13 miles due W. of Madras.

Longitude, 10° 10' E., 9 miles direct line from coast.

Height above sea, 2 ft.

There are hills of unknown height 40 miles distant from the station, which is open, and freely exposed to variable winds, and to land and sea breezes.

The following are the approximate mean monthly values of temperature:—

High day temperature varies from 80° in January and November to 87° in June.

Low night temperature varies from 74° in January to 82° in June, July, and August.

The mean annual temperature is about 82°; mean daily range 4°.

The annual fall of rain is about 50 inches; 30 inches of which fall in September, October, and November.

Nellore.

Latitude, 14° 20' N. Longitude, 80° 0' E.

Height above sea, 50 ft.

The nearest mountains are 40 miles distant from the station, which is open, and freely exposed to winds. The same winds prevail here as at Madras, Nellore being under the influence of the same monsoons. The long-shore southerly winds in March and April are very exhausting to a European constitution.

The climate of this station is particularly dry, with little variability.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 76° in January to 93° in May.

The low night temperature varies from

The mean annual temperature is about 82°.

The annual fall of rain is about 60 inches; 40 inches fall in September, October, and November, of which 32 inches fall in November.

MADRAS PRESIDENCY.

East Coast upper portion, ranging from 16° N. to 19½° N.

Masulipatam.

Latitude, 16° 10' N., 325 miles N.E. of Bangalore.

Longitude, 81° 13' E., 195 miles S.E. of Hyderabad.

Height above sea, 7 ft., 215 miles N. of Madras.

The nearest high land is the Condapilly hills, about 55 miles distant, at an elevation of 900 to 1000 feet above the level of the station.

The climate has the character of being salubrious. It is dry during the hot season, and damp during the monsoon, is not of a penetrating character. The heat is great at times during the hot land winds in April, May, and the early part of June. It is not subject to any great variations of temperature, but the early mornings in the month of February are distinguished by dense fogs, which are dispersed by the sun at about 8 o'clock. During the dry weather the station is subject to severe dust storms which sweep across in heavy clouds so as at times to obscure the atmosphere.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 82° in January to 95° in May.

The low night temperature varies from 68° in December to 82° in May and June.

The mean annual temperature is about 80°; mean daily range 12°.

The annual fall of rain is about 43 inches.

Guntoor.

Latitude, 16° 20' N., 300 miles N.E. of Bangalore.

Longitude 80° 30' E., 225 miles N. of Madras.

Height above sea, 100 ft., 47 miles W. of Masulipatam.

The nearest mountain is one of a range called Kondaveed and is about 12 miles distant from the station, which is freely exposed to the winds. Sometimes during the months of November and December intensely cold winds from the N. or N.W. set in, and continue for five or six days, which cause severe colds to Europeans. The sea breeze blows pretty constantly every evening during the hotter months of the year, with a most pleasant and salutary effect. Land winds blow at times with great strength.

The climate of Guntoor may be stated to be dry, warm, and not subject to sudden variations of temperature. Fogs occasionally prevail at the end of the year. The air is quite free from dust or other impurity, and the climate would seem to have a most beneficial effect upon convalescents from malarious fever, &c.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 79° in December to 94° in May and June.

The low night temperature varies from 65° in December to 84° in May and June.

The mean annual temperature of the air is about 81°; mean daily range, 10°.

The annual fall of rain is about 42 inches; 18 inches fall in the three months June, July, and August, and 15 inches in the next three months.

Samulcottah.

Latitude, 17° 4' N., 245 miles E. of Hydrabad.

Longitude, 82° 14' E., 410 miles N.E. of Bangalore.

Height above sea, 50 feet, 300 miles N. of Madras.

550 miles S.W. of Calcutta.

The hill of Dhumaverim is to the N.; it is distant 12 miles from the station, which is not exposed to cold or variable winds, the coldest being the N. which is seldom felt.

The N.E. and E. sea breezes prevail from October to January; the S.E. and S. winds from January to May; and land winds S.W. and W. by S. from May to September.

Samulcottah is moderately dry for eight months of the year, and moderately damp for the remaining four months. Unless for a few days before the S.W. monsoon there is no excessive heat, and from November to March the temperature is agreeable.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 81° in January to 96° in May.

The low night temperature varies from 66° in December to 82° in May and June.

The mean annual temperature 79°; mean daily range 13°.

The annual fall of rain is about

Vizianagram.

Latitude, 18° 7' N., 329 miles E. of Hydrabad.

Longitude 83° 28' E., 200 miles N.E. of Masulipatam.

438 miles S.E. of Calcutta.

The nearest mountain is Gallepareevatum, distant about 40 miles from the station, which is exposed to cold sea breezes, and land winds.

Berhampore.

Latitude, 19° 20' N., 150 miles N.E. of Vizagapatam.

Longitude, 84° 50' E., 325 miles S.E. of Calcutta.

Height above sea, 112 ft.

The nearest mountain is 8 miles distant from the station which is open and freely exposed to the winds except on the west; it is exposed to variable winds; to cold winds, November to February; to hot land winds, March to June; to S.W. winds from June to September; and to N.E. winds from the end of September to October.

The climate may be considered a dry one from March to the middle of June, the heat from April to the latter part of June being very great. In July and August the climate

is variable. September, October, and November are damp months. January and February are cold and foggy. There are occasional dust storms which do not, however, render the air impure.

Three stations belonging probably to Bombay Presidency.

Jaulnah.

Latitude, 19° 50' N., 240 miles N.W. of Secunderabad.

Longitude, 75° 56' E., 235 miles S.W. of Nagpore.

Height above sea, 1,652 ft., 210 miles N.E. of Bombay.

The nearest high table land is that of Roza, 55 miles distant from the station, which is open, and freely exposed, but not to cold or variable winds. The land or dry westerly winds blow during the months of March, April, May, and June. The station is too far from the sea for the breeze to reach it.

The climate is generally salubrious; dry and cold, yet liable to great sudden variations of temperature. Fogs and damp are rare. The air is pure, rarely containing dust, &c.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 80° in January to 96° in May.

The low night temperature varies from 64° in January and December to 82° in June.

The mean annual temperature is about 80°; mean daily range, 13°.

The annual fall of rain is about 40 inches.

Kamptee.

Latitude, 21° 10' N., 10 miles N.E. of Nagpore.

Longitude, 79° 50' E., 722 miles from Madras.

Height above sea, 900 ft., 324 miles from Secunderabad.

577 miles from Bombay.

The nearest mountains are those of Chindwarra and Seonie.

The station is open to every wind that happens to blow. The hot land winds are very distressing in May, and until the rains set in in June. The station being 400 miles distant from the sea, no mention of the sea breeze need be made.

The climate partakes of both heat and cold. The year is divided into three seasons, cold, hot, and rainy; transitions of which are regulated, and may be calculated at certain periods.

The cold season is from the middle of October to the middle of March; the hot season, from the middle of March to the middle of June; and the rainy season from the middle of June to the middle of October. The rainy season is preceded by distressing sultriness; and there is a considerable diurnal range of temperature in the cold season which is extremely prejudicial to weak constitutions.

The following are the approximate mean monthly values of temperature:—

The high day temperature varies from 78° in January and December to 96° in May.

The low night temperature varies from 62° in January and December to 83° in June.

The mean annual temperature is about 80°; mean daily range 15°.

The annual fall of rain is about

Hoshingabad. (N.W. Provinces.)

Latitude, 22° 44' N., 114 miles S.W. of Saugor.

Longitude, 77° 44' E., 428 miles S.W. of Allahabad.

144 miles E. of Mhow.

924 miles N.W. of Calcutta.

The Putchmaree hills are about 70 miles distant from the station, which is open and is not particularly exposed to cold or variable winds.

The climate is exceedingly hot, oppressive, and relaxing for the greater part of the year, and very trying to a European constitution.

The following are the approximate mean monthly temperatures of the air:—

The high day temperature varies from 78° in January to 97° in May.

The low night temperature varies from 61° in January to 83° in June.

The mean annual temperature is about 79°; mean daily range 14°.

RELATING TO SECTION II.

MEAN MONTHLY OBSERVED MAXIMUM TEMPERATURE of the AIR.

Tables XLIII. to XLV. at Elevations below 1,000 Feet.
Tables XLVI. to LII. at Elevations above 1,000 Feet.

TABLE XLIII., showing the MEAN MONTHLY MAXIMUM TEMPERATURE of the AIR at Elevations below 1,000 Feet between the Latitudes 8° 43' N. and 17° 4' N. and Longitudes 75° 30' E. and 82° 14' E., principally in the MADRAS PRESIDENCY.

Place . . .	PALAM-COTTAH.	CANNA-NORE.	POONA-MALLEE.	FORT ST. GEORGE.	MADRAS.	NELLORE.	KURNOOL.	GUNTOOR.	SAMUL-COTTAH.	MEANS.
Latitude . . .	8° 43' N.	11° 52' N.	13° 2' N.	13° 4' N.	13° 6' N.	14° 20' N.	15° 50' N.	16° 20' N.	17° 4' N.	14° 49' N.
Longitude . . .	77° 48' E.	75° 30' E.	80° 10' E.	80° 14' E.	80° 21' E.	80° 0' E.	78° 5' E.	80° 30' E.	82° 14' E.	79° 26' E.
Height . . .	120 feet.	15 feet.	2 feet.	.....	.....	50 feet.	800 feet.	100 feet.	50 feet.	126 feet.
MONTH.	5 Years, 1855 to 1859.	10 Years, 1850 to 1859.	5 Years, 1855 to 1859.	....	30 Years, 1796 to 1825.	2 Years, 1859 and 1860.	3 Years, 1857 to 1859.	5 Years, 1855 to 1859.	3 Years, 1857 to 1859.	....
January - -	86	87	80	84	84	76	80	82	78	82
February - -	90	87	81	87	88	80	85	84	83	85
March - -	93	89	82	89	91	85	91	91	88	89
April - -	94	90	85	93	93	86	93	91	92	91
May - -	94	88	86	101	100	93	93	94	95	94
June - -	93	83	87	99	98	92	88	94	90	92
July - -	92	83	86	92	95	87	85	86	85	88
August - -	93	82	84	96	94	86	83	87	85	88
September - -	93	83	83	92	93	87	84	84	85	87
October - -	91	84	82	90	92	85	85	81	83	86
November - -	87	87	80	86	87	78	80	81	80	83
December - -	86	86	81	86	84	77	79	79	78	82
Means - -	91	86	83	91	92	84	85	86	85	87
Difference between hottest and coldest months.	8	8	7	17	16	17	14	15	17	12

TABLE XLIV., showing the MEAN MONTHLY MAXIMUM TEMPERATURE at Elevations below 1,000 Feet between the Latitudes 15° 50' N. and 25° 30' N. and Longitudes 67° 2' E. and 73° 41' E., principally in the BOMBAY PRESIDENCY.

Place	VIN-GORLA.	RUTNA-GHERRY.	DAFOO-LEE.	SURAT.	BARODA.	RAJCOTE.	AHMED-ABAD.	KURRA-CHEE.	DEESA.	HYDER-ABAD.	JACOB-ABAB.	MEANS.
Latitude	15° 50' N.	17° 0' N.	17° 48' N.	21° 10' N.	22° 16' N.	22° 18' N.	23° 0' N.	24° 51' N.	25° 14' N.	25° 30' N.	....	21° 22' N.
Longitude	73° 41' E.	73° 20' E.	73° 16' E.	72° 52' E.	73° 14' E.	70° 50' E.	72° 0' E.	67° 2' E.	72° 5' E.	69° 5' E.	....	71° 44' E.
Height	20 feet.	150 feet.	600 feet.	33 feet.	90 feet.	450 feet.	320 feet.	27 feet.	400 feet.	99 feet.	220 feet.	215 feet.
MONTH.	4 Years, 1856 to 1859.	5 Years, 1855 to 1859.	2 Years, 1858 and 1859.	10 Years, 1850 to 1859.	7 Years, 1847 to 1853.	4 Years, 1857 to 1860.	2 Years, 1858 and 1859.	....	3 Years, 1857 to 1859.	2 Years, 1856 and 1857.	12 Years, 1848 to 1859.	....
January - - -	84	86	88	87	84	78	78	79	79	71	77	81
February - - -	85	87	89	91	90	83	96	77	85	78	82	86
March - - -	87	90	91	98	96	89	94	85	94	89	93	91
April - - -	88	92	93	101	94	97	104	87	102	94	100	96
May - - -	88	93	91	100	105	99	108	91	106	99	108	99
June - - -	85	89	86	94	98	95	94	95	100	99	109	95
July - - -	83	85	83	90	91	88	104	91	93	95	108	92
August - - -	82	84	80	87	88	84	92	92	87	93	102	88
September - - -	82	85	83	90	90	85	90	89	89	90	101	88
October - - -	84	87	88	93	87	89	90	92	93	89	94	90
November - - -	83	87	92	91	90	86	87	89	89	80	88	87
December - - -	85	87	87	88	89	79	79	81	82	73	79	83
Means - - -	85	88	88	92	92	88	93	87	92	87	95	90
Difference between hottest and coldest months.	6	9	13	14	21	21	30	18	27	28	32	18

TABLE XLV., showing the MEAN MONTHLY MAXIMUM TEMPERATURE at Elevations below 1,000 Feet between the Latitudes 20° 18' N. and 23° 29' N. and Longitudes 74° 33' E. and 92° 41' E. in the PRESIDENCY of BENGAL.

Place	TRIT MYO.	SEETA-BULDER.	FORT WILLIAM, CALCUTTA.	BERHAM-PORE.	CHUNAR.	BE-NARES.	LUCK-NOW.	MEERUT.	FEROZEPORE.	PUNJAB.	SEAL-KOTE.	MEANS.
Latitude	20° 18' N.	21° 10' N.	22° 34' N.	24° 5' N.	25° 5' N.	25° 17' N.	26° 0' N.	28° 59' N.	30° 55' N.	31° 40' N.	32° 29' N.	26° 49' N.
Longitude	92° 46' E.	79° 9' E.	88° 25' E.	88° 17' E.	83° 0' E.	83° 4' E.	82° 0' E.	77° 46' E.	74° 35' E.	74° 45' E.	74° 33' E.	80° 33' E.
Height	240 feet.	939 feet.	58 feet.	76 feet.	250 feet.	270 feet.	360 feet.	900 feet.	720 feet.	800 feet.	900 feet.	527 feet.
MONTH.	1 Year, 1859.	3 Years, 1858 to 1860.	5 Years, 1855 to 1859.	3 Years, 1857 to 1859.	10 Years, 1850 to 1859.	2 Years, 1858 and 1859.	3 Years, 1858 to 1860.	1 Year, 1859.	5 Years, 1855 to 1859.	3 Years, 1857 to 1859.	1 Year, 1859.	....
January - - -	89	80	78	76	76	73	78	72	72	61	63	73
February - - -	95	84	83	82	82	74	78	74	77	66	66	76
March - - -	98	88	90	91	93	78	89	76	89	76	80	85
April - - -	101	97	93	98	98	88	98	92	95	83	89	93
May - - -	93	99	94	99	102	98	100	103	105	89	94	98
June - - -	84	90	91	100	103	90	98	97	106	92	98	97
July - - -	87	84	88	92	96	87	96	99	101	89	93	93
August - - -	87	83	87	90	94	83	88	92	96	88	92	89
September - - -	88	84	88	91	93	86	88	85	96	86	91	89
October - - -	87	85	87	88	91	81	86	90	89	84	86	87
November - - -	85	79	82	81	85	74	78	81	81	72	76	79
December - - -	84	74	77	75	77	68	66	69	73	65	64	71
Means - - -	90	86	86	89	91	82	87	86	90	79	83	86
Difference between hottest and coldest months.	17	25	17	25	27	30	34	34	34	31	35	27

TABLE XLVI., showing the MEAN MONTHLY MAXIMUM TEMPERATURE at Elevations between 1,000 and 2,000 Feet between the Latitudes 17° 0' N. and 17° 28' N. and Longitudes 77° 0' E. and 78° 32' E. in the MADRAS PRESIDENCY.

Place	BELLARY.	SECUNDER-ABAD.	MEANS.
Latitude	17° 0' N.	17° 28' N.	17° 14' N.
Longitude	77° 0' E.	78° 32' E.	77° 46' E.
Height	1,500 feet.	1,800 feet.	1,650 feet.
MONTH.	9 Years, 1851 to 1859.	10 Years, 1850 to 1859.	....
January - - -	78	78	78
February - - -	81	82	82
March - - -	85	87	86
April - - -	90	92	91
May - - -	92	95	94
June - - -	86	86	86
July - - -	82	83	83
August - - -	82	83	83
September - - -	84	82	83
October - - -	80	82	81
November - - -	80	79	79
December - - -	78	77	78
Means - - -	83	84	83
Difference between hottest and coldest months.	14	18	16

TABLE XLVII., showing the MEAN MONTHLY MAXIMUM TEMPERATURE at Elevations above 3,000 Feet between the Latitudes 11° 25' N. and 12° 57' N. and Longitudes 77° 5' E. and 77° 38' E. in the MADRAS PRESIDENCY.

Place	BANGALORE.	WELLINGTON.
Latitude	12° 57' N.	11° 25' N.
Longitude	77° 38' E.	77° 5' E.
Height	3,000 feet.	6,000 feet.
MONTH.	1 Year, 1859.	1 Year, 1859.
January - - -	79	68
February - - -	83	66
March - - -	88	71
April - - -	86	67
May - - -	91	73
June - - -	84	73
July - - -	84	74
August - - -	81	75
September - - -	82	75
October - - -	82	74
November - - -	79	68
December - - -	80	75
Means - - -	83	72
Difference between hottest and coldest months.	12	9

TABLE XLVIII., showing the MEAN MONTHLY MAXIMUM TEMPERATURE at Elevations between 1,000 and 2,000 Feet between the Latitudes 16° 11' N. and 26° 20' N., and Longitudes 73° 1' E. and 77° 25' E., principally in the BOMBAY PRESIDENCY.

Place .	KULLADGHEE.	KOLAPORE.	SHOLAPORE.	POONA.	SEROOR.	DHOOLIA.	MHOW.	AHMED-NUGGUR.	NEEMTCH.	NUSSER-ABAD.	MEANS.
Latitude .	16° 11' N.	16° 42' N.	17° 40' N.	18° 30' N.	18° 50' N.	20° 54' N.	22° 33' N.	23° 34' N.	24° 27' N.	26° 20' N.	20° 35' N.
Longitude .	75° 33' E.	74° 18' E.	76° 0' E.	74° 0' E.	77° 25' E.	74° 45' E.	75° 46' E.	73° 1' E.	74° 54' E.	74° 50' E.	75° 3' E.
Height .	1,750 feet.	1,797 feet.	1,821 feet.	1,800 feet.	1,752 feet.	1,000 feet.	1,862 feet.	1,900 feet.	1,476 feet.	1,500 feet.	1,665 feet.
MONTH.	5 Years, 1855 to 1859.	10 Years, 1850 to 1859.	11 Years, 1850 to 1860.	5 Years, 1856 to 1860.	5 Years, 1854 to 1858.	6 Years, 1853 to 1858.	2 Years, 1859 and 1860.	6 Years, 1854 to 1859.	1 Year, 1860.	2 Years, 1859 and 1860.	....
January - -	89	77	80	81	94	80	75	83	62	65	79
February - -	92	82	84	87	94	86	77	87	71	76	84
March - - -	101	87	91	91	101	92	85	94	80	80	90
April - - -	104	88	93	95	107	98	92	98	92	91	96
May - - - -	101	89	93	93	98	101	95	98	94	95	96
June - - - -	96	81	88	85	96	94	85	88	82	99	89
July - - - -	91	77	84	80	91	85	86	83	76	91	84
August - - -	93	77	84	78	88	84	77	82	75	89	83
September - -	91	78	84	79	84	84	78	81	79	86	82
October - - -	91	80	83	84	96	86	81	84	77	84	85
November - - -	88	78	81	83	95	83	78	82	78	84	83
December - - -	85	77	78	80	99	81	74	80	76	69	80
Means - - -	93	81	85	85	95	88	82	87	79	84	86
Difference between hottest and coldest months.	19	12	15	17	23	21	21	18	32	34	17

TABLE XLIX., showing the MONTHLY MEAN MAXIMUM TEMPERATURE at Elevations between 2,000 and 3,000 Feet, between the Latitudes 15° 50' N. and 17° 40' N., and Longitudes 74° 2' E. and 75° 10' E., principally in the BOMBAY PRESIDENCY.

TABLE L., showing the MONTHLY MEAN MAXIMUM TEMPERATURE at Elevations between 4,000 and 5,000 Feet between the Latitudes 17° 59' N. and 44° 45' N., and Longitudes 72° 49' E. and 73° 54' E., principally in the BOMBAY PRESIDENCY.

Place . . .	DHARWAR.	BELGAUM.	SATTARA.	MEANS.	Place . . .	MAHAR-LESHWUR.	POORINDHUR.	MOUNT ABOO.	MEANS.
Latitude . . .	15° 50' N.	15° 52' N.	17° 40' N.	16° 27' N.	Latitude . . .	17° 59' N.	18° 12' N.	24° 45' N.	20° 19' N.
Longitude . . .	75° 10' E.	74° 42' E.	74° 2' E.	74° 38' E.	Longitude . . .	73° 30' E.	73° 54' E.	72° 49' E.	73° 24' E.
Height . . .	2,482 feet.	2,260 feet.	2,320 feet.	2,354 feet.	Height . . .	4,500 feet.	4,200 feet.	4,000 feet.	4,233 feet.
MONTH.	2 Years, 1859 and 1860.	4 Years, 1856 to 1859.	....	....	MONTH.	1 Year, 1834.	2 Years, 1852 and 1853.	5 Years, 1855 to 1859.	....
January - - -	83	85	82	83	January - - -	71	71	71	71
February - - -	89	91	82	87	February - - -	74	77	78	76
March - - - -	92	94	89	92	March - - - -	82	81	82	82
April - - - -	91	97	92	93	April - - - -	82	83	87	84
May - - - - -	91	89	90	90	May - - - - -	81	78	92	84
June - - - - -	83	81	80	81	June - - - - -	69	80	92	80
July - - - - -	80	79	76	78	July - - - - -	67	71	81	73
August - - - -	77	78	75	77	August - - - -	67	68	76	71
September - - -	77	80	78	78	September - - -	66	73	78	72
October - - - -	82	85	79	82	October - - - -	69	74	79	74
November - - - -	85	84	79	83	November - - - -	70	73	79	74
December - - - -	80	83	80	81	December - - - -	68	70	73	70
Means - - - -	84	85	82	84	Means - - - -	72	75	81	76
Difference between hottest and coldest months.	15	19	17	16	Difference between hottest and coldest months.	16	15	21	14

TABLE LI., showing the MEAN MONTHLY MAXIMUM TEMPERATURE, at Elevations between 1,000 and 2,000 Feet, between the Latitudes 26° 42' N. and 34° 20' N., and Longitudes 71° 29' E. and 77° 12' E., principally in the BENGAL PRESIDENCY.

TABLE LII., showing the MEAN MONTHLY MAXIMUM TEMPERATURE at Elevations above 4,000 Feet, between the Latitudes 25° 14' N. and 27° 2' N. and Longitudes 88° 18' E. and 91° 45' E. in the PRESIDENCY of BENGAL.

Place . . .	KHER-WARRAH.	UMBALLA.	MEAN MBER.	PESHA-WOR.	MEANS.	MEANS.	Place . . .	CHIRRA-POONGEE.	DAR-JEELING.	NYNEE TAL.
Latitude . . .	26° 42' N.	30° 23' N.	30° 34' N.	34° 20' N.	30° 30' N.	30° 32' N.	Latitude . . .	25° 14' N.	27° 2' N.	29° 20' N.
Longitude . . .	79° 12' E.	76° 44' E.	74° 4' E.	71° 29' E.	75° 22' E.	74° 55' E.	Longitude . . .	91° 45' E.	88° 18' E.	79° 30' E.
Height . . .	1,200 feet.	1,050 feet.	1,128 feet.	1,056 feet.	1,109 feet.	1,128 feet.	Height . . .	4,118 feet.	7,000 feet.	6,400 feet.
MONTH.	5 Years, 1854 to 1858.	2 Years, 1851 and 1852.	5 Years, 1855 to 1859.	6 Years, 1855 to 1860.	Including Umbala.	Without Umbala.	MONTH.	2 Years, 1859 and 1860.	3 Years, 1857 to 1859.	9 Years, 1846 to 1854.
January - - -	74	81	64	60	70	66	January - - -	61	50	64
February - - -	82	86	72	62	75	72	February - - -	65	51	65
March - - -	91	84	80	73	82	81	March - - -	67	57	72
April - - -	99	101	92	87	95	93	April - - -	72	60	78
May - - -	103	109	98	96	102	99	May - - -	74	63	83
June - - -	93	113	95	102	101	97	June - - -	71	65	81
July - - -	87	108	96	100	98	94	July - - -	73	64	77
August - - -	85	100	95	99	95	93	August - - -	71	65	76
September - - -	88	100	91	94	93	91	September - - -	72	65	76
October - - -	87	98	84	86	89	86	October - - -	73	61	76
November - - -	81	84	78	74	79	78	November - - -	64	57	71
December - - -	74	76	69	63	71	69	December - - -	58	52	67
Means - - -	87	95	84	83	87	85	Means - - -	68	59	74
Difference between hottest and coldest months.	29	37	34	42	32	33	Difference between hottest and coldest months.	16	15	19

RELATING TO SECTION III.

MEAN MONTHLY OBSERVED MINIMUM TEMPERATURE of the AIR.

Tables LIII. to LV. at Elevations below 1,000 Feet

Tables LVI. to LXII. at Elevations above 1,000 Feet.

TABLE LIII., showing the MEAN MONTHLY MINIMUM TEMPERATURE at Elevations below 1,000 Feet, between the Latitudes 8° 43' N. and 17° 4' N., and Longitudes 75° 30' E. and 82° 14' E., principally in the MADRAS PRESIDENCY.

Place . . .	PALAM-COTTAH.	CAN-NANORE.	POONA-MALLEE.	FORT ST. GEORGE.	MADRAS.	NELLORE.	KURNOOL.	GUNTOOR.	SAMUL-COTTAH.	MEANS.
Latitude . . .	8° 43' N.	11° 52' N.	13° 2' N.	13° 4' N.	13° 6' N.	14° 20' N.	15° 50' N.	16° 20' N.	17° 4' N.	14° 49' N.
Longitude . . .	77° 48' E.	75° 30' E.	80° 10' E.	80° 14' E.	80° 21' E.	80° 0' E.	78° 5' E.	80° 30' E.	82° 14' E.	79° 26' E.
Height . . .	120 feet.	15 feet.	2 feet.	....	....	50 feet.	800 feet.	100 feet.	50 feet.	....
MONTH.	5 Years, 1855 to 1859.	10 Years, 1850 to 1859.	5 Years, 1855 to 1859.	....	30 Years, 1796 to 1825.	2 Years, 1859 and 1860.	3 Years, 1857 to 1859.	5 Years, 1855 to 1859.	3 Years, 1857 to 1859.	....
January - - -	76	78	74	65	69	72	75	68	55	70
February - - -	77	79	76	65	70	75	79	73	60	73
March - - -	82	81	78	69	72	77	86	72	65	76
April - - -	84	82	80	74	77	-	90	81	75	80
May - - -	84	80	81	78	81	-	88	84	80	82
June - - -	84	77	82	79	81	-	84	84	78	81
July - - -	83	77	82	77	79	-	82	80	78	80
August - - -	82	78	82	74	79	-	81	81	77	79
September - - -	83	77	79	74	78	79	81	79	76	78
October - - -	82	76	78	73	76	81	81	70	74	77
November - - -	79	77	75	67	73	76	76	72	63	73
December - - -	77	76	76	66	71	74	74	65	53	70
Means - - -	81	78	78	72	76	-	81	76	69	77
Difference between hottest and coldest months.	8	6	8	14	12	-	16	19	27	12

TABLE LIV., showing the MEAN MONTHLY MINIMUM TEMPERATURE at Elevations below 1,000 Feet, between the Latitudes 15° 50' N. and 25° 30' N., and Longitudes 67° 2' E. and 73° 41' E., principally in the BOMBAY PRESIDENCY.

Place	VIN- GORLA.	RUTNA- GHERRY.	DAPOO- LEE.	SURAT.	BARODA.	RAJCOTE.	AHMED- ABAD.	KURRA- CHEE.	DEESA.	HYDER- ABAD.	JACOB- ABAD.	MEANS.
Latitude	15° 50' N.	17° 0' N.	17° 45' N.	21° 10' N.	22° 16' N.	22° 18' N.	23° 0' N.	24° 51' N.	25° 14' N.	25° 30' N.	..	21° 22' N.
Longitude	73° 41' E.	73° 20' E.	73° 16' E.	72° 52' E.	73° 14' E.	70° 50' E.	72° 0' E.	67° 2' E.	72° 5' E.	69° 5' E.	..	71° 44' E.
Height	20 feet.	150 feet.	600 feet.	33 feet.	90 feet.	450 feet.	320 feet.	27 feet.	400 feet.	99 feet.	220 feet.	215 feet.
MONTH.	4 Years, 1856 to 1859.	5 Years, 1855 to 1859.	2 Years, 1858 and 1859.	10 Years, 1850 to 1859.	7 Years, 1847 to 1853.	4 Years, 1857 to 1860.	2 Years, 1858 and 1859.	..	3 Years, 1857 to 1859.	2 Years, 1856 and 1857.	12 Years, 1848 to 1859.	..
January - - -	72	70	61	59	58	59	65	51	50	58	44	59
February - - -	73	71	62	69	56	62	65	57	54	62	48	62
March - - -	76	74	69	70	71	71	73	66	62	72	56	69
April - - -	79	76	74	76	69	77	82	73	71	78	70	75
May - - -	80	77	76	80	83	83	86	77	78	83	83	81
June - - -	77	77	75	80	80	83	84	80	79	85	90	81
July - - -	76	74	75	78	80	81	77	79	79	84	87	79
August - - -	76	76	73	79	76	79	77	80	76	82	83	78
September - - -	76	77	72	77	77	79	77	78	73	80	81	77
October - - -	77	74	70	73	73	77	77	72	62	76	69	73
November - - -	75	71	66	67	64	66	70	56	53	65	53	64
December - - -	73	70	61	63	58	64	60	51	48	58	46	59
Means - - -	76	74	69	72	69	73	74	67	65	73	67	72
Diff. between hottest and coldest months.	8	7	15	21	27	24	26	29	31	27	46	22

TABLE LV., showing the MEAN MONTHLY MINIMUM TEMPERATURE at Elevations below 1,000 Feet, between the Latitudes 20° 15' N. and 32° 29' N., and Longitudes 74° 33' E. and 92° 46' E., in the PRESIDENCY of BENGAL.

Place	THYET MYO.	SEETA- BULDEE.	FORT WILLIAM (CAL- CUTTA).	BERHAM- PORE.	CHUNAR.	BENARES	LUCK- NOW.	MEERUT.	FEROZE- PORE.	PUNJAB.	SEAL- KOTE.	MEANS.
Latitude	20° 15' N.	21° 10' N.	22° 34' N.	24° 5' N.	25° 5' N.	25° 17' N.	26° 0' N.	28° 59' N.	30° 55' N.	31° 40' N.	32° 29' N.	26° 49' N.
Longitude	92° 46' E.	79° 9' E.	88° 25' E.	88° 17' E.	83° 0' E.	83° 4' E.	82° 0' E.	77° 46' E.	74° 35' E.	74° 45' E.	74° 33' E.	80° 33' E.
Height	240 feet.	939 feet.	8 feet.	76 feet.	250 feet.	270 feet.	360 feet.	900 feet.	720 feet.	800 feet.	900 feet.	527 feet.
MONTH.	1 Year, 1859.	2 Years, 1858 and 1860.	5 Years, 1855 to 1859.	3 Years, 1857 to 1859.	10 Years, 1850 to 1859.	2 Years, 1858 and 1859.	3 Years, 1858 to 1860.	1 Year, 1859.	5 Years, 1855 to 1859.	3 Years, 1857 to 1859.	1 Year, 1859.	..
January - - -	53	61	60	51	54	60	53	50	47	47	51	53
February - - -	62	75	65	54	57	65	59	55	58	54	51	59
March - - -	67	78	73	61	68	71	64	58	63	60	58	65
April - - -	77	87	77	69	74	80	78	71	67	71	67	74
May - - -	78	92	79	71	80	88	81	77	83	82	74	81
June - - -	75	86	81	77	81	85	82	83	84	86	81	83
July - - -	77	81	80	76	79	85	80	85	80	85	80	82
August - - -	78	80	79	77	78	80	81	80	76	84	78	79
September - - -	78	80	80	78	77	81	82	76	78	80	72	79
October - - -	76	77	77	70	72	78	73	63	69	67	64	71
November - - -	66	69	67	60	62	67	62	50	56	51	60	60
December - - -	62	65	59	55	53	59	55	53	52	44	54	55
Means - - -	71	78	73	67	69	75	71	67	68	68	66	70
Diff. between hottest and coldest months.	25	31	22	27	28	29	29	35	37	42	30	30

TABLE LVI., showing the MEAN MONTHLY MINIMUM TEMPERATURE at Elevations between 1,000 and 2,000 Feet, between the Latitudes 17° 0' N. and 17° 28' N., and Longitudes 77° 0' E. and 78° 32' E., in the MADRAS PRESIDENCY.

TABLE LVII., showing the MEAN MONTHLY MINIMUM TEMPERATURE at Elevations above 3,000 Feet, between the Latitudes 11° 25' N. and 12° 57' N., and Longitudes 77° 5' E. and 77° 38' E., in the MADRAS PRESIDENCY.

Place	BELLARY.	SECUNDER- ABAD.	MEANS.	Place	BANGALORE.	WELLINGTON.
Latitude	17° 0' N.	17° 28' N.	17° 14' N.	Latitude	12° 57' N.	11° 25' N.
Longitude	77° 0' E.	78° 32' E.	77° 46' E.	Longitude	77° 38' E.	77° 5' E.
Height	1,500 feet.	1,800 feet.	1,650 feet.	Height	3,000 feet.	6,000 feet.
MONTH.	9 Years, 1851 to 1859.	10 Years, 1850 to 1859.	..	MONTH.	1 Year, 1859.	1 Year, 1859.
January - - - - -	68	64	66	January - - - - -	59	60
February - - - - -	65	66	66	February - - - - -	63	60
March - - - - -	68	73	70	March - - - - -	70	63
April - - - - -	75	76	75	April - - - - -	71	62
May - - - - -	77	82	80	May - - - - -	72	65
June - - - - -	76	77	77	June - - - - -	69	65
July - - - - -	72	75	74	July - - - - -	70	62
August - - - - -	73	74	73	August - - - - -	69	65
September - - - - -	73	73	73	September - - - - -	70	59
October - - - - -	70	71	71	October - - - - -	69	65
November - - - - -	72	67	70	November - - - - -	67	64
December - - - - -	68	64	66	December - - - - -	62	65
Means - - - - -	71	72	72	Means - - - - -	67	63
Difference between hottest and coldest months. } 12	18	14	Difference between hottest and coldest months. } 13	6		

TABLE LVIII., showing the MEAN MONTHLY MINIMUM TEMPERATURE at Elevations between 1,000 and 2,000 Feet, between the Latitudes 16° 11' N. and 26° 20' N., and Longitudes 73° 1' E. and 77° 25' E., principally in the BOMBAY PRESIDENCY.

Place	KULLAD- GHRE.	KOLAPORE	SHOLA- FORE.	POONA.	SEROOR.	DHODLIA.	MHOW.	AHMED- NUGGUR.	NEEMUCH.	NUSSEER- ABAD.	MEANS.
Latitude	16° 11' N.	16° 42' N.	17° 40' N.	18° 30' N.	18° 50' N.	20° 54' N.	22° 33' N.	23° 24' N.	24° 27' N.	26° 20' N.	20° 35' N.
Longitude	75° 33' E.	74° 18' E.	76° 0' E.	74° 0' E.	77° 25' E.	74° 45' E.	75° 46' E.	73° 1' E.	74° 54' E.	74° 50' E.	75° 3' E.
Height	1,750 feet.	1,797 feet.	1,821 feet.	1,800 feet.	1,752 feet.	1,000 feet.	1,862 feet.	1,900 feet.	1,476 feet.	1,500 feet.	1,665 feet
MONTH.	5 Years, 1855 to 1859.	10 Years, 1850 to 1859.	11 Years, 1850 to 1860.	5 Years, 1856 to 1860.	5 Years, 1854 to 1858.	6 Years, 1853 to 1858.	2 Years, 1859 and 1860.	6 Years, 1854 to 1859.	1 Year, 1860.	2 Years, 1859 and 1860.	..
January - - - - -	60	67	69	58	50	62	65	59	49	61	60
February - - - - -	66	69	72	63	51	65	68	62	50	69	63
March - - - - -	74	75	78	68	59	72	75	69	60	73	70
April - - - - -	74	76	85	71	64	79	79	75	70	83	76
May - - - - -	74	77	83	74	69	83	78	76	75	84	77
June - - - - -	72	76	79	72	69	81	64	74	78	88	75
July - - - - -	73	74	78	70	68	79	78	73	73	84	75
August - - - - -	73	73	77	69	68	77	74	71	73	77	73
September - - - - -	73	74	77	68	66	76	73	70	71	76	72
October - - - - -	68	75	76	66	68	73	74	69	66	78	71
November - - - - -	63	72	73	61	59	65	73	63	56	66	65
December - - - - -	60	67	66	58	50	61	67	59	55	59	60
Means - - - - -	69	73	75	66	62	73	73	68	64	75	70
Difference between hottest and coldest months. } 14	10	19	16	19	22	14	17	29	29	17	

TABLE LIX., showing the MONTHLY MEAN MINIMUM TEMPERATURE at Elevations between 2,000 and 3,000 Feet between the Latitudes 15° 50' N. and 17° 40' N., and Longitudes 74° 2' E. and 75° 10' E., principally in the BOMBAY PRESIDENCY.

Place	DHARWAR.	BELGAUM.	SATTARA.	MEANS.
Latitude	15° 50' N.	15° 52' N.	17° 40' N.	16° 27' N.
Longitude	75° 10' E.	74° 42' E.	74° 2' E.	74° 38' E.
Height	2,482 feet.	2,260 feet.	2,320 feet.	2,354 feet.
MONTH.	2 Years, 1859 and 1860.	4 Years, 1856 to 1859.	....	....
January - - -	61	57	64	61
February - - -	71	59	66	65
March - - - -	74	62	71	69
April - - - -	73	66	75	71
May - - - - -	77	66	75	73
June - - - - -	75	66	72	71
July - - - - -	73	66	71	70
August - - - -	70	65	71	69
September - - -	70	64	70	68
October - - - -	71	62	69	67
November - - - -	69	62	64	65
December - - - -	64	57	62	61
Means - - - - -	70	63	69	67
Difference between hottest and coldest months. }	16	9	13	12

TABLE LX., showing the MONTHLY MEAN MINIMUM TEMPERATURE at Elevations between 4,000 and 5,000 Feet, between the Latitudes 17° 59' N. and 24° 45' N., and Longitudes 72° 49' E. and 73° 54' E., principally in the BOMBAY PRESIDENCY.

Place	MAHAB-LESHWUR.	POORUN-DHUR.	MOUNT ABOO.	MEANS.
Latitude	17° 59' N.	18° 12' N.	24° 45' N.	20° 19' N.
Longitude	73° 30' E.	73° 54' E.	72° 49' E.	73° 34' E.
Height	4,500 feet.	4,200 feet.	4,000 feet.	4,250 feet.
MONTH.	1 Year, 1834.	2 Years, 1852 and 1853.	5 Years, 1855 to 1859.	....
January - - -	60	62	43	55
February - - -	61	67	47	58
March - - - -	66	70	60	65
April - - - - -	67	71	61	66
May - - - - -	67	68	66	67
June - - - - -	63	65	66	65
July - - - - -	63	65	65	64
August - - - -	64	64	64	64
September - - -	64	65	62	64
October - - - -	62	67	61	63
November - - - -	57	65	55	59
December - - - -	56	59	43	53
Means - - - - -	62	65	57	62
Difference between hottest and coldest months. }	11	12	23	14

TABLE LXI., showing the MEAN MINIMUM TEMPERATURE at Elevations between 1,000 and 2,000 Feet, between the Latitudes 26° 42' N. and 34° 20' N., and Longitudes 71° 29' E. and 79° 12' E., principally in the PRESIDENCY of BENGAL.

Place	KHFR-WARRAH.	UMBALLA.	MEAN MEER.	PESHAWUR.	MEANS.	MEANS.
Latitude	26° 42' N.	30° 23' N.	30° 34' N.	34° 20' N.	30° 30' N.	30° 32' N.
Longitude	79° 12' E.	76° 44' E.	74° 4' E.	71° 29' E.	75° 22' E.	74° 55' E.
Height	1,200 feet.	1,050 feet.	1,128 feet.	1,056 feet.	1,109 feet.	1,128 feet.
MONTH.	5 Years, 1854 to 1858.	2 Years, 1851 and 1852.	5 Years, 1855 to 1859.	6 Years, 1855 to 1860.	Including Umballa.	Not including Umballa.
January - - -	53	37	45	44	45	47
February - - -	58	46	48	49	50	52
March - - - -	67	50	62	57	59	62
April - - - - -	76	54	66	64	65	69
May - - - - -	84	62	74	78	75	79
June - - - - -	81	76	82	79	80	81
July - - - - -	78	74	78	81	78	79
August - - - -	76	76	77	77	77	77
September - - -	76	65	74	73	72	74
October - - - -	68	54	66	67	64	67
November - - - -	54	41	59	54	52	56
December - - - -	52	37	51	48	47	50
Means - - - - -	69	56	65	64	64	66
Difference between hottest and coldest months. }	32	39	37	37	35	34

TABLE LXII., showing the MEAN MINIMUM TEMPERATURE at Elevations above 4,000 Feet between the Latitudes 25° 14' N. and 29° 20' N., and Longitudes 79° 30' E. and 91° 45' E. in the PRESIDENCY of BENGAL.

Place	CHIRRA-POONGEE.	DARJEE-LING.	NYNFE TAL.
Latitude	25° 14' N.	27° 2' N.	29° 20' N.
Longitude	91° 45' E.	88° 18' E.	79° 30' E.
Height	4,118 feet.	7,000 feet.	6,400 feet.
MONTH.	2 Years, 1859 and 1860.	3 Years, 1857 to 1859.	9 Years, 1846 to 1854.
January - - -	52	39	28
February - - -	50	39	31
March - - - -	56	46	38
April - - - - -	64	50	45
May - - - - -	66	53	52
June - - - - -	66	58	57
July - - - - -	68	58	59
August - - - -	67	58	58
September - - -	67	56	54
October - - - -	65	50	46
November - - - -	48	44	33
December - - - -	47	39	35
Means - - - - -	60	49	45
Difference between hottest and coldest months. }	21	19	31

RELATING TO SECTION IV.

MEAN MONTHLY OBSERVED DAILY RANGE OF TEMPERATURE IN EACH PRESIDENCY.

Tables LXIII. to LXV. at Elevations below 1,000 Feet.
Tables LXVI. to LXXI. at Elevations above 1,000 Feet.

TABLE LXIII., showing the MEAN DAILY RANGE of TEMPERATURE at Elevations below 1,000 Feet, between the Latitudes 8° 43' N. and 17° 4' N., and Longitudes 75° 30' E. and 82° 14' E., principally in the PRESIDENCY of MADRAS.

Place	PALAM-COTTAH.	CANNANORE.	POONA-MALLER.	FORT ST. GEORGE.	MADRAS.	NELLORE.	KURNOOL.	GUNTOOR.	SAMUL-COTTAH.	MEANS.
Latitude	8° 43' N.	11° 52' N.	13° 2' N.	13° 4' N.	13° 6' N.	14° 20' N.	15° 50' N.	16° 20' N.	17° 4' N.	14° 49' N.
Longitude	77° 48' E.	75° 30' E.	80° 10' E.	80° 14' E.	80° 21' E.	80° 0' E.	78° 5' E.	80° 30' E.	82° 14' E.	79° 26' E.
Height	120 feet.	15 feet.	2 feet.	....	....	50 feet.	800 feet.	100 feet.	50 feet.	144 feet.
MONTH.	5 Years, 1855 to 1859.	10 Years, 1850 to 1859.	5 Years, 1855 to 1859.	....	30 Years, 1796 to 1825.	2 Years, 1859 and 1860.	3 Years, 1857 to 1859.	5 Years, 1855 to 1859.	3 Years, 1837 to 1859.	...
January - - -	10	9	8	19	15	4	5	14	23	12
February - - -	13	8	5	21	18	5	6	11	23	12
March - - -	11	8	4	20	19	8	5	19	23	13
April - - -	10	8	5	19	16	-	3	10	17	11
May - - -	10	8	5	23	19	-	5	10	15	12
June - - -	9	6	5	20	17	-	4	10	12	10
July - - -	9	6	4	15	16	-	3	6	7	8
August - - -	11	4	2	21	15	-	2	6	8	9
September - - -	10	6	4	18	15	8	3	5	9	9
October - - -	9	8	4	16	16	4	4	11	9	9
November - - -	8	10	5	19	14	2	4	9	17	10
December - - -	9	10	5	20	13	3	5	14	25	12
Means - - -	10	7	4	19	16	-	4	10	16	15
Difference between greatest and least range - - -	5	6	4	8	6	-	4	14	18	5

TABLE LXIV., showing the MEAN DAILY RANGE of TEMPERATURE at Elevations below 1,000 Feet, between the Latitudes 15° 50' N. and 25° 30' N., and Longitudes 67° 2' E. and 73° 41' E., principally in the BOMBAY PRESIDENCY.

Place	VINGORLA.	RUTNA-GHERRY.	DAPOOLEE.	SURAT.	BABODA.	RAJCOLE.	AHMED-ABAD.	KURRACHEE.	DEESA.	HYDER-ABAD.	JACOB-ABAD.	MEANS.
Latitude	15° 50' N.	17° 0' N.	17° 45' N.	21° 10' N.	22° 16' N.	22° 18' N.	23° 0' N.	24° 51' N.	25° 14' N.	25° 30' N.	....	21° 22' N.
Longitude	73° 41' E.	73° 20' E.	73° 16' E.	72° 52' E.	73° 14' E.	70° 50' E.	73° 0' E.	67° 2' E.	72° 5' E.	69° 5' E.	....	71° 44' E.
Height	20 feet.	150 feet.	600 feet.	33 feet.	90 feet.	450 feet.	320 feet.	27 feet.	400 feet.	99 feet.	220 feet.	215 feet.
MONTH.	4 Years, 1856 to 1859.	5 Years, 1855 to 1859.	2 Years, 1858 and 1859.	10 Years, 1850 to 1859.	7 Years, 1847 to 1853.	4 Years, 1857 to 1860.	2 Years, 1858 and 1859.	....	3 Years, 1857 to 1859.	2 Years, 1856 and 1857.	12 Years, 1848 to 1859.	....
January - - -	12	16	27	28	26	19	13	27	29	13	33	22
February - - -	12	16	27	22	34	21	31	20	31	16	34	24
March - - -	11	16	22	28	25	18	21	19	32	17	37	22
April - - -	9	16	19	25	25	20	22	14	31	16	30	21
May - - -	8	16	15	20	22	16	22	14	28	16	25	18
June - - -	8	12	11	14	18	12	10	14	21	14	19	14
July - - -	7	11	8	12	11	7	27	12	14	11	21	13
August - - -	6	8	7	8	12	5	15	12	11	11	19	10
September - - -	6	8	11	13	13	6	13	10	16	10	20	11
October - - -	7	13	18	20	14	12	13	21	31	13	25	17
November - - -	8	16	26	24	26	20	17	33	36	15	35	23
December - - -	12	17	26	25	31	15	19	30	34	15	33	23
Means - - -	9	14	19	20	23	15	19	20	27	14	28	18
Difference between greatest and least range - - -	6	9	20	20	15	14	21	23	25	6	18	14

TABLE LXV., showing the MEAN DAILY RANGE of TEMPERATURE at Elevations below 1,000 Feet, between the Latitudes 20° 15' N. and 32° 29' N., and Longitudes 74° 33' E. and 92° 46' E., in the PRESIDENCY of BENGAL.

Place . . .	THYET MYO.	SRETA-BULDER.	FORT WILLIAM, CALCUTTA.	BERHAM-PORE.	CHUNAR.	BENARES.	LUCK-NOW.	MEERUT.	FEROZE-PORE.	PUNJAB.	SEAL-KOTE.	MEANS.
Latitude . . .	20° 15' N.	21° 10' N.	22° 34' N.	24° 5' N.	25° 5' N.	25° 17' N.	26° 0' N.	28° 59' N.	30° 55' N.	31° 40' N.	32° 29' N.	26° 49' N.
Longitude . . .	92° 46' E.	79° 9' E.	88° 25' E.	88° 17' E.	83° 0' E.	83° 4' E.	82° 0' E.	77° 46' E.	74° 35' E.	74° 45' E.	74° 33' E.	80° 33' E.
Height . . .	240 feet.	939 feet.	8 feet.	76 feet.	250 feet.	270 feet.	360 feet.	900 feet.	720 feet.	800 to 900 feet.	900 feet.	527 feet.
MONTH.	1 Year, 1859.	2 Years, 1858 to 1860.	5 Years, 1855 to 1859.	3 Years, 1857 to 1859.	10 Years, 1850 to 1859.	2 Years, 1858 and 1859.	3 Years, 1858 to 1860.	1 Year, 1859.	5 Years, 1855 to 1859.	3 Years, 1857 to 1859.	1 Year, 1859.	...
January - - -	36	19	18	25	22	13	25	22	25	14	12	20
February - - -	33	9	18	28	25	9	19	19	19	12	15	17
March - - -	31	10	17	30	30	7	20	18	26	16	22	20
April - - -	24	10	16	29	24	8	20	21	28	12	22	19
May - - -	15	7	15	28	22	10	19	26	22	7	20	17
June - - -	9	4	10	23	22	5	16	14	22	6	17	14
July - - -	10	3	8	16	17	2	16	14	21	4	13	11
August - - -	9	3	8	13	16	3	7	12	20	4	14	10
September - - -	10	4	8	13	16	5	6	9	18	6	19	10
October - - -	11	8	10	18	19	3	13	27	20	17	22	16
November - - -	19	10	15	21	23	7	16	31	25	21	16	19
December - - -	22	9	18	20	24	9	11	16	21	21	10	16
Means - - -	19	8	13	22	22	7	16	19	22	11	17	16
Difference between greatest and least range	27	16	10	17	14	11	19	22	10	17	9	10

TABLE LXVI., showing the MEAN DAILY RANGE of TEMPERATURE at Elevations up to 6,000 Feet in the MADRAS PRESIDENCY.

Place	BELLARY.	SECUNDERABAD.	MEANS of two preceding columns.	BANGALORE.	WELLINGTON.
Latitude	17° 0' N.	17° 28' N.	17° 14' N.	12° 27' N.	11° 25' N.
Longitude	77° 0' E.	78° 32' E.	77° 46' E.	77° 38' E.	77° 5' E.
Height	1,500 feet.	1,800 feet.	1,650 feet.	3,000 feet.	6,000 feet.
MONTH.	9 Years, 1851 to 1859.	10 Years, 1850 to 1859.	9½ Years, 1850 to 1859.	1 Year, 1859.	1 Year, 1859.
January - - - - -	0	14	12	20	8
February - - - - -	16	16	16	20	6
March - - - - -	17	14	16	18	8
April - - - - -	15	16	16	15	5
May - - - - -	15	13	14	19	8
June - - - - -	10	9	9	15	8
July - - - - -	10	8	9	14	12
August - - - - -	9	9	9	12	10
September - - - - -	11	9	10	12	16
October - - - - -	10	11	10	13	9
November - - - - -	8	12	10	12	4
December - - - - -	10	13	12	18	10
Means - - - - -	12	12	11	5	20
Difference between greatest and least range	8	8	7	8	11

TABLE LXVII., showing the MEAN DAILY RANGE of TEMPERATURE at Elevations between 1,000 and 2,000 Feet, between the Latitudes 16° 11' N. and 26° 20' N., and Longitudes 73° 1' E. and 77° 25' E., principally in the BOMBAY PRESIDENCY.

Place . . .	KUL-LADGHEE.	KOLA-PORE.	SHOLA-PORE.	POONA.	SEROOR.	DHOOLIA.	MHOW.	ARMED-NUGGUR.	NEEMUCH.	NUSSEER-ABAD.	MEANS.
Latitude . . .	16° 11' N.	16° 42' N.	17° 40' N.	18° 30' N.	18° 50' N.	20° 54' N.	22° 33' N.	23° 34' N.	24° 27' N.	26° 20' N.	20° 35' N.
Longitude . . .	75° 33' E.	74° 18' E.	76° 0' E.	74° 0' E.	77° 25' E.	74° 45' E.	75° 46' E.	73° 1' E.	74° 54' E.	74° 50' E.	75° 3' E.
Height . . .	1,750 feet.	1,797 feet.	1,821 feet.	1,800 feet.	1,752 feet.	1,000 feet.	1,862 feet.	1,900 feet.	1,476 feet.	1,500 feet.	1,665 feet.
MONTH.	5 Years, 1855 to 1859.	10 Years, 1850 to 1859.	11 Years, 1850 to 1860.	5 Years, 1856 to 1860.	5 Years, 1854 to 1859.	6 Years, 1853 to 1858.	2 Years, 1859 and 1860.	6 Years, 1854 to 1859.	1 Year, 1860.	2 Years, 1859 and 1860.	...
January - - -	29	10	11	23	44	18	10	24	13	4	19
February - - -	26	13	12	24	43	21	9	25	21	7	20
March - - -	27	12	13	23	42	20	10	25	20	7	20
April - - -	30	12	8	24	43	19	13	23	22	8	20
May - - -	27	12	10	19	29	18	17	22	19	11	18
June - - -	24	15	9	13	27	13	21	14	4	11	15
July - - -	18	3	6	10	23	6	8	10	3	7	9
August - - -	20	3	7	9	20	7	3	11	2	12	9
September - - -	18	4	7	11	18	8	5	11	8	10	10
October - - -	23	5	7	18	28	13	7	15	11	6	13
November - - -	25	6	8	22	36	18	5	19	22	18	18
December - - -	25	10	12	22	49	20	7	21	21	10	20
Means - - -	24	8	10	19	33	15	10	19	15	9	16
Difference between greatest and least range - - -	12	10	7	15	31	14	18	15	19	14	11

The results at Seroor are evidently erroneous, and possibly belong to radiation and not to temperature.

TABLE LXVIII., showing the MEAN DAILY RANGE of TEMPERATURE at Elevations between 2,000 and 3,000 Feet, between the Latitudes 15° 50' N. and 17° 40' N., and Longitudes 74° 2' E. and 75° 10' E., principally in the BOMBAY PRESIDENCY.

Place . . .	DHARWAR.	BELGAUM.	SATTARA.	MEANS.
Latitude . . .	15° 50' N.	15° 52' N.	17° 40' N.	16° 27' N.
Longitude . . .	75° 10' E.	74° 42' E.	74° 2' E.	74° 38' E.
Height . . .	2,482 feet.	2,260 feet.	2,320 feet.	2,354 feet.
MONTH.	2 Years, 1859 and 1860.	4 Years, 1856 to 1859.	..	..
January - - -	22	28	17	22
February - - -	18	32	17	22
March - - -	18	32	17	22
April - - -	18	31	17	22
May - - -	14	23	15	17
June - - -	8	15	7	10
July - - -	7	13	5	8
August - - -	7	13	3	8
September - - -	7	16	7	10
October - - -	11	23	10	15
November - - -	16	22	14	17
December - - -	16	26	17	20
Means - - -	14	22	13	17
Difference between greatest and least range - - -	15	19	14	14

TABLE LXIX., showing the MEAN DAILY RANGE of TEMPERATURE at Elevations between 4,000 and 5,000 Feet, between the Latitudes 17° 59' N. and 24° 45' N., and Longitudes 72° 49' E. and 73° 54' E., principally in the BOMBAY PRESIDENCY.

Place . . .	MAHAB-LESHWAR.	POORUN-DHUR.	MOUNT ABOO.	MEANS.
Latitude . . .	17° 59' N.	18° 12' N.	24° 45' N.	20° 19' N.
Longitude . . .	73° 30' E.	73° 54' E.	72° 49' E.	73° 24' E.
Height . . .	4,500 feet.	4,200 feet.	4,000 feet.	4,233 feet.
MONTH.	1 Year, 1834.	2 Years, 1852 add 1853.	5 Years, 1855 to 1859.	..
January - - -	11	9	28	16
February - - -	13	10	31	18
March - - -	16	11	22	16
April - - -	15	12	26	18
May - - -	14	10	26	17
June - - -	6	15	26	16
July - - -	4	6	16	8
August - - -	4	4	12	7
September - - -	2	8	16	8
October - - -	7	7	18	11
November - - -	13	8	24	15
December - - -	12	11	30	17
Means - - -	10	10	24	14
Difference between greatest and least range - - -	14	8	19	11

TABLE LXX., showing the MEAN DAILY RANGE of TEMPERATURE at Elevations between 1,000 and 2,000 Feet, between the Latitudes 26° 42' N. and 34° 20' N., and Longitudes 71° 29' E. and 79° 12' E., principally in the BENGAL PRESIDENCY.

Place	KHER-WARRAH.	UMBALLA.	MEAN MEER.	PESHAWUR.	MEANS.
Latitude	26° 42' N.	30° 23' N.	30° 34' N.	34° 20' N.	30° 32' N.
Longitude	79° 12' E.	76° 44' E.	74° 4' E.	71° 29' E.	74° 55' E.
Height	1,200 feet.	1,050 feet.	1,128 feet.	1,056 feet.	1,128 feet.
MONTH.	5 Years, 1854 to 1859.	2 Years, 1851 and 1852.	5 Years, 1855 to 1859.	5 Years, 1855 to 1859.	Without Umbala.
January	21	44	19	16	19
February	24	40	24	13	20
March	24	34	18	16	19
April	23	47	26	23	24
May	19	47	24	18	20
June	12	37	13	23	16
July	9	34	18	19	15
August	9	24	18	22	16
September	12	35	17	21	17
October	19	44	18	19	19
November	27	43	19	20	22
December	22	39	18	15	19
Means	18	45	19	19	19
Difference between greatest and least range	18	20	13	10	9

TABLE LXXI., showing the MEAN DAILY RANGE of TEMPERATURE at Elevations above 4,000 Feet, between the Latitudes 25° 14' N. and 29° 20' N., and Longitudes 79° 30' E. and 91° 45' E., principally in the BENGAL PRESIDENCY.

Place	CHIRRA-POONGEE.	DARJEE-LING.	NYNEE TÄL.
Latitude	25° 14' N.	27° 2' N.	29° 20' N.
Longitude	91° 45' E.	88° 18' E.	79° 30' E.
Height	4,118 feet.	7,000 feet.	6,400 feet.
MONTH.	2 Years, 1859 and 1860.	3 Years, 1857 to 1859.	9 Years, 1846 to 1854.
January	9	11	36
February	15	12	34
March	11	11	34
April	8	10	33
May	8	10	31
June	5	7	24
July	5	6	18
August	4	7	18
September	5	9	22
October	8	11	30
November	16	13	33
December	11	13	32
Means	8	10	29
Difference between greatest and least range	11	7	18

The results at Nynnee Täl are probably connected with radiation observations, or else the instruments have been placed too near the ground.

RELATING TO SECTION V.

The MEAN MONTHLY OBSERVED TEMPERATURE of the AIR.

Tables LXXII. to LXXIV. at Elevations below 1,000 Feet.

Tables LXXV. to LXXXII. at Elevations above 1,000 Feet.

TABLE LXXII., showing the MEAN MONTHLY TEMPERATURE of the AIR at Elevations above the Sea less than 1,000 Feet, between the Latitudes 8° 43' N. and 17° 4' N., and Longitudes 75° 30' E. and 82° 14' E., in the PRESIDENCY of MADRAS, arranged in the Order of Latitude.

Place	PALAM-COTTAH.	ANGARA KANDY.	CANNA-NORE.	POONA-MALLEE.	FORT ST. GEORGE.	MADRAS.	NEL-LORE.	KUR-NOOL.	GUN-TOOR.	SAMUL-COTTAH.	MEANS.
Latitude	8° 43' N.	11° 40' N.	11° 52' N.	13° 2' N.	13° 4' N.	13° 6' N.	14° 20' N.	15° 50' N.	16° 20' N.	17° 4' N.	13° 30' N.
Longitude	77° 48' E.	75° 40' E.	75° 30' E.	80° 10' E.	80° 14' E.	80° 21' E.	80° 0' E.	78° 5' E.	80° 30' E.	82° 14' E.	79° 3' E.
Height	120 feet.	..	15 feet.	2 feet.	..	..	50 feet.	800 feet.	100 feet.	50 feet.	126 feet.
MONTH.	5 Years, 1855 to 1859.	10 Years, 1810 to 1818 and 1818 to 1823.	10 Years, 1850 to 1859.	5 Years, 1855 to 1859.	..	55 Years, 1796 to 1850.	2 Years, 1859 and 1860.	3 Years, 1857 to 1859.	5 Years, 1855 to 1859.	2 Years, 1858 and 1859.	..
January	81	80	82	77	74	76	74	78	75	67	76
February	84	82	82	79	77	78	77	82	79	71	79
March	87	84	84	80	79	80	80	88	82	77	82
April	89	86	86	82	83	83	85	91	86	84	85
May	89	84	85	83	89	87	92	90	89	87	87
June	89	80	80	85	88	87	91	86	89	84	86
July	87	78	79	84	86	85	85	82	83	82	83
August	88	79	79	83	86	84	85	84	84	81	83
September	88	79	79	81	83	84	83	83	82	80	82
October	86	81	81	80	82	82	82	83	76	79	81
November	83	81	82	78	76	79	77	78	76	72	78
December	82	80	81	78	76	77	76	77	72	66	77
Means	86	81	82	81	82	82	82	84	81	78	82
Mean difference between hottest and coldest months	8	8	7	8	15	11	18	14	17	21	11

TABLE LXXIII., showing the MEAN TEMPERATURE of the AIR at Elevations above the Sea less than 1,000 Feet, between the Latitudes 15° 50' N. and 25° 30' N., and Longitudes 67° 2' E. and 73° 41' E., principally in the BOMBAY PRESIDENCY, arranged in the order of Latitude.

Place . . .	VINGORLA.	RUTNAGHERRY.	DAPOOLEE.	BOMBAY.	SURAT.	BARODA.	RAJ-COTE.	AHMED-ABAD.	KURRACHEE.	DEESA.	HYDER-ABAD.	JACOB-ABAD.	MEANS.
Latitude . . .	15° 50' N.	17° 0' N.	17° 48' N.	18° 53' N.	21° 10' N.	22° 16' N.	22° 18' N.	23° 0' N.	24° 51' N.	25° 14' N.	25° 30' N.	...	21° 32' N.
Longitude . . .	73° 41' E.	73° 20' E.	73° 16' E.	72° 52' E.	72° 52' E.	73° 14' E.	70° 50' E.	72° 0' E.	67° 2' E.	72° 5' E.	69° 5' E.	...	71° 42' E.
Height . . .	20 feet.	150 feet.	600 feet.	....	33 feet.	90 feet.	450 feet.	320 feet.	27 feet.	400 feet.	99 feet.	220 feet.	290 feet.
MONTH.	4 Years, 1856 to 1859.	5 Years, 1855 to 1859.	2 Years, 1858 and 1859.	12 Years, 1847 to 1858.	10 Years, 1850 to 1859.	7 Years, 1847 to 1853.	4 Years, 1857 to 1860.	2 Years, 1858 and 1859.	..	3 Years, 1857 to 1859.	2 Years, 1856 and 1857.	12 Years, 1848 to 1859.	..
January - - -	78	78	75	74	73	71	69	71	64	64	64	60	70
February - - -	79	79	-	76	77	70	75	80	67	70	71	65	73
March - - -	82	82	81	80	84	83	82	83	76	80	81	74	80
April - - -	83	84	86	83	88	81	86	93	81	87	87	85	85
May - - -	85	85	86	86	89	94	90	97	83	91	91	85	89
June - - -	81	83	83	83	87	89	89	89	88	89	92	99	87
July - - -	79	80	82	81	84	85	85	90	86	88	91	98	87
August - - -	79	80	80	81	83	84	82	84	85	82	88	92	83
September - - -	79	82	79	80	83	83	81	83	83	83	85	91	82
October - - -	81	83	80	82	83	80	83	83	79	81	82	81	81
November - - -	79	79	80	79	78	77	77	78	73	84?	73	70	77
December - - -	78	79	..	76	74	73	73	69	64	69	66	63	72
Means - - -	80	81	81	80	82	81	81	83	78	80	81	81	80
Difference between hottest and coldest months - - -	7	7	11	12	16	24	21	28	24	27	28	39	19

TABLE LXXIV., showing the MEAN MONTHLY TEMPERATURE at Elevations above the Sea less than 1,000 Feet, between the Latitudes 21° 10' N. and 31° 40' N., and Longitudes 74° 35' E. and 88° 25' E., principally in the PRESIDENCY of BENGAL, arranged in the order of Latitude.

Place	SEETA-BULDEE.	CALCUTTA.	BERHAM-PORE.	CHUNAR.	BE-NARES.	LUCK-NOW.	CAWN-PORE.	FUTTY-GHUR.	MEERUT.	FEROZE-PORE.	PUNJAB.	MEANS.
Latitude	21° 10' N.	22° 34' N.	24° 5' N.	25° 5' N.	26° 17' N.	26° 0' N.	26° 29' N.	27° 2' N.	28° 59' N.	30° 55' N.	31° 40' N.	26° 18' N.
Longitude	79° 9' E.	88° 25' E.	88° 17' E.	83° 0' E.	83° 4' E.	82° 0' E.	80° 22' E.	79° 30' E.	77° 46' E.	74° 35' E.	74° 45' E.	80° 59' E.
Height	939 feet.	80 feet.	76 feet.	250 feet.	270 feet.	360 feet.	500 feet.	600 feet.	900 feet.	720 feet.	900 feet.	509 feet.
MONTH.	2 Years, 1858 to 1860.	..	3 Years, 1857 to 1859.	10 Years, 1850 to 1859.	..	3 Years, 1858 to 1860.	2 Years, 1834 and 1835.	2 Years, 1832 and 1833.	1 Year, 1859.	5 Years, 1855 to 1859.	3 Years, 1857 to 1859.	..
January - - - -	71	70	64	65	64	66	64	57	61	59	54	63
February - - - -	79	75	68	70	69	68	70	63	65	68	60	69
March - - - -	83	83	76	78	77	79	72	74	70	76	68	76
April - - - -	92	88	83	86	87	88	89	85	83	81	77	85
May - - - -	95	89	85	91	94	91	97	90	90	94	86	91
June - - - -	88	87	89	92	89	90	91	95	92	95	89	91
July - - - -	83	85	84	87	86	88	87	87	88	90	87	87
August - - - -	81	85	83	86	84	84	87	85	84	86	86	85
September - - - -	82	85	84	85	84	85	85	84	82	86	83	84
October - - - -	81	84	79	82	81	79	79	75	76	79	76	79
November - - - -	74	78	70	74	71	70	75	69	68	68	61	71
December - - - -	69	72	65	65	64	60	68	58	62	58	55	63
Means - - - -	82	82	77	80	80	79	80	77	77	78	73	78
Difference between hottest and coldest months - - - -	26	19	25	27	30	31	33	38	31	37	35	28

TABLE LXXV., showing the MEAN MONTHLY TEMPERATURE of the AIR at Elevations between 1,000 and 2,000 Feet between the Latitudes 14° 31' N. and 17° 28' N., and Longitudes 75° 51' E. and 78° 32' E., in the MADRAS PRESIDENCY.

Place	HURRYHUR.	BELLARY.	SECUNDERABAD.	MEANS.
Latitude	14° 31' N.	17° 0' N.	17° 28' N.	16° 20' N.
Longitude	75° 51' E.	77° 0' E.	78° 32' E.	77° 8' E.
Height	1,831 feet.	1,500 feet.	1,800 feet.	1,710 feet.
MONTH.	4 Years, 1857 to 1860.	9 Years, 1851 to 1859.	10 Years, 1850 to 1859.	.....
January - - - - -	74	74	73	74
February - - - - -	79	79	76	78
March - - - - -	81	85	81	82
April - - - - -	81	88	86	85
May - - - - -	84	86	89	86
June - - - - -	81	83	83	82
July - - - - -	79	80	80	80
August - - - - -	78	79	79	79
September - - - - -	79	79	78	79
October - - - - -	80	78	78	79
November - - - - -	78	74	76	76
December - - - - -	76	73	73	74
Means - - - - -	79	80	80	79
Difference between hottest and coldest months - - - - -	10	15	16	12

TABLE LXXVI., showing the MEAN TEMPERATURE of the AIR at Elevations between 1,000 and 2,000 Feet, at Stations between the Latitudes 16° 11' N. and 26° 20' N., and Longitudes 73° 1' E. and 77° 25' E., principally in the BOMBAY PRESIDENCY.

Place	KULLAD- GHEE.	SHOLA- PORE.	POONA.	SEROOR.	DHOOLIA.	MHOW.	AHMED- NUGGUR.	NEEMUCH.	NUSSEER- ABAD.	MEANS.
Latitude	16° 11' N.	17° 40' N.	18° 30' N.	18° 50' N.	20° 54' N.	22° 33' N.	23° 34' N.	24° 27' N.	26° 20' N.	20° 59' N.
Longitude	75° 33' E.	76° 6' E.	73° 30' E.	77° 25' E.	74° 45' E.	75° 46' E.	73° 1' E.	74° 54' E.	74° 50' E.	75° 5' E.
Height	1,750 feet.	1,821 feet.	1,800 feet.	1,752 feet.	1,000 feet.	1,862 feet.	1,900 feet.	1,476 feet.	1,500 feet.	1,663 feet.
MONTH.	5 Years, 1855 to 1859.	11 Years, 1850 to 1860.	.....	5 Years, 1854 to 1858.	6 Years, 1853 to 1858.	2 Years, 1859 and 1860.	6 Years, 1854 to 1859.	1 Year, 1860.	2 Years, 1859 and 1860.	.....
January - - - - -	75	75	70	72	70	70	71	55	63	69
February - - - - -	79	78	74	71	76	72	75	60	68	73
March - - - - -	88	84	79	80	82	80	82	70	77	80
April - - - - -	89	89	83	87	88	86	87	81	87	86
May - - - - -	87	88	84	83	91	87	87	84	89	87
June - - - - -	84	83	80	81	87	74	81	80	94	83
July - - - - -	82	81	77	76	82	82	77	74	88	80
August - - - - -	83	80	76	76	80	75	76	74	77	87
September - - - - -	82	81	76	76	80	75	76	75	81	78
October - - - - -	79	80	78	77		77	77	71	79	78
November - - - - -	76	77	76	75	76	75	73	67	75	74
December - - - - -	72	72	71	72	73	71	70	65	64	70
Means - - - - -	81	81	77	77	81	77	77	71	79	79
Difference be- tween hottest and coldest months - - - - -	17	17	14	16	21	17	17	29	31	18

TABLE LXXVII., showing the MEAN MONTHLY TEMPERATURE of the AIR at Elevations between 1,000 and 2,000 Feet in the PRESIDENCY of BENGAL.

Place	KHER-WARRAH.	KULSEA.	UM-BALLA.	MEAN MEER.	PESHA-WUR.	MEANS.	MEANS.
Latitude	26° 42' N.	30° 0' N.	30° 23' N.	30° 34' N.	34° 20' N.	30° 24' N.	30° 24' N.
Longitude	79° 12' E.	77° 30' E.	76° 44' E.	74° 4' E.	71° 29' E.	75° 48' E.	75° 34' E.
Height	1,200feet.	1,100feet.	1,050feet.	1,128feet.	1,056feet.	1,107feet.	1,121feet.
MONTH.	5 Years, 1854 to 1858.	2 Years, 1837 and 1838.	2 Years, 1851 and 1852.	5 Years, 1855 to 1859.	6 Years, 1855 to 1860.	Umballa included.	Umballa left out.
January -	64	58	60	55	52	58	57
February -	71	61	70	60	55	63	62
March -	79	63	67	71	65	69	69
April -	89	78	83	79	75	81	80
May -	94	81	89	86	88	88	87
June -	88	86	97	86	91	89	88
July -	82	84	87	87	91	86	86
August -	80	75	91	86	88	84	82
September -	81	77	92	82	84	83	81
October -	77	71	84	75	73	76	74
November -	68	63	67	69	64	66	66
December -	64	60	62	60	56	60	60
Means -	78	71	79	75	74	75	74
Difference between hottest and coldest months.	30	28	37	32	39	31	31

TABLE LXXVIII., showing the MEAN MONTHLY TEMPERATURE of the AIR at Elevations between 2,000 and 3,000 Feet in the MADRAS PRESIDENCY.

Place	SERINGAPATAM.
Latitude	12° 45' N.
Longitude	76° 51' E.
Height	2,412 feet.
MONTH.	2 Years, 1814 to 1816.
January -	71
February -	77
March -	81
April -	84
May -	85
June -	79
July -	75
August -	74
September -	77
October -	77
November -	74
December -	72
Means -	77
Difference between hottest and coldest months.	14

TABLE LXXIX., showing the MEAN TEMPERATURE of the AIR, at Elevations between 2,000 and 3,000 Feet, between the Latitudes 15° 50' N. and 17° 40' N., and Longitudes 74° 2' E. and 75° 10' E., principally in the BOMBAY PRESIDENCY.

Place :	DHAR-WAR.	BEL-GAUM.	SATTARA.	MEANS.
Latitude	15° 50' N.	15° 52' N.	17° 40' N.	16° 27' N.
Longitude	75° 10' E.	74° 42' E.	74° 2' E.	74° 38' E.
Height	2,482feet.	2,260feet.	2,320feet.	2,354feet.
MONTH.	1 Year, 1859.	4 Years, 1856 to 1859.	....	....
January -	72	72	71	72
February -	80	75	74	76
March -	83	78	79	80
April -	82	81	83	82
May -	84	78	84	82
June -	79	75	76	77
July -	76	73	75	75
August -	73	72	73	73
September -	73	74	74	74
October -	76	74	76	75
November -	77	72	73	74
December -	72	70	71	71
Means -	77	74	76	76
Difference between hottest and coldest months.	12	11	13	11

TABLE LXXX., showing the MEAN TEMPERATURE of the AIR at Elevations between 4,000 and 5,000 Feet between the Latitudes 17° 59' N. and 24° 45' N., and Longitudes 72° 49' E. and 73° 30' E., principally in the BOMBAY PRESIDENCY.

Place	MAHAB-LESHWUR.	MOUNT ABOO.	MEANS.
Latitude	17° 59' N.	24° 45' N.	21° 22' N.
Longitude	73° 30' E.	72° 49' E.	73° 9' E.
Height	4,500feet.	4,000feet.	4,250feet.
MONTH.	15 Years, 1829 to 1843.	5 Years, 1855 to 1859.	....
January -	64	57	60
February -	66	63	64
March -	72	71	71
April -	75	72	74
May -	72	79	75
June -	66	79	72
July -	63	74	68
August -	63	70	66
September -	64	70	67
October -	67	71	69
November -	64	67	65
December -	63	58	60
Means -	66	69	68
Difference between hottest and coldest months.	12	22	15

TABLE LXXXI., showing the MEAN MONTHLY TEMPERATURE of the AIR at STATIONS whose Elevations are respectively 3,000, 4,500, 6,000, 7,361, and 8,640 Feet.

Place	DODABETTA.	OOTACAMUND.	MERCARA.	BANGALORE.	WELLINGTON.
Latitude	11° 25' N.	11° 35' N.	12° 24' N.	12° 57' N.	...
Longitude	77° 5' E.	76° 45' E.	75° 48' E.	77° 88' E.	....
Height	8,640 feet.	7,361 feet.	4,500 feet.	3,000 feet.	6,000 feet.
MONTH.	2 Years, 1817 and 1818.	3 Years, 1831 to 1833.	3 Years, 1838 to 1840.	....	1 Year, 1859.
January - - - - -	52	53	67	70	64
February - - - - -	52	55	71	73	63
March - - - - -	55	60	74	79	67
April - - - - -	56	63	73	79	64
May - - - - -	57	62	72	80	69
June - - - - -	53	60	69	76	69
July - - - - -	53	58	67	75	68
August - - - - -	53	58	66	74	70
September - - - - -	53	58	66	75	67
October - - - - -	53	58	67	73	69
November - - - - -	52	56	67	72	66
December - - - - -	51	53	64	70	70
Means - - - - -	54	58	68	76	67
Difference between Hottest and Coldest Months. }	6	10	8	13	7

TABLE LXXXII., showing the MEAN MONTHLY TEMPERATURE of the AIR, at Elevations above 4,000 Feet, between the Latitudes 25° 14' N. and 31° 0' N., and Longitudes 77° 0' E. and 91° 45' E., principally in the BENGAL PRESIDENCY.

Place	CHIRRAPOON- GEE, KHASIA HILLS.	DARJEELING.	NYNEE TĀL.	KHATMANDU.	UTTRA MULLAY.	KOTGURH.
Latitude	25° 14' N.	27° 2' N.	29° 20' N.	27° 42' N.	24° 55' N.	31° 0' N.
Longitude	91° 45' E.	88° 18' E.	79° 30' E.	87° 40' E.	85° 20' E.	77° 0' E.
Height	4,118 feet.	7,000 feet.	6,400 feet.	4,650 feet.	4,600 feet.	6,634 feet.
MONTH.	2 Years, 1859 and 1860.	3 Years, 1857 to 1859.	9 Years, 1846 to 1854.	....	2 Years, 1845 and 1846.	3 Years, 1819 to 1821.
January - - - - -	57	45	46	48	63	40
February - - - - -	60	43	48	52	65	45
March - - - - -	62	52	55	58	68	..
April - - - - -	68	56	62	67	68	..
May - - - - -	70	58	68	72	66	68
June - - - - -	70	61	69	74	64	72
July - - - - -	70	61	68	76	65	71
August - - - - -	69	61	67	74	65	67
September - - - - -	70	61	65	72	66	65
October - - - - -	68	56	61	65	64	56
November - - - - -	57	51	55	55	65	51
December - - - - -	52	45	51	46	63	..
Means - - - - -	64	54	60	63	65	..
Difference between Hot- test and Coldest Months }	18	18	23	30	5	..

RELATING TO SECTION VII.

Mean Monthly and Annual observed Temperatures of the Dew Point.

" " " Amount of Vapour in a Cubic Foot of Air.

" " " Amount of Vapour required to saturate a Cubic Foot of Air.

" " " Degree of Humidity.

At Stations between the Latitudes 11° 25' N. and 34° 20' N., and Longitudes 69° 5' E. and 92° 46' E.

TABLE LXXXIII., showing the MEAN MONTHLY and ANNUAL TEMPERATURE of the DEW POINT at Stations situated between the Latitudes 11° 25' N. and 34° 20' N., and Longitudes 69° 5' E. and 92° 46' E.

Place . .	DODA-BETTA.	MADRAS.	BELGAUM.	BELLARY.	SECUN- DERABAD.	SATTARA.	DAPOO- LEE.	MAHA- BLESH- WUR.	POONA.	BOMBAY.	SEROOR.	DHOOLIA.	RAJ- COTE.
Latitude .	11° 25' N.	13° 6' N.	15° 52' N.	17° 0' N.	17° 28' N.	17° 40' N.	17° 48' N.	17° 59' N.	18° 30' N.	18° 53' N.	18° 50' N.	20° 54' N.	22° 18' N.
Longitude	77° 5' E.	80° 21' E.	74° 42' E.	77° 0' E.	78° 32' E.	74° 2' E.	73° 16' E.	73° 30' E.	74° 0' E.	72° 52' E.	77° 25' E.	74° 45' E.	70° 50' E.
Height .	8,640feet.	....	2,260 feet.	1,500 feet.	1,800 feet.	2,320 feet.	600 feet.	4,500feet.	1,800 feet.	64 feet.	1,752 feet.	1,000feet.	450 feet.
MONTH.	1 Year, 1847.	18 Years, 1833 to 1850.	2 Years, 1858 and 1859.	9 Years, 1851 to 1859.	10 Years, 1850 to 1859.	5 Years, 1855 to 1859.	2 Years, 1858 and 1859.	9 Years, 1835 to 1843.	5 Years, 1856 to 1860.	12 Years, 1847 to 1858.	5 Years, 1854 to 1858.	6 Years, 1853 to 1858.	4 Years, 1857 to 1860.
January -	40	67	54	54	54	59	68	51	51	64	57	58	44
February -	50	68	51	60	51	61	70	47	50	64	48	57	45
March -	45	71	58	58	60	61	74	49	54	68	32	59	49
April -	50	76	60	69	59	60	78	53	59	73	48	65	56
May -	53	76	66	62	62	66	80	61	65	75	59	68	64
June -	51	73	68	69	66	69	70	66	67	76	64	74	71
July -	51	73	68	69	68	67	76	65	69	76	67	74	72
August -	51	74	67	66	71	70	76	65	69	74	66	75	72
September -	51	75	66	59	73	69	75	63	67	75	66	75	67
October -	51	74	61	67	66	66	72	64	62	74	58	70	60
November -	50	71	61	66	58	62	72	54	55	67	48	61	44
December -	47	69	55	60	54	60	64	53	51	64	37	56	43
Means -	49	72	61	64	62	64	72	57	59	71	54	66	57

(continued.)

Place . .	AHMED- NUGGER.	KURRA- CHEE.	DEESA.	HYDER- ABAD.	THYET MYO.	CAL- CUTTA.	FORT WIL- LIAM.	HAZA- REE- BAUGH.	DARJEE- LING.	BE- NARES.	KHER- WARRAH.	MEERUT.	LAN- DOUR.	PESHA- WUR.
Latitude .	23° 34' N.	24° 51' N.	25° 14' N.	25° 30' N.	20° 18' N.	22° 34' N.	22° 34' N.	24° 0' N.	27° 2' N.	25° 17' N.	26° 42' N.	28° 59' N.	30° 27' N.	34° 20' N.
Longitude	73° 1' E.	77° 2' E.	72° 5' E.	69° 5' E.	92° 46' E.	88° 25' E.	88° 25' E.	88° 24' E.	88° 10' E.	83° 4' E.	79° 12' E.	77° 56' E.	78° 10' E.	71° 29' E.
Height .	1,900feet.	27 feet.	400 feet.	99 feet.	240 feet.	....	....	1,900feet.	7,000feet.	270 feet.	1,200feet.	900 feet.	7,000feet.	1,056feet.
MONTH.	6 Years, 1854 to 1859.	5 Years, 1856 to 1860.	3 Years, 1857 to 1859.	2 Years, 1856 and 1857.	1 Year, 1859.	2 Years, 1843 and 1844.	6 Years, 1854 to 1859.	3 Years, 1858 to 1860.	3 Years, 1857 to 1859.	2 Years, 1858 and 1859.	5 Years, 1854 to 1858.	1 Year, 1859.	4 Years.	3 Years, 1858 to 1860.
January -	52	48	50	49	46	65	57	48	38	48	53	54	27	39
February -	51	55	53	52	47	67	61	53	41	53	55	56	32	43
March -	54	60	55	58	45	76	68	54	45	57	59	59	36	56
April -	56	66	60	62	-	80	72	60	48	60	60	56	41	66
May -	62	74	69	67	69	82	76	73	54	72	62	71	53	62
June -	67	76	72	71	67	83	78	66	59	78	67	76	57	72
July -	69	76	75	75	75	81	78	69	60	84	69	80	63	74
August -	66	75	74	75	74	82	78	73	60	80	77	71	64	74
September -	69	71	72	73	75	83	78	72	58	80	71	75	59	65
October -	63	66	64	67	74	78	74	61	49	76	65	71	46	56
November -	57	52	53	52	65	74	64	49	43	61	57	61	34	45
December -	52	47	48	50	61	66	57	56	40	54	51	48	29	39
Means -	59	64	62	62	62	76	70	61	49	67	62	65	44	57

TABLE LXXXIV., showing the MEAN MONTHLY and ANNUAL AMOUNT of VAPOUR in a CUBIC FOOT of AIR, at Stations situated between the Latitudes 11° 25' N. and 34° 20' N., and Longitudes 69° 5' E. and 92° 46' E.

Place	DODA-BETTA.	MADRAS.	BEL-GAUM.	BEL-LARY.	SECUN-DERABAD.	SAT-TARA.	DA-POOLEE.	MAHAB-LESHWUR.	POONA.	BOMBAY.	SEROOR.	DHOO-LIA.	RAJCOTE.
Latitude	11° 25' N.	13° 6' N.	15° 52' N.	17° 0' N.	17° 28' N.	17° 40' N.	17° 48' N.	17° 59' N.	18° 30' N.	18° 53' N.	18° 50' N.	20° 54' N.	22° 18' N.
Longitude	77° 5' E.	80° 21' E.	74° 42' E.	77° 0' E.	78° 32' E.	74° 2' E.	73° 16' E.	73° 30' E.	74° 0' E.	72° 52' E.	77° 25' E.	74° 45' E.	70° 50' E.
Height	8,640feet.	....	2,260feet.	1,500feet.	1,800feet.	2,320feet.	600 feet.	4,500feet.	1,800feet.	....	1,752feet.	1,000feet.	450 feet.
MONTH.	1 Year, 1847.	18 Years, 1833 to 1850.	2 Years, 1858 and 1859.	9 Years, 1851 to 1859.	10 Years, 1850 to 1859.	5 Years, 1855 to 1859.	2 Years, 1858 and 1859.	9 Years, 1835 to 1843.	5 Years, 1856 to 1860.	12 Years, 1847 to 1858.	5 Years, 1854 to 1858.	6 Years, 1853 to 1858.	4 Years, 1857 to 1860.
	grs.	grs.	grs.	grs.	grs.	grs.	grs.	grs.	grs.	grs.	grs.	grs.	grs.
January - - -	2.8	7.2	4.5	4.5	4.6	5.4	7.4	4.1	4.1	6.4	5.1	5.2	3.2
February - - -	4.1	7.3	4.0	5.5	4.1	5.8	8.0	3.5	3.9	6.4	3.6	5.1	3.2
March - - - -	3.4	8.1	5.1	5.0	5.4	5.8	9.1	3.8	4.5	7.4	1.6	5.2	3.7
April - - - -	4.1	9.4	5.6	7.5	5.2	5.6	10.3	4.3	5.3	8.6	3.5	6.5	4.7
May - - - - -	4.5	9.3	6.8	5.9	5.8	6.8	10.9	5.7	6.7	9.0	5.3	7.2	6.1
June - - - - -	4.2	8.5	7.4	7.4	6.6	7.7	7.6	6.9	7.2	9.7	6.4	8.8	8.0
July - - - - -	4.2	8.7	7.4	7.6	7.3	7.2	9.5	6.9	7.7	9.5	7.2	8.9	8.3
August - - - -	4.2	8.9	7.1	6.8	8.1	7.8	9.5	6.8	7.6	9.1	6.8	9.3	8.4
September - -	4.2	9.1	7.0	5.2	8.8	7.6	9.2	6.2	7.2	9.3	6.8	9.3	7.1
October - - -	4.2	8.9	5.8	7.2	6.8	7.0	8.5	6.6	6.1	8.9	5.3	7.8	5.4
November - - -	4.1	8.2	5.8	7.0	5.2	6.0	8.4	4.7	4.7	7.2	3.6	5.7	3.1
December - - -	4.6	7.5	4.7	5.6	4.5	5.7	6.4	4.4	4.1	6.4	2.4	5.0	3.0
Means - - - -	4.9	8.4	5.9	6.3	6.0	6.5	8.7	5.3	5.7	8.1	4.8	7.0	5.3

(continued.)

Place	AHMED-NUGGUR.	KURRA-CHEE.	DEESA.	HYDER-ABAD.	THYET MYO.	CAL-CUTTA.	FORT WILLIAM (CAL-CUTTA.)	HAZA-REE-BAUGH.	BE-NARES.	DARJEE-LING.	KHER-WARRAH.	MEERUT.	LAN-DOUR.	PESHA-WUR.
Latitude	23° 34' N.	24° 51' N.	25° 14' N.	25° 30' N.	20° 18' N.	22° 34' N.	22° 34' N.	24° 0' N.	25° 17' N.	27° 2' N.	26° 42' N.	28° 59' N.	30° 27' N.	34° 20' N.
Longitude	73° 1' E.	77° 2' E.	72° 5' E.	69° 5' E.	92° 46' E.	88° 25' E.	88° 25' E.	85° 24' E.	83° 4' E.	88° 10' E.	79° 12' E.	77° 46' E.	78° 10' E.	71° 29' E.
Height	1,900feet.	27 feet.	400 feet.	99 feet.	240 feet.	....	....	1,900feet.	270 feet.	7,000feet.	1,200feet.	900 feet.	7,000feet.	1,056feet.
MONTH.	6 Years, 1854 to 1859.	5 Years, 1856 to 1860.	3 Years, 1857 to 1859.	2 Years, 1856 and 1857.	1 Year, 1859.	2 Years, 1843 and 1844.	6 Years, 1854 to 1859.	3 Years, 1858 to 1860.	2 Years, 1858 and 1859.	3 Years, 1857 to 1859.	5 Years, 1854 to 1858.	1 Year, 1859.	4 Years.	3 Years, 1858 to 1860.
	grs.	grs.	grs.	grs.	grs.	grs.	grs.	grs.	grs.	grs.	grs.	grs.	grs.	grs.
January - - -	4.2	3.7	4.0	3.9	3.4	6.6	5.2	3.7	3.7	2.6	4.5	4.6	1.7	2.7
February - - -	4.0	4.7	4.3	4.2	3.5	7.0	5.8	4.4	4.4	2.9	4.7	4.9	2.1	3.1
March - - - -	4.4	5.6	4.6	5.1	3.2	9.3	7.4	4.5	5.0	3.4	5.3	5.5	2.4	4.9
April - - - -	4.7	6.7	5.3	5.9	-	10.6	8.5	5.5	5.5	3.8	5.4	4.8	2.9	7.0
May - - - - -	5.9	8.8	7.4	6.8	7.4	11.4	9.5	8.6	8.3	4.7	5.7	7.8	4.4	6.0
June - - - - -	7.0	9.4	8.3	7.0	7.0	11.7	10.3	6.8	10.1	5.6	6.9	9.3	5.1	8.1
July - - - - -	7.5	9.5	9.2	9.0	9.4	11.2	10.2	7.4	12.5	5.8	7.5	10.8	6.3	8.8
August - - - -	6.8	9.1	9.1	9.1	8.9	11.5	10.2	8.8	10.9	5.8	9.8	8.0	6.6	8.9
September - -	7.7	8.2	8.4	8.7	9.1	11.8	10.2	8.3	10.9	5.4	8.1	9.4	5.5	6.4
October - - -	6.3	6.9	6.3	7.1	9.1	10.3	9.1	5.8	9.5	3.9	6.7	8.2	3.4	5.0
November - - -	5.1	4.2	4.2	4.2	6.6	9.1	6.4	3.9	5.8	3.1	5.2	5.8	2.3	3.3
December - - -	4.3	3.9	3.7	3.9	5.8	7.0	5.0	4.9	4.6	2.8	4.2	3.7	1.8	2.7
Means - - - -	5.7	6.7	6.2	6.3	6.5	9.8	8.1	6.0	7.6	4.1	5.9	6.9	3.7	5.6

TABLE LXXXV., showing the MEAN MONTHLY and ANNUAL AMOUNT of VAPOUR required to saturate a Cubic Foot of Air at Stations situated between the Latitudes 11° 25' N. and 34° 20' N., and Longitudes 69° 5' E. and 92° 46' E.

Place	DODA-BETTA.	MADRAS.	BEL-GAUM.	BEL-LARY.	SECUN-DERABAD.	SAT-TARA.	DAPOO-LEE.	MAHAB-LESHWUR.	POONA.	SEBOOR.	BOMBAY.	DYOO-LIA.	RAJ-COTE.
Latitude . . .	11° 25' N.	13° 6' N.	15° 52' N.	17° 0' N.	17° 28' N.	17° 40' N.	17° 48' N.	17° 59' N.	18° 30' N.	18° 50' N.	18° 53' N.	20° 54' N.	22° 18' N.
Longitude . . .	77° 5' E.	80° 21' E.	74° 42' E.	77° 0' E.	78° 32' E.	74° 2' E.	73° 16' E.	73° 30' E.	74° 0' E.	77° 25' E.	72° 52' E.	74° 45' E.	70° 50' E.
Height	8,640feet.	....	2,260feet.	1,500feet.	1,800feet.	2,320feet.	600 feet.	4,500feet.	1,800feet.	1,752feet.	64 feet.	1,000feet.	450 feet.
MONTH.	1 Year, 1847.	18 Years, 1833 to 1850.	2 Years, 1858 and 1859.	9 Years, 1851 to 1859.	10 Years, 1850 to 1859.	5 Years, 1855 to 1859.	2 Years, 1858 and 1859.	9 Years, 1835 to 1843.	5 Years, 1856 to 1860.	5 Years, 1854 to 1858.	12 Years, 1847 to 1858.	6 Years, 1853 to 1858.	4 Years, 1857 to 1860.
January - - -	grs. 1.6	grs. 2.5	grs. 4.3	grs. 5.8	grs. 4.8	grs. 2.9	grs. 2.0	grs. 3.7	grs. 3.7	grs. 3.7	grs. 2.7	grs. 2.8	grs. 4.6
February - - -	0.3	3.0	6.3	5.5	6.9	3.6	2.0	4.5	5.8	4.9	3.3	4.6	5.9
March - - - -	1.5	3.2	6.2	9.8	6.6	4.5	2.2	5.6	5.8	9.7	3.6	6.5	7.6
April - - - -	0.9	3.0	6.1	4.9	8.8	6.1	2.5	6.0	7.1	10.1	3.4	7.5	8.9
May - - - - -	0.7	4.3	3.8	5.8	9.5	4.5	1.9	4.0	5.0	7.1	4.2	8.1	9.2
June - - - - -	0.3	4.7	2.0	5.4	7.0	2.0	5.6	1.4	3.4	4.9	2.3	4.8	6.4
July - - - - -	0.3	4.1	1.4	3.0	4.7	2.5	1.8	0.9	2.0	2.5	1.8	2.8	4.5
August - - - -	0.3	3.5	1.4	4.5	3.2	1.0	1.1	0.5	1.5	2.9	2.2	1.7	3.3
September - -	0.3	2.9	1.8	6.5	2.2	1.5	1.1	1.3	1.9	2.9	1.7	1.7	4.6
October - - -	0.3	2.8	3.6	3.4	3.8	2.4	2.1	0.9	3.6	4.7	2.8	3.2	6.6
November - - -	0.3	2.1	3.6	1.8	4.2	3.1	1.0	2.6	4.4	5.8	3.4	4.0	6.3
December - - -	0.6	2.5	3.8	2.9	4.3	2.6	2.7	2.9	3.7	6.1	3.3	3.5	5.3
Means - - - -	0.6	3.2	4.9	3.7	5.5	3.0	2.2	2.8	4.0	5.2	2.9	4.3	6.1

(continued.)

Place	AHMED-NUGGUR.	KURRA-CHEE.	DEESA.	HYDER-ABAD.	THYET MYO.	CAL-CUTTA.	FORT WILLIAM (CAL-CUTTA).	HAZA-REE-BAUGH.	DARJEE-LING.	BE-NARES.	KHER-WARRAH.	MEERUT.	LAN-DOUR.	PESHA-WUR.
Latitude . . .	23° 34' N.	24° 51' N.	25° 14' N.	25° 30' N.	20° 18' N.	22° 34' N.	22° 34' N.	24° 0' N.	27° 2' N.	25° 17' N.	26° 42' N.	28° 59' N.	30° 27' N.	34° 20' N.
Longitude . . .	73° 1' E.	77° 2' E.	72° 5' E.	69° 5' E.	92° 46' E.	88° 25' E.	88° 25' E.	85° 24' E.	88° 10' E.	83° 4' E.	79° 12' E.	77° 46' E.	78° 10' E.	71° 29' E.
Height	1,900feet.	27 feet.	400 feet.	99 feet.	240 feet.	...	...	1,900feet.	7,000feet.	270 feet.	1,200feet.	900 feet.	7,000feet.	1,056feet.
MONTH.	6 Years, 1854 to 1859.	5 Years, 1856 to 1860.	3 Years, 1857 to 1859.	2 Years, 1856 and 1857.	1 Year, 1859.	2 Years, 1843 and 1844.	6 Years, 1854 to 1859.	3 Years, 1858 to 1860.	3 Years, 1857 to 1859.	2 Years, 1858 and 1859.	5 Years, 1854 to 1858.	1 Year, 1859.	4 Years.	3 Years, 1858 to 1860.
January - - -	grs. 4.1	grs. 3.8	grs. 3.5	grs. 2.7	grs. 4.9	grs. 2.8	grs. 2.3	grs. 3.8	grs. 0.7	grs. 3.3	grs. 2.1	grs. 1.4	grs. 1.6	grs. 1.3
February - - -	5.4	3.6	5.1	4.1	7.1	4.0	3.0	3.9	0.5	3.4	3.6	1.9	1.1	1.4
March - - - -	7.3	5.0	8.2	6.2	8.5	4.3	3.6	4.3	0.8	7.4	5.3	2.5	2.8	1.5
April - - - -	8.9	5.7	10.4	7.7	-	4.7	3.9	5.5	0.9	9.8	9.0	7.2	3.9	2.4
May - - - - -	7.7	4.8	8.8	8.5	5.4	3.4	3.7	2.7	0.7	6.5	11.0	7.0	3.9	6.4
June - - - - -	4.0	5.0	6.5	7.8	4.0	2.7	2.5	6.4	0.4	5.2	7.1	6.4	3.7	7.2
July - - - - -	2.5	3.7	3.6	6.3	2.3	2.0	1.8	6.2	0.4	0.7	4.2	3.2	1.7	6.9
August - - - -	2.9	2.9	2.2	4.9	2.8	1.3	1.8	2.2	0.4	1.9	1.2	4.4	0.9	5.5
September - -	2.0	3.8	3.3	4.1	2.9	1.4	1.8	2.7	0.4	1.9	3.2	2.3	1.5	6.8
October - - -	3.7	5.1	6.1	4.6	2.2	2.5	2.2	3.6	1.3	1.1	3.3	1.5	1.8	3.5
November - - -	3.7	6.4	7.1	4.6	2.8	2.2	2.7	3.9	1.1	3.0	2.3	1.7	1.7	2.5
December - - -	3.7	4.4	4.6	3.1	3.0	2.4	2.8	1.9	0.5	1.8	2.4	2.3	1.5	1.3
Means - - - -	4.7	4.5	5.8	5.4	4.7	2.8	2.6	3.9	0.7	3.8	4.5	3.5	2.2	3.9

TABLE LXXXVI., showing the MEAN MONTHLY and ANNUAL DEGREE of HUMIDITY at Stations situated between the Latitudes 11° 25' N. and 34° 20' N., and Longitudes 69° 5' E. and 92° 46' E.

Place	DODA-BETTA.	MADRAS.	BEL-GAUM.	BEL-LARY.	SECUN-DERABAD.	SAT-TARA.	DAPOO-LEE.	MAHAD-LESHWUR	POONA.	BOMBAY.	SEROOR.	DHOOLIA.	RAJ-COTE.
Latitude	11° 25' N.	13° 6' N.	15° 52' N.	17° 0' N.	17° 28' N.	17° 40' N.	17° 48' N.	17° 59' N.	18° 30' N.	18° 53' N.	18° 50' N.	20° 54' N.	22° 18' N.
Longitude	77° 5' E.	80° 21' E.	74° 42' E.	77° 0' E.	78° 32' E.	74° 2' E.	73° 16' E.	73° 30' E.	74° 0' E.	72° 52' E.	77° 25' E.	74° 45' E.	70° 50' E.
Height	8,640feet.	....	2,260feet.	1,500feet.	1,800feet.	2,320feet.	600 feet.	4,500feet.	1,800feet.	64 feet.	1,752feet.	1,000feet.	450 feet.
MONTH.	1 Year, 1847.	18 Years, 1833 to 1850.	2 Years, 1858 and 1859.	9 Years, 1851 to 1859.	10 Years 1850 to 1859.	5 Years, 1855 to 1859.	2 Years, 1858 and 1859.	9 Years, 1835 to 1843.	5 Years, 1856 to 1860.	12 Years, 1847 to 1858.	5 Years, 1854 to 1858.	6 Years, 1853 to 1858.	4 Years, 1857 to 1860.
January - - -	64	75	51	44	49	65	79	53	53	70	58	65	41
February - - -	93	71	39	50	37	62	79	44	40	67	42	52	35
March - - - -	70	72	44	34	45	56	80	40	44	67	15?	45	33
April - - - -	81	76	48	60	37	48	80	41	43	72	25	46	35
May - - - - -	87	69	63	51	38	60	85	59	57	68	43	47	40
June - - - - -	93	64	79	58	49	79	58	83	67	80	56	65	55
July - - - - -	93	68	84	71	60	75	85	88	79	85	75	76	64
August - - - -	93	72	84	60	72	89	90	94	84	80	71	85	72
September - - -	93	76	79	45	80	84	89	83	79	85	71	85	60
October - - - -	93	76	62	67	63	74	80	88	63	76	53	71	45
November - - - -	93	79	62	79	55	66	89	64	52	67	38	59	33
December - - - -	86	75	54	65	51	69	70	60	53	67	28	57	36
Means - - - -	87	73	63	57	53	69	80	66	59	74	48	63	46

(continued.)

Place	AHMED-NUGGUR.	KURRA-CHIEE.	DEESA.	HYDER-ABAD.	THYET MYO.	CAL-CUTTA.	FORT WILLIAM (CAL-CUTTA.)	HAZA-REE-BAUGH.	DARJEE-LING.	BE-NARES.	KHER-WARRAH.	MEERUT.	LAN-DOUR.	PESHA-WUR.
Latitude	23° 34' N.	24° 51' N.	25° 14' N.	25° 30' N.	20° 18' N.	22° 34' N.	22° 34' N.	24° 0' N.	27° 2' N.	25° 17' N.	26° 42' N.	28° 59' N.	30° 27' N.	34° 20' N.
Longitude	73° 1' E.	77° 2' E.	72° 5' E.	69° 5' E.	92° 46' E.	88° 25' E.	88° 25' E.	85° 24' E.	88° 10' E.	83° 4' E.	79° 12' E.	77° 46' E.	78° 10' E.	71° 29' E.
Height	1,900feet.	27 feet.	400 feet.	99 feet.	240 feet.	....	....	1,900feet.	7,000feet.	270 feet.	1,200feet.	900 feet.	7,000feet.	1,056feet.
MONTH.	6 Years, 1854 to 1859.	5 Years, 1856 to 1860.	3 Years, 1857 to 1859.	2 Years, 1856 and 1857.	1 Year, 1859.	2 Years, 1843 and 1844.	6 Years, 1854 to 1859.	3 Years, 1858 to 1860.	3 Years, 1857 to 1859.	2 Years, 1858 and 1859.	5 Years, 1854 to 1858.	1 Year, 1859.	4 Years.	3 Years, 1858 to 1860.
January - - -	50	49	52	59	41	70	68	49	77	52	67	77	49	67
February - - -	43	57	46	50	32	63	66	53	85	56	57	73	65	69
March - - - -	38	53	36	44	27	69	67	51	80	41	50	69	45	77
April - - - - -	35	54	34	43	-	70	68	50	80	36	37	40	42	74
May - - - - -	43	65	45	44	58	77	72	76	87	56	35	53	53	48
June - - - - -	63	65	56	50	63	81	80	52	94	66	49	59	58	53
July - - - - -	75	72	72	59	80	85	85	55	94	95	64	77	78	56
August - - - -	71	76	80	65	76	90	85	80	94	85	90	64	88	61
September - - -	79	68	72	68	76	90	85	75	94	85	72	80	78	49
October - - - -	63	57	51	60	80	80	80	62	75	90	67	84	65	57
November - - - -	58	39	37	48	70	80	70	50	74	66	68	78	57	53
December - - - -	53	47	44	56	66	74	64	73	84	72	63	62	54	67
Means - - - -	56	58	51	54	58	77	74	60	84	67	60	68	61	61

RELATING TO SECTION VIII.

Monthly and Annual observed Falls of Rain at different Stations in India, arranged in the following order :—

1. Stations on the West Coast, from Latitude 8° N. up the Malabar Coast to Latitude 25½° N.
2. „ „ East or Coromandel Coast, and continued to Latitude 21½° N.
3. „ in the Interior of the Country.

TABLE LXXXVII, showing the FALL of RAIN on the WEST COAST of INDIA from CAPE COMORIN in Latitude 8° 4' N. to KURRACHEE in Latitude 24° 51' N.

Place . .	CAPE COMORIN.	VAU-RIOR.	ALLEPY.	TREVAN-DRUM.	QUILON.	COCHIN.	ANJARA-KANDY.	CANNA-NORE.	MERCARA.	VIN-GORLA.	DA-POOLEE.
Latitude . .	8° 4' N.	..	..	8° 28' N.	8° 53' N.	9° 11' N.	11° 40' N.	11° 52' N.	12° 24' N.	15° 50' N.	17° 48' N.
Longitude . .	77° 34' E.	..	..	77° 2' E.	76° 39' E.	76° 0' E.	75° 40' E.	75° 30' E.	75° 48' E.	73° 41' E.	73° 16' E.
Height . .	50 feet.	60 feet.	30 feet.	130 feet.	40 feet.	4 feet.	..	15 feet.	4,500 feet.	20 feet.	600 feet.
MONTH.	5 Years, 1843 to 1847.	6 Years, 1841 to 1846.	6 Years, 1841 to 1846.	5 Years, 1842 to 1846.	6 Years, 1841 to 1846.	6 Years, 1841 to 1846.	14 Years, 1810 to 1823.	..	3 Years, 1838 to 1840.	4 Years, 1856 to 1859.	..
January - -	in. 0·2	in. 0·9	in. 2·4	in. 1·8	in. 0·9	in. 0·7	in. -	in. 0·3	in. -	in. -	in. -
February - -	-	0·4	1·2	0·2	0·3	-	0·1	0·2	0·4	-	-
March - -	0·9	1·1	4·3	1·8	1·9	2·0	0·3	0·4	1·5	-	-
April - -	0·8	0·4	3·4	3·5	3·5	3·2	1·2	3·9	2·6	0·4	1·5
May - -	4·6	4·0	26·1	10·2	16·5	17·8	6·9	13·5	7·4	16·7	2·5
June - -	4·6	2·0	26·1	13·1	17·9	30·7	31·1	36·3	30·4	29·0	30·3
July - -	0·7	1·1	18·2	6·4	19·9	17·3	38·9	32·0	55·9	40·9	43·9
August - -	0·4	0·1	9·2	3·3	6·1	13·0	22·5	16·2	27·0	22·2	17·5
September - -	0·4	0·9	7·0	3·5	3·3	4·8	12·3	5·9	11·9	6·2	15·6
October - -	8·8	7·3	12·8	12·3	9·9	9·7	6·2	8·9	4·6	2·9	2·7
November - -	3·9	3·6	6·0	4·1	3·9	2·3	2·5	2·2	1·4	0·1	0·6
December - -	2·8	2·9	2·9	4·5	1·7	3·5	1·2	1·7	0·2	-	-
Sums - -	28·1	24·7	119·5	64·7	85·8	105·0	123·2	127·5	143·3	118·4	114·6

(continued).

Place . .	SAWUNT WAREE.	RUTNA-GHERRY.	MALCOLM PAIT.	MAHAB-LESHWUR.	ALI-BAUGH.	BOMBAY.	TANNA.	BARODA.	RAJCOTE.	AHMED-ABAD.	KOTRI.	KURRA-CHEE.
Latitude . .	15° 56' N.	17° 0' N.	17° 56' N.	17° 59' N.	18° 46' N.	18° 53' N.	19° 11' N.	22° 16' N.	22° 18' N.	23° 0' N.	23° 54' N.	24° 51' N.
Longitude . .	74° 1' E.	73° 20' E.	73° 41' E.	73° 30' E.	72° 58' E.	72° 72' E.	73° 6' E.	73° 14' E.	70° 50' E.	72° 0' E.	68° 46' E.	67° 2' E.
Height . .	..	150 feet.	..	4,500 feet.	..	..	..	90 feet.	450 feet.	320 feet.	..	27 feet.
MONTH.	2 Years, 1848 and 1849.	..	1 Year, 1820.	15 Years, 1829 to 1843.	1 Year, 1845.	..	4 Years, 1844 to 1847.	17 Years, 1837 to 1853.	4 Years, 1857 to 1860.	..	..	5 Years, 1856 to 1860.
January - -	in. -	in. -	in. 0·2	in. -	in. -	in. -	in. -	in. -	in. -	in. -	in. -	in. 0·4
February - -	-	-	-	0·2	-	-	-	-	-	-	-	0·3
March - -	-	-	0·8	0·1	-	-	-	-	-	-	0·1	..
April - -	-	-	1·3	1·3	..	..	..	..	..	..	..	..
May - -	2·2	4·2	1·1	3·3	-	0·5	-	0·8	-	1·0	0·4	..
June - -	32·2	34·9	50·6	46·5	29·7	22·7	34·3	6·2	4·2	3·0	1·3	..
July - -	48·3	34·3	71·9	92·1	19·1	24·5	38·4	14·5	8·3	11·7	-	1·8
August - -	29·2	16·8	64·6	72·3	10·0	12·4	17·4	7·5	8·9	4·9	-	1·5
September - -	16·5	10·1	35·7	31·3	8·4	10·6	15·3	5·0	5·2	3·0	-	0·4
October - -	2·6	24·6	1·2	4·6	-	1·7	-	0·7	..	..	..	..
November - -	0·3	1·5	0·8	2·1	-	0·3	..	..	..	..	..	..
December - -	-	-	-	-	-	-	-	0·1	-	-	-	0·2
Sums - -	131·3	125·9	228·1	253·8	67·2	72·7	105·4	34·8	26·6	23·6	1·8	4·6

TABLE LXXXVIII., showing the FALL of RAIN on the EAST COAST of INDIA from PALAMCOTTAH, in Latitude 8° 43' N., to BALASORE, in Latitude 21° 31' N.

Place	PALAM-COTTAH.	ST. THOMAS MOUNT.	POONA-MALLEE.	FORT ST. GEORGE.	MADRAS.	NEL-LORE.	MASULI-PATAM.	GUN-TOOR.	SAMUL-COTTAH.	VIZAGA-PATAM.	POOREE.	CUT-TACK.	BALA-SORE.
Latitude.	8° 43' N.	13° 0' N.	13° 2' N.	13° 4' N.	13° 6' N.	14° 20' N.	16° 0' N.	16° 20' N.	17° 4' N.	17° 41' N.	19° 48' N.	20° 29' N.	21° 31' N.
Longitude	77° 48' E.	80° 15' E.	80° 10' E.	80° 14' E.	80° 21' E.	80° 0' E.	81° 13' E.	80° 30' E.	82° 14' E.	83° 21' E.	85° 49' E.	85° 54' E.	86° 58' E.
Height	120 feet.	60 feet.	....	....	....	50 feet.	....	100 feet.	50 feet.	....	....	....	....
MONTH.	....	7 Years, 1842 to 1848.	....	31 Years, 1811 to 1841.	29 Years, 1822 to 1850.	2 Years, 1859 and 1860.	7 Years, 1842 to 1848.	5 Years, 1855 to 1859.	3 Years, 1857 to 1859.	....	1 Year, 1851.	1 Year, 1851.	1 Year, 1851.
January -	in. 2.7	in. 1.9	in. -	in. 1.2	in. 1.2	in. 0.6	in. 0.2	in. -	in. -	in. 0.3	in. -	in. 0.1	in. 0.5
February -	1.2	0.3	0.1	0.1	1.0	-	1.6	-	-	0.5	0.4	-	0.3
March -	3.5	0.4	-	0.7	0.2	-	0.3	0.9	1.0	0.4	-	0.3	1.2
April -	10.7	0.3	1.2	0.4	1.0	1.5	0.2	2.5	2.5	1.9	1.0	1.6	3.4
May -	5.8	2.5	1.5	1.1	1.0	0.9	1.9	4.6	1.0	2.0	0.5	0.8	0.1
June -	0.7	0.9	2.0	1.5	2.5	1.5	4.5	4.1	6.1	3.6	4.5	7.3	3.2
July -	-	2.3	3.8	3.7	3.6	8.7	4.6	5.9	10.0	3.7	14.3	10.2	5.9
August -	-	2.4	4.3	4.8	5.1	5.1	4.9	7.7	6.5	4.2	7.4	12.1	3.6
September	1.6	3.7	4.5	4.3	3.9	3.4	5.9	5.7	5.6	6.3	4.4	6.1	3.4
October -	9.6	8.4	11.0	11.1	11.5	4.3	6.7	7.0	9.7	13.4	{ blown } down	11.7	9.1
November	14.7	10.2	19.7	14.1	12.4	32.1	1.1	2.1	-	7.2	-	-	0.2
December	5.8	8.4	7.1	4.6	6.7	2.0	1.9	1.0	0.5	0.4	...	...	...
Sums -	56.3	41.7	55.2	47.6	50.1	60.1	33.8	41.5	42.9	43.9	...	50.2	30.9

TABLE LXXXIX., showing the FALL of RAIN at INLAND STATIONS in the SOUTHERN PART of the PRESIDENCY of MADRAS.

Place	SHENKOTTAH.	TRICHINOPOLY.	COIMBATORE.	DODABETTA.	BANGALORE.
Latitude	9° 17' N.	10° 20' N.	11° 0' N.	11° 25' N.	12° 57' N.
Longitude	78° 10' E.	77° 10' E.	77° 1' E.	77° 25' E.	77° 38' E.
Height . . . . .	....	250 feet.	....	8,640 feet.	3,000 feet.
MONTH.	5 Years, 1842 to 1846.	7 Years, 1842 to 1848.	3 Years, 1844 to 1846.	2 Years, 1847 and 1848.	1 Year, 1859.
January -	in. 1.3	in. 2.0	in. 0.7	in. 0.1	in. ...
February -	0.3	0.2	0.2	7.4	...
March -	1.6	0.5	0.8	3.6	...
April -	2.2	1.4	0.5	19.8	1.3
May -	3.6	2.7	1.8	4.9	3.8
June -	4.3	1.3	1.5	4.6	1.6
July -	3.9	2.6	1.6	7.4	5.6
August -	1.1	1.9	0.2	9.3	5.4
September -	1.8	5.3	5.3	7.5	3.2
October -	8.2	5.6	4.5	12.5	1.1
November -	5.9	2.6	0.5	11.9	2.9
December -	3.0	4.5	3.0	12.3	0.1
Sums -	37.2	30.6	20.6	101.3	25.0

TABLE XC., showing the FALL of RAIN at STATIONS in the BOMBAY PRESIDENCY between the Latitudes 15° 50' N. and 17° 40' N., and Longitudes 74° 2' E. and 76° 52' E.

Place	BELGAUM.	DHARWAR.	KULLAD- GHREE.	SOORA- PORE.	KOLAPORE.	JHUTT.	SHOLA- PORE.	PUNDA- PORE.	SATTARA.
Latitude	15° 52' N.	15° 50' N.	16° 11' N.	16° 32' N.	16° 42' N.	17° 1' N.	17° 40' N.	17° 40' N.	17° 40' N.
Longitude	74° 42' E.	75° 10' E.	75° 33' E.	76° 52' E.	74° 18' E.	75° 16' E.	76° 0' E.	75° 24' E.	74° 2' E.
Height	2,260 feet.	2,482 feet.	1,750 feet.	....	1,797 feet.	....	1,821 feet.	....	2,320 feet.
MONTH.	....	....	5 Years, 1855 to 1859.	1 Year, 1847.	....	1 Year, 1848.	11 Years, 1850 to 1860.	1 Year, 1848.	....
January - - - - -	in.	in.	in. 0·1	in.	in. 0·2	in.	in. 0·1	in.	in. 0·3
February - - - - -	-	-	-	-	-	-	0·5	...	...
March - - - - -	0·7	0·6	0·1	-	0·3	-	0·3	-	0·1
April - - - - -	1·9	1·5	1·5	-	0·7	-	1·9	-	2·0
May - - - - -	4·8	4·1	3·8	-	1·8	1·6	2·3	0·8	2·3
June - - - - -	8·3	3·8	1·6	8·1	4·1	3·1	3·7	2·0	6·3
July - - - - -	15·2	8·2	2·9	9·0	9·1	4·8	4·3	4·4	11·7
August - - - - -	8·8	7·7	2·5	8·3	4·5	2·6	6·2	6·2	5·2
September - - - - -	3·9	2·9	4·1	8·8	2·7	3·9	6·8	4·3	3·8
October - - - - -	5·6	2·5	6·7	-	4·6	2·2	4·7	8·4	4·0
November - - - - -	2·3	2·5	0·6	-	2·0	2·2	1·4	2·5	1·6
December - - - - -	-	0·1	0·4	-	-	-	0·5	-	1·1
Sums - - - - -	51·5	33·9	24·3	34·2	30·1	20·4	32·7	28·6	38·4

TABLE XCI., showing the FALL of RAIN at INLAND STATIONS in the Northern Part of the PRESIDENCY of MADRAS.

Place	KURNOOL.	BELLARY.	SECUNDERABAD.	SEROOR.
Latitude	15° 50' N.	17° 0' N.	17° 28' N.	18° 50' N.
Longitude	78° 5' E.	77° 0' E.	78° 32' E.	77° 25' E.
Height	800 feet.	1,500 feet.	1,800 feet.	1,752 feet.
MONTH.	3 Years, 1857 to 1859.	19 Years, 1841 to 1859.	....	5 Years, 1854 to 1858.
January - - - - -	in.	in. 0·2	in. 1·3	in. 0·1
February - - - - -	-	-	0·3	0·3
March - - - - -	-	1·0	2·1	0·4
April - - - - -	2·7	1·0	0·4	0·9
May - - - - -	8·1	2·1	3·7	2·9
June - - - - -	14·4	1·8	1·8	3·7
July - - - - -	17·2	1·7	9·2	3·
August - - - - -	8·4	3·0	5·4	1·0
September - - - - -	8·0	3·8	4·8	3·
October - - - - -	8·7	5·6	4·4	3·
November - - - - -	4·4	1·1	0·7	0·
December - - - - -	-	0·4	0·5	...
Sums - - - - -	71·9	21·7	34·6	21·1

TABLE XCII. to XCIV., showing the FALL of RAIN at STATIONS in the BOMBAY PRESIDENCY between the Latitudes 17° 59' N. and 20° 54' N., and Longitudes 73° 47' E. and 75° 30' E.

TABLE XCII.					TABLE XCIII.		
Place	PHULTUN.	POORUNDHUR.	POONA.	AURUNGBAD.	Place	NASSIK.	DHOOLLA.
Latitude	17° 59' N.	18° 12' N.	18° 30' N.	19° 30' N.	Latitude	20° 0' N.	20° 54' N.
Longitude	74° 31' E.	73° 54' E.	74° 0' E.	75° 30' E.	Longitude	73° 47' E.	74° 45' E.
Height . . . . .	...	4,200 feet.	1,800 feet.	...	Height . . . . .	...	1,000 feet.
MONTH.	3 Years, 1846 to 1848.	6 Years.	....	1 Year, 1848.	MONTH.	4 Years, 1844 to 1847.	6 Years, 1853 to 1858.
	in.	in.	in.	in.		in.	in.
January - - -	-	0'1	0'3	..	January - - -	..	..
February - - -	-	0'3	..	..	February - - -	-	0'2
March - - -	0'2	0'2	0'4	..	March - - -	-	0'6
April - - -	1'8	0'5	0'5	0'1	April - - -	-	0'5
May - - -	3'4	5'7	2'4	5'7	May - - -	-	2'3
June - - -	3'2	10'2	4'5	7'9	June - - -	6'8	15'3
July - - -	1'8	23'0	7'1	6'8	July - - -	6'7	21'4
August - - -	0'5	16'3	4'1	2'4	August - - -	3'4	9'5
September - - -	2'2	7'4	3'0	18'3	September - - -	2'9	20'9
October - - -	2'7	6'5	2'8	1'0	October - - -	3'3	13'3
November - - -	4'4	0'7	2'4	1'9	November - - -	1'5	..
December - - -	0'8	1'4	0'1	..	December - - -	-	0'3
Sums - - -	21'0	72'3	27'6	44'1	Sums - - -	28'6	84'3

TABLE XCIV., showing the FALL of RAIN at STATIONS in the BOMBAY PRESIDENCY between the Latitudes 20° 56' N. and 23° 9' N., and Longitudes 77° 58' E. and 79° 59' E.

Place	BHORE.	SEETABULDEE.	NAGPORE.	KAMPTEE.	BAITOUL.	JUBBLEPORE.
Latitude	20° 56' N.	21° 10' N.	21° 10' N.	21° 16' N.	21° 51' N.	23° 9' N.
Longitude	79° 3' E.	79° 9' E.	79° 10' E.	79° 14' E.	77° 58' E.	79° 59' E.
Height	2,350 feet.	939 feet.	....	....	....	....
MONTH.	1 Year, 1848.	3 Years, 1858 to 1860.	7 Years, 1826 to 1832.	1 Year, 1843.	1 Year, 1859.	1 Year, 1851.
	in.	in.	in.	in.	in.	in.
January - - -	-	-	0'4	4'3	-	0'5
February - - -	-	0'9	0'8	..	-	0'9
March - - -	-	0'2	1'2	2'2	..	..
April - - -	-	2'2	0'1	..	..	..
May - - -	2'1	0'8	0'6	0'3	1'2	0'5
June - - -	2'4	3'8	10'7	0'8	3'5	6'0
July - - -	13'2	13'1	11'5	18'8	14'5	17'2
August - - -	5'2	12'4	9'7	4'6	8'9	3'9
September - - -	*0'9	11'1	8'1	7'4	3'7	8'2
October - - -	1'5	0'9	3'4	3'4	-	1'3
November - - -	4'2	-	0'9	-	0'2	0'4
December - - -	-	1'1	1'2	..	..	..
Sums - - -	29'5	46'5	48'6	41'8	32'0	38'9

* Bhore, it is supposed that the result in September is 10 inches too small.

TABLE XCV., showing the FALL of RAIN at STATIONS in the BOMBAY PRESIDENCY between the Latitudes 23° 34' N. and 26° 20' N. and Longitudes 69° 5' E. and 74° 54' E.

Place	AHMEDNÜGGUR.	NEEMUCH.	MOUNT ABOO.	HYDERABAD.	DEESA.	NUSSERABAD.
Latitude	23° 34' N.	24° 27' N.	24° 45' N.	25° 30' N.	25° 14' N.	26° 20' N.
Longitude	73° 1' E.	74° 54' E.	72° 49' E.	69° 5' E.	72° 5' E.	74° 50' E.
Height	1,900 feet.	1,476 feet.	4,000 feet.	99 feet.	400 feet.	1,500 feet.
MONTH.	....	1 Year, 1860.	5 Years, 1855 to 1859.	2 Years, 1856 and 1857.	3 Years, 1857 to 1859.	2 Years, 1859 and 1860.
January - - - - -	in. -	in. -	in. 0·8	in. 0·6	in. 0·6	in. ..
February - - - - -	0·1	0·3	0·2	0·5	0·2	0·9
March - - - - -	0·4	..	..	..	..	..
April - - - - -	0·5	-	0·3	0·6	..	..
May - - - - -	3·2	0·3	0·3	-	-	0·4
June - - - - -	4·7	1·7	10·3	-	3·8	0·3
July - - - - -	2·6	11·8	25·9	1·9	8·6	6·1
August - - - - -	3·1	15·7	17·0	14·8	6·2	7·8
September - - - - -	6·6	3·8	9·9	2·1	5·2	0·3
October - - - - -	2·6	0·2	..	..	..	..
November - - - - -	1·3	..	..	..	..	..
December - - - - -	0·4	0·3	..	..	..	..
Sums - - - - -	25·5	34·1	64·7	20·5	24·6	15·8

TABLE XCVI., showing the FALL of RAIN at STATIONS in the BENGAL PRESIDENCY between the Latitudes 20° 8' N. and 27° 31' N. and Longitudes 91° 44' E. and 95° 1' E.

Place	AKYAB.	THYET MYO.	CHITTA-GONG.	CACHAR.	SYLHET.	CHIRRA-POONGEE.	GOWA-HUTTEE.	TEZPORE.	BATTI-COTTE.	DEBROGHUR.
Latitude	20° 8' N.	20° 18' N.	22° 20' N.	24° 48' N.	24° 53' N.	25° 16' N.	26° 11' N.	26° 36' N.	26° 40' N.	27° 31' N.
Longitude	92° 56' E.	92° 46' E.	91° 47' E.	92° 47' E.	91° 50' E.	91° 44' E.	91° 47' E.	92° 50' E.	91° 59' E.	95° 1' E.
Height . . . . .	....	240 feet.	....	....	....	4,500 feet.	....	....	....	....
MONTH.	1 Year, 1851.	1 Year, 1859.	1 Year, 1851.	1 Year, 1851.	1 Year, 1851.	....	1 Year, 1851.	1 Year, 1851.	2 Years, 1847 and 1848.	1 Year, 1851.
January - - - - -	in. -	in. -	in. -	in. -	in. 0·3	in. 0·4	in. 0·5	in. 1·9	in. 1·5	in. 0·6
February - - - - -	-	-	1·9	-	4·5	2·4	0·5	1·9	1·2	5·5
March - - - - -	-	0·3	-	-	2·2	2·1	1·4	2·1	1·1	2·3
April - - - - -	-	0·5	2·5	12·1	19·3	21·7	5·6	4·3	6·5	9·4
May - - - - -	11·3	2·3	7·5	27·8	43·4	62·3	6·6	9·6	1·5	14·5
June - - - - -	59·5	16·5	25·9	15·4	39·7	195·2	16·6	16·8	0·9	12·8
July - - - - -	22·4	6·9	13·1	15·6	33·5	121·3	9·4	4·5	1·3	13·7
August - - - - -	27·6	9·8	8·0	8·9	28·3	103·5	4·5	16·6	1·7	18·4
September - - - - -	17·6	4·8	16·3	9·3	17·9	74·8	3·1	4·5	2·6	12·0
October - - - - -	14·1	6·8	10·8	11·3	20·4	28·9	3·7	3·0	15·2	17·7
November - - - - -	-	-	-	2·0	-	-	0·4	-	15·1	..
December - - - - -	2·5	0·4	0·4	0·5	0·4	-	0·5	0·3	8·3	..
Sums - - - - -	155·0	48·3	86·4	102·9	209·9	612·6	52·8	63·6	56·9	106·9

TABLE XCVII., showing the FALL of RAIN at STATIONS in the BENGAL PRESIDENCY between the Latitudes 22° 35' N. and 26° 11' N., and Longitudes 89° 15' E. and 91° 5' E.

Place . . .	TIPPER-AGH.	DACCA.	MYMEN-SING.	BURI-SAUL.	RUNG-PORE.	GWAL-POORAH.	Place . . .	MID-NAPORE.	CAL-CUTTA.	FORT WIL-LIAM.	HOOGH-LY.	JESSORE.
Latitude . . .	23° 27' N.	23° 43' N.	24° 49' N.	22° 35' N.	25° 43' N.	26° 11' N.	Latitude . . .	22° 25' N.	22° 34' N.	22° 34' N.	22° 58' N.	23° 9' N.
Longitude . . .	91° 5' E.	90° 23' E.	90° 24' E.	90° 17' E.	89° 15' E.	90° 40' E.	Longitude . . .	87° 19' E.	88° 25' E.	88° 25' E.	88° 26' E.	89° 10' E.
Height . . .	...	22 feet.	...	...	...	...	Height . . .	...	80 feet.	18 feet.	...	...
MONTH.	1 Year, 1851.	1 Year, 1851.	1 Year, 1851.	1 Year, 1851.	1 Year, 1851.	1 Year, 1851.	MONTH.	1 Year, 1851.	15 Years, 1836 to 1850.	5 Years, 1855 to 1859.	1 Year, 1851.	1 Year, 1851.
January -	in. 0·8	in. 0·7	in. 0·8	- -	in. 1·1	in. 0·7	January -	in. 0·3	in. 0·4	in. 0·3	in. 1·0	in. 0·4
February -	1·2	1·0	3·2	2·5	0·1	0·7	February -	0·2	0·6	0·4	0·6	..
March -	-	-	0·5	-	0·5	1·0	March -	1·5	0·8	1·6	..	..
April -	5·5	4·3	5·3	3·2	3·7	10·2	April -	1·7	1·9	1·6	2·1	3·9
May -	3·1	2·7	7·3	1·1	9·7	45·1	May -	-	4·1	6·0	-	0·5
June -	19·5	18·8	35·3	20·7	23·9	42·6	June -	3·1	10·6	10·9	5·8	8·6
July -	16·1	13·8	20·0	17·9	11·7	17·9	July -	4·4	10·6	14·1	9·6	9·9
August -	25·3	10·3	20·4	21·0	14·4	11·7	August -	4·1	13·5	15·2	4·2	4·4
September -	11·0	4·7	6·5	6·9	6·3	7·4	September -	-	9·0	9·6	2·7	5·4
October -	13·5	12·7	10·7	21·2	3·2	8·8	October -	7·4	4·0	5·4	10·0	7·1
November -	..	..	..	..	..	..	November -	-	1·0	..	..	..
December -	..	..	..	..	..	..	December -	-	0·3	..	..	..
Sums -	96·0	69·0	110·0	94·5	74·6	116·1	Sums -	22·7	56·8	65·1	36·0	40·2

TABLE XCVIII., showing the FALL of RAIN at STATIONS in the BENGAL PRESIDENCY between the Latitudes 22° 25' N. and 23° 9' N., and Longitudes 87° 19' E. and 89° 10' E.

TABLE XCIX., showing the FALL of RAIN at STATIONS in the BENGAL PRESIDENCY between the Latitudes 24° 48' N. and 26° 7' N., and Longitudes 85° 3' E. and 85° 26' E.

Place	GYAH.	UTTRA MULLAY.	DINAPORE.	TIRHOOT.
Latitude	24° 48' N.	24° 55' N.	25° 37' N.	26° 7' N.
Longitude	85° 3' E.	85° 20' E.	85° 5' E.	85° 26' E.
Height . . . . .	..	4,600 feet.	..	..
MONTH.	1 Year, 1851.	3 Years, 1844 to 1846.	1 Year, 1851.	1 Year, 1851.
January - - -	in. 0·3	in. 4·3	in. 1·8	in. 3·8
February - - -	1·3	0·2	1·0	1·4
March - - -	-	4·9	2·0	0·9
April - - -	-	3·6	..	..
May - - -	-	19·7	..	..
June - - -	3·3	37·0	4·5	3·5
July - - -	9·3	36·7	3·7	8·5
August - - -	3·3	23·5	6·8	7·3
September - - -	4·2	7·1	7·5	3·5
October - - -	2·5	50·2	3·8	4·5
November - - -	0·5	24·7	..	..
December - - -	-	18·0	..	..
Sums - - -	24·7	229·9	31·1	33·4

TABLE C., showing the FALL of RAIN at STATIONS in the BENGAL PRESIDENCY between the Latitudes 25° 14' N. and 25° 48' N., and Longitudes 86° 43' E. and 88° 41' E.

Place	BHAUGUL-PORE.	MONGHYR.	DINAJE-PORE.	PURNEAH.
Latitude	25° 14' N.	25° 27' N.	25° 37' N.	25° 48' N.
Longitude	87° 0' E.	86° 43' E.	88° 41' E.	87° 33' E.
Height . . . . .	..	..	..	..
MONTH.	1 Year, 1851.	1 Year, 1851.	1 Year, 1851.	1 Year, 1851.
January - - -	in. 0·8	in. 0·9	in. 0·8	in. 2·1
February - - -	1·5	1·2	0·8	3·3
March - - -	-	0·2	0·3	1·5
April - - -	0·8	-	0·7	2·0
May - - -	0·8	1·4	2·5	0·7
June - - -	10·5	8·2	12·5	9·8
July - - -	14·4	6·7	12·7	15·1
August - - -	3·5	3·4	6·7	11·8
September - - -	2·4	8·1	3·2	3·3
October - - -	7·9	6·6	6·5	3·8
November - - -	..	..	..	..
December - - -	..	..	..	..
Sums - - -	42·6	36·7	46·7	53·4

TABLE CI., showing the FALL of RAIN at STATIONS in the BENGAL PRESIDENCY between the Latitudes 23° 13' N. and 23° 44' N., and Longitudes 87° 6' E. and 87° 52' E.

TABLE CII., showing the FALL of RAIN at STATIONS in the BENGAL PRESIDENCY between the Latitudes 23° 24' N. and 27° 3' N., and Longitudes 85° 24' E. and 88° 33' E.

Place . . .	BURDWAN.	BAN-COORAH.	BEER-BHOOM.	Place . . .	KISH-NUGHUR.	HAZAREE-BAUGH.	BERHAM-PORE.	MOORSHED-ABAD.	BAULIAH.	DAR-JEELING.
Latitude . . .	23° 13' N.	23° 13' N.	23° 44' N.	Latitude . . .	23° 24' N.	24° 0' N.	24° 5' N.	24° 11' N.	24° 23' N.	27° 3' N.
Longitude . . .	87° 52' E.	87° 6' E.	87° 34' E.	Longitude . . .	88° 22' E.	85° 24' E.	88° 17' E.	88° 13' E.	88° 33' E.	88° 18' E.
Height . . .	....	....	....	Height . . .	....	1,900 feet.	76 feet.	76 feet.	....	7,000 feet.
MONTH.	1 Year, 1851.	1 Year, 1851.	1 Year, 1851.	MONTH.	1 Year, 1851.	....	3 Years, 1857 to 1859.	1 Year, 1851.	1 Year, 1851.	....
January -	in. 0.3	in. 0.9	in. ...	January -	in. 2.5	in. -	in. 0.1	in. 0.2	in. -	in. 1.8
February -	1.1	0.9	0.6	February -	1.2	1.2	0.5	1.7	0.6	2.4
March -	0.3	1.1	1.2	March -	-	1.2	0.5	-	0.2	2.9
April -	0.4	4.2	2.5	April -	2.6	0.6	1.4	2.3	0.2	4.3
May -	-	1.0	...	May -	-	2.3	6.1	2.6	0.3	7.6
June -	3.3	4.4	3.5	June -	4.1	10.5	6.9	4.6	6.9	26.0
July -	8.8	8.8	11.3	July -	23.0	11.7	13.6	10.7	11.6	28.6
August -	5.2	2.7	5.4	August -	10.8	11.2	9.7	7.7	4.9	24.3
September -	2.6	4.1	2.7	September -	11.0	9.1	5.9	3.6	3.4	16.9
October -	5.6	2.9	4.9	October -	2.5	3.7	4.9	7.1	3.3	8.6
November -	0.6	...	...	November -	-	0.4	-	-	0.2	0.3
December -	...	...	...	December -	-	0.8	0.2	-	-	0.3
Sums -	28.2	31.0	32.1	Sums -	57.7	52.7	49.8	40.5	31.6	124.0

TABLE CIII., showing the FALL of Rain at STATIONS in the BENGAL PRESIDENCY between the Latitudes 25° 5' N. and 26° 46' N., and Longitudes 80° 48' E. and 83° 22' E.

Place . . .	CHUNAR.	BENARES.	GHAZEEPORE.	AZIMGHUR.	GORUCKPORE.
Latitude . . .	25° 5' N.	25° 18' N.	25° 49' N.	26° 3' N.	26° 46' N.
Longitude . . .	83° 0' E.	83° 3' E.	80° 48' E.	83° 13' E.	83° 22' E.
Height . . .	250 feet.	270 feet.	....	....	....
MONTH.	10 Years, 1850 to 1859.	....	....	1 Year, 1851.	1 Year, 1851.
January -	in. 0.5	in. 1.8	in. 1.2	in. 3.8	in. 3.6
February -	1.5	0.8	1.5	1.1	0.2
March -	0.8	0.4	0.5	0.6	0.2
April -	0.5	0.2	0.2	0.8	0.1
May -	0.5	-	0.3	-	1.4
June -	10.0	7.6	7.9	4.5	15.6
July -	14.0	6.9	7.4	8.7	14.1
August -	12.0	5.7	10.0	3.8	5.0
September -	6.0	10.5	6.9	9.5	9.9
October -	2.5	2.9	5.1	7.2	11.6
November -	0.5	0.5	0.2	...	...
December -	1.3	0.1	0.2	...	...
Sums -	50.1	37.4	41.4	40.0	61.7

TABLE CIV., showing the FALL of RAIN at STATIONS in the BENGAL PRESIDENCY between the Latitudes 26° 7' N. and 30° 23' N., and Longitudes 77° 13' E. and 79° 47' E.

Place . . .	HUMEER- PORE.	KHER- WARRAH.	ITAWAH.	ENTESH- WUR.	AGRA.	FUTTY- GHUR.	DELHI.	MEERUT.	NYNEE TÂL.	ROOR- KEE.	DUDOO- PORE.	UM- BALLA.
Latitude . . .	26° 7' N.	26° 42' N.	26° 45' N.	26° 46' N.	27° 10' N.	27° 23' N.	28° 31' N.	28° 59' N.	29° 20' N.	29° 53' N.	30° 12' N.	30° 23' N.
Longitude . . .	79° 47' E.	79° 12' E.	79° 3' E.	79° 5' E.	78° 5' E.	79° 30' E.	77° 13' E.	77° 46' E.	79° 30' E.	77° 57' E.	..	76° 44' E.
Height . . .	..	1,200 feet.	..	..	800 feet.	600 feet.	..	900 feet.	6,400 feet.	..	..	1,050 feet.
MONTH.	1 Year, 1851.	5 Years, 1854 to 1858.	1 Year, 1851.	1 Year, 1848.	1 Year, 1851.	..	1 Year, 1851.	1 Year, 1859.	9 Years, 1846 to 1854.	1 Year, 1860.	15 Years, 1834 to 1848.	2 Years, 1851 and 1852.
January - - -	in. 1·5	in. ..	in. 2·8	in. ..	in. 1·2	in. 2·9	in. 2·6	in. 0·2	in. 4·6	in. ..	in. 0·9	in. 0·7
February - - -	0·8	..	0·6	..	1·1	0·3	0·3	0·2	2·4	..	1·8	..
March - - -	..	..	..	..	..	0·3	2·6	1·8	1·7	..	1·0	7·1
April - - -	0·3	..	0·1	..	0·2	..	1·0	2·6	0·9	..	0·4	0·9
May - - -	..	..	0·3	2·6	0·7	0·2	0·1	..	2·8	0·5	0·8	2·8
June - - -	6·7	4·0	0·9	6·0	0·3	3·0	0·4	3·6	14·7	1·5	6·2	1·3
July - - -	12·6	12·3	11·4	19·8	9·8	8·9	11·6	1·5	23·4	4·0	13·6	7·8
August - - -	10·5	3·9	9·2	5·0	10·0	5·4	6·5	5·9	28·8	3·0	9·0	3·1
September - - -	4·8	6·5	6·2	1·8	4·0	8·5	..	1·4	12·6	1·0	4·9	..
October - - -	0·7	0·8	0·3	2·3	0·6	1·6	..	..	2·7	0·3	1·0	..
November - - -	..	..	..	0·2	..	..	..	..	0·8	..	0·2	2·3
December - - -	..	..	0·1	..	..	0·2	..	0·8	0·2	..	0·3	0·1
Sums - - -	37·9	27·5	31·9	37·7	27·9	31·5	25·1	18·0	95·6	10·3	40·1	26·1

TABLE CV., showing the FALL of RAIN at STATIONS in the BENGAL PRESIDENCY between the Latitudes 30° 27' N. and 34° 20' N., and Longitudes 70° 30' E. and 78° 10' E.

Place	LANDOUR.	MEAN MEER.	LODIANA.	FEROZPORE.	PUNJAB.	RAWUL PINDI.	MEERHA.	PESHAWUR.
Latitude	30° 27' N.	30° 34' N.	30° 55' N.	30° 57' N.	31° 40' N.	33° 34' N.	32° 37' N.	34° 20' N.
Longitude	78° 10' E.	74° 4' E.	75° 54' E.	74° 41' E.	74° 45' E.	73° 5' E.	70° 30' E.	71° 29' E.
Height	7,000 feet.	1,128 feet.	900 feet.	720 feet.	800 feet.	1,500 feet.	..	1,056 feet.
MONTH.	10 Years, 1850 to 1859.	3 Years, 1857 to 1859.	3 Years, 1857 to 1859.	..	3 Years, 1857 to 1859.	1 Year, 1859.	1 Year, 1848.	6 Years, 1855 to 1860.
January - - -	in. 0·6	in. 1·2	in. 2·5	in. 1·1	in. 1·1	in. ..	in. ..	in. 1·2
February - - -	0·6	1·4	1·1	0·9	2·0	..	..	1·8
March - - -	0·3	0·4	0·1	0·5	0·7	..	..	1·1
April - - -	1·9	0·5	0·8	0·5	5·2	..	..	0·8
May - - -	1·5	0·4	0·5	0·1	1·2	..	2·8	0·4
June - - -	11·9	1·4	1·6	0·9	8·4	4·1	10·9	0·3
July - - -	31·5	5·5	2·9	12·7	22·7	4·8	22·9	2·1
August - - -	32·3	3·6	4·3	0·7	10·5	5·1	6·2	3·3
September - - -	10·3	1·9	2·3	0·9	4·2	3·6	2·3	1·7
October - - -	0·9	..	..	..	..	..	2·8	0·1
November - - -	0·6	..	0·2	..	..	..	1·9	0·3
December - - -	0·3	..	0·2	..	0·6	..	..	0·6
Sums - - -	92·7	16·3	16·5	18·3	56·6	17·6	49·8	13·7

TABLES showing the MONTHLY and YEARLY MEAN READING of the BAROMETER at STATIONS situated in the PRESIDENCY of MADRAS, arranged in the order of Latitude.

TABLE CVI., showing the Monthly and Yearly Mean Reading of the Barometer at Stations situated between the Latitudes 5° 21' N. and 17° 41' N. and Longitudes 75° 30' E. and 100° 25' E. in the Madras Presidency.

Place	PENANG.	COLOMBO.	TRIN-COMALEE.	PALAM-COTTAH.*	WELLING-TON.†	DODA-BETTA.	CANNA-NORE.‡	MERGUL.§	BANGA-LORE.	POONAM-ALLEE.||	FORT ST. GEORGE.
Latitude . . .	5° 21' N.	6° 57' N.	8° 34' N.	8° 43' N.	11° 25' N.	11° 25' N.	11° 52' N.	12° 27' N.	12° 57' N.	13° 2' N.	13° 4' N.
Longitude . . .	100° 25' E.	80° 0' E.	81° 19' E.	77° 48' E.	77° 5' E.	77° 5' E.	75° 30' E.	98° 42' E.	77° 38' E.	80° 10' E.	80° 14' E.
Height . . . .	....	....	....	120 feet.	6,000 feet.	8,640 feet.	15 feet.	200 feet.	3,000 feet.	....	....
MONTH.	1 Year, 1859.	2 Years, 1853 and 1854.	1 Year, 1854.	5 Years, 1855 to 1859.	1 Year, 1859.	2 Years, 1847 and 1848.	10 Years, 1850 to 1859.	7 Years, 1853 to 1859.	1 Year, 1859.	5 Years, 1855 to 1859.	2 Years, 1777 and 1778.
January - -	in. 29·62	in. 29·91	in. 29·87	in. 29·57	in. 24·32	in. 22·08	in. 29·87	in. 29·90	in. 27·33	in. 29·67	in. 30·02
February - -	29·65	29·88	29·85	29·56	24·33	22·10	29·73	29·90	27·28	29·66	30·02
March - - -	29·60	29·89	29·84	(29·69)	24·34	22·13	29·63	29·90	27·26	29·62	30·01
April - - -	29·55	29·84	29·73	29·42	24·40	22·10	29·68	29·85	27·22	29·54	30·19
May - - - -	29·60	29·85	29·70	29·35	24·34	22·06	29·87	29·80	27·12	29·47	30·17
June - - - -	29·60	29·84	29·69	29·34	24·34	21·97	29·94	29·75	27·06	20·45	29·16
July - - - -	29·55	29·89	29·68	29·33	24·32	21·97	29·85	29·75	27·03	29·40	29·17
August - - -	29·55	29·84	29·71	29·35	24·37	22·00	29·85	29·75	27·07	29·45	29·19
September - -	29·60	29·88	29·70	29·37	24·33	22·00	29·75	29·75	27·08	29·47	29·18
October - - -	29·50	29·89	29·74	29·38	24·31	22·05	29·80	29·90	27·13	29·47	29·19
November - -	29·55	29·86	29·82	29·42	24·31	22·08	29·80	29·90	27·12	29·49	30·01
December - -	29·60	29·92	29·80	29·47	24·33	22·04	29·99	29·90	27·17	29·61	30·02
Means - - -	29·58	29·87	29·76	29·42	24·34	22·05	29·81	29·84	27·15	29·53	...

* Palamcottah.—The reading in March has been altered conjecturally from 29·69 to 29·49.
 † Wellington and Dodabetta.—The changes of atmospheric pressure from month to month seem to be very small.
 ‡ Cannanore.—The results are irregular, and several of the readings are erroneous.
 § Mergul.—Most likely the instrument was not good.
 || Poonamallee.—The reading in February has been altered conjecturally from 29·71 to 29·66.

(continued.)

Place	FORT ST. GEORGE.	MADRAS.	TAVOY.	NELLORE.*	HURRY-HUR.†	KURNOOL.‡	GUNTOOR.§	BELLARY.||	SECUNDER-ABAD.¶	VIZAGA-PATAM.**
Latitude . . .	13° 4' N.	13° 6' N.	14° 7' N.	14° 20' N.	14° 31' N.	15° 50' N.	16° 20' N.	17° 0' N.	17° 28' N.	17° 41' N.
Longitude . . .	80° 14' E.	80° 21' E.	98° 18' E.	80° 0' E.	75° 51' E.	78° 5' E.	80° 30' E.	77° 0' E.	78° 32' E.	83° 21' E.
Height . . . .	....	....	12 feet.	50 feet.	1,831 feet.	800 feet.	100 feet.	1,500 feet.	....	....
MONTH.	31 Years, 1811 to 1841.	55 Years, 1796 to 1850.	11 Years, 1849 to 1859.	2 Years, 1859 and 1860.	3 Years, 1857 to 1859.	3 Years, 1857 to 1859.	5 Years, 1855 to 1859.	9 Years, 1851 to 1859.	10 Years, 1851 to 1859.	1 Year, 1859.
January - -	in. 30·11	in. 30·05	in. 30·15	in. 28·51	in. 27·84	in. 29·09	in. 29·95	in. 28·65	in. 28·88	in. 29·91
February - -	30·08	30·03	30·05	28·49	27·79	29·11	29·73	28·64	28·61	29·93
March - - -	30·02	29·98	30·14	28·45	27·74	28·98	29·76	28·59	28·33	29·87
April - - -	29·95	29·90	30·00	28·41	27·72	28·93	29·85	28·58	28·31	29·80
May - - - -	29·87	29·80	29·95	28·31	27·70	28·93	29·76	28·59	28·82	29·74
June - - - -	29·86	29·78	29·92	28·25	27·69	28·90	29·71	28·51	28·65	29·68
July - - - -	29·86	29·79	29·91	28·22	27·65	28·80	29·70	28·40	28·62	29·71
August - - -	29·88	29·82	29·86	28·27	27·69	28·81	29·73	28·46	28·56	29·72
September - -	29·91	29·85	29·01	28·33	27·74	28·89	29·74	28·47	28·64	29·79
October - - -	29·97	29·91	30·01	28·36	27·79	28·91	29·72	28·58	28·78	29·91
November - -	30·03	29·98	30·04	28·42	27·76	(29·05)	29·89	28·68	28·56	30·04
December - -	30·08	30·03	30·10	28·48	27·82	29·14	30·02	28·70	28·70	30·06
Means - - -	29·97	29·91	30·01	28·38	27·74	28·96	29·80	28·57	28·62	29·84

* Nellore.—The reading in February has been altered conjecturally from 28·54 to 28·49.
 † Hurryhur.—The reading in March has been altered conjecturally from 27·84 to 27·74. The reading in April has been altered conjecturally from 27·82 to 27·72.
 ‡ Kurnool.—The reading in November has been altered from 29·25 to 29·05.
 § Guntoor.—The readings seem to be erroneous.
 || Bellary.—The reading in October has been altered from 28·48 to 28·58.
 ¶ Secunderabad.—The readings seem to be erroneous.
 ** Vizagapatam.—The reading in May has been altered from 29·64 to 29·74. The reading in June has been altered from 29·58 to 29·68.

TABLES showing the MONTHLY and YEARLY MEAN READING of the BAROMETER at STATIONS situated for the most part in the BOMBAY PRESIDENCY, arranged in the Order of Latitude.

TABLE CVII., showing the Monthly and Yearly Mean Reading of the Barometer at Stations situated between the Latitudes 15° 52' N. and 23° 34' N., and Longitudes 70° 50' E. and 77° 25' E., and for the most part in the Presidency of Bombay.

Place	BELGAUM.	SATTARA.	DA- POOLEE.	POORUN- DHUR.	POONA.	POONA.	SEROOR.*	BOMBAY.	BOMBAY.	RAJCOTE.†	MHOW.	AHMED- NUGGUR.
Latitude	15° 52' N.	17° 40' N.	17° 48' N.	18° 12' N.	18° 30' N.	18° 30' N.	18° 50' N.	18° 53' N.	18° 53' N.	22° 18' N.	22° 33' N.	23° 34' N.
Longitude	74° 42' E.	74° 2' E.	73° 16' E.	73° 54' E.	74° 0' E.	74° 0' E.	77° 25' E.	72° 52' E.	72° 52' E.	70° 50' E.	75° 46' E.	73° 1' E.
Height	2,260 feet.	2,320 feet.	600 feet.	4,200 feet.	1,800 feet.	1,800 feet.	1,752 feet.	.	.	450 feet.	1,862 feet.	1,900 feet.
MONTH.	4 Years, 1856 to 1859.	5 Years, 1855 to 1859.	2 Years, 1858 and 1859.	2 Years, 1852 and 1853.	1 Year, 1830.	5 Years, 1856 to 1860.	5 Years, 1854 to 1858.	2 Years, 1843 and 1844.	12 Years, 1847 to 1858.	4 Years, 1857 to 1860.	2 Years, 1859 and 1860.	6 Years, 1854 to 1859.
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
January	27.52	27.87	29.41	26.02	28.09	28.06	27.44	29.92	29.93	29.75	28.2	27.89
February	27.50	27.85	29.42	26.02	28.00	28.03	27.44	29.91	29.91	29.71	28.1	27.86
March	27.44	27.83	29.38	25.94	27.95	27.98	27.40	29.85	29.86	29.71	28.1	27.81
April	27.40	27.76	29.33	25.96	27.91	27.92	27.34	29.80	29.79	29.68	28.1	27.77
May	27.34	27.72	29.28	25.88	27.85	27.83	27.31	29.70	29.74	29.58	27.9	27.71
June	27.28	27.64	29.22	25.80	27.77	27.80	27.26	29.64	29.65	29.59	27.8	27.67
July	27.26	27.63	29.19	25.81	27.77	27.78	27.25	29.65	29.65	29.45	27.7	27.60
August	27.32	27.69	29.24	25.84	27.84	27.83	27.30	29.71	29.72	29.56	27.8	27.66
September	27.36	27.73	29.30	25.84	27.93	27.89	27.35	29.79	29.77	29.50	27.9	27.71
October	27.40	27.80	29.32	25.94	27.92	27.97	27.40	29.84	29.83	29.73	28.0	27.80
November	27.45	27.86	29.39	26.04	28.02	28.04	27.46	29.90	29.90	29.70	28.1	27.86
December	27.52	27.87	29.41	26.01	28.07	28.08	27.53	29.92	29.94	29.85	28.1	27.89
Means	27.40	27.77	29.32	25.93	27.93	27.93	27.37	29.80	29.81	29.65	28.0	27.77

* Seroor.—The reading in November has been altered from 29.26 to 29.46.
 † Rajcote.—The readings seem to be erroneous.

TABLES showing the MONTHLY and YEARLY MEAN READINGS of the BAROMETER at STATIONS situated for the most part in the PRESIDENCY of BENGAL, arranged in the Order of Latitude.

TABLE CVIII., showing the Monthly and Yearly Mean Reading of the Barometer at Stations situated between the Latitudes 20° 18' N. and 34° 20' N., and Longitudes 67° 2' E. and 92° 46' E., for the most part in the Presidency of Bengal.

Place	THYET MYO.	CAL- CUTTA.*	CAL- CUTTA.	FORT WILLIAM (CAL- CUTTA).	HAZA- REE- BAUGH.†	BERHAM- PORE.	BENARES	DAR- JEELING.	KUR- RACHEE.	DEESA.‡	BARODA.§	MEERUT.	UM- BALLA.	PESHA- WUR.
Latitude	20° 18' N.	22° 34' N.	22° 34' N.	22° 34' N.	24° 0' N.	24° 5' N.	25° 17' N.	27° 2' N.	24° 51' N.	25° 14' N.	25° 30' N.	28° 59' N.	30° 23' N.	34° 20' N.
Longitude	92° 46' E.	88° 25' E.	88° 25' E.	88° 25' E.	85° 24' E.	88° 17' E.	83° 4' E.	88° 18' E.	67° 2' E.	72° 5' E.	76° 49' E.	77° 46' E.	76° 44' E.	71° 29' E.
Height	240 feet.	80 feet.	80 feet.	.	1,900 feet.	76 feet.	270 feet.	7,000 feet.	27 feet.	400 feet.	A few ft.	900 feet.	1,050 feet.	1,056 feet.
MONTH.	1 Year, 1859.	2 Years, 1843 and 1844.	1 Year, 1848.	5 Years, 1854 to 1859.	3 Years, 1858 to 1860.	3 Years, 1857 to 1859.	2 Years, 1858 and 1859.	3 Years, 1857 to 1859.	4 Years, 1856 to 1859.	3 Years, 1857 to 1859.	7 Years, 1847 to 1853.	1 Year, 1859.	2 Years, 1851 and 1852.	3 Years, 1858 to 1860.
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
January	29.85	29.94	30.00	30.02	27.67	29.94	29.85	23.16	30.16	29.67	30.22	29.27	29.17	28.86
February	29.86	29.92	29.98	29.96	27.82	29.90	29.78	23.14	30.08	29.59	30.22	29.27	29.11	28.76
March	29.81	29.79	29.84	29.86	27.76	29.86	29.70	23.14	29.98	29.56	(30.04)	29.19	29.02	28.78
April	29.76	29.66	29.72	29.77	27.70	29.74	29.61	23.12	29.90	29.45	29.85	29.07	28.97	28.69
May	29.70	29.56	29.64	29.65	27.64	29.62	29.43	23.07	29.73	29.52	29.80	29.01	28.87	28.56
June	29.59	29.48	29.52	29.53	27.59	29.51	29.41	23.02	29.62	29.35	29.76	28.75	28.71	28.35
July	29.62	29.52	29.53	29.54	27.67	29.50	29.41	23.02	29.58	29.33	29.65	28.85	28.77	28.36
August	29.68	29.52	29.54	29.60	27.58	29.57	29.44	23.06	29.66	29.44	29.73	28.59	28.81	28.49
September	29.70	29.61	29.71	29.70	27.66	29.67	29.51	23.12	29.81	29.55	29.79	29.00	28.81	28.52
October	29.74	29.73	29.88	29.83	27.78	29.79	29.67	23.18	29.97	29.68	29.87	29.20	29.06	28.61
November	29.85	29.86	30.01	29.98	27.88	29.92	29.85	23.21	30.04	29.77	30.22	29.30	29.16	28.75
December	29.86	29.95	30.02	30.03	27.90	29.95	29.88	23.18	30.16	29.85	30.09	29.37	29.19	28.93
Means	29.75	29.71	29.78	29.79	27.73	29.75	29.63	23.12	29.89	29.56	29.92	29.07	28.97	28.64

* Calcutta.—The reading in June has been altered from 29.18 to 29.48. The reading in October has been altered from 29.63 to 29.73.
 † Hazarebaugh.—The reading in April has been altered conjecturally from 27.80 to 27.70. The reading in December has been altered conjecturally from 27.80 to 27.90.
 ‡ Deesa.—The reading in May seems to be in error as compared with April and June; it should be 29.42.
 § Baroda.—The reading in March has been altered conjecturally from 30.54 to 30.04; and the reading in October from 29.67 to 29.87.

TABLES showing the OBSERVED MONTHLY, QUARTERLY, HALF YEARLY, and YEARLY MEANS, and DIFFERENCES between the HOTTEST and COLDEST MONTHS, and SEASONS, of OBSERVATIONS taken for the most part in the PRESIDENCY of MADRAS arranged in the order of LATITUDE, of the following METEOROLOGICAL ELEMENTS :—

1. Maximum Temperature of the Air.
2. Minimum Temperature of the Air.
3. Daily Range of Temperature.
4. Temperature of the Air.
5. Readings of the Dry and Wet Bulb Thermometers.
6. Temperature of the Dew Point.
7. Amount of Vapour in a Cubic Foot of Air.
8. Additional Weight of Vapour required for Saturation.
9. Degree of Humidity.
10. Sun Temperature.

MADRAS PRESIDENCY.—I. *Maximum Temperature of the Air.*

TABLE CIX., showing the AVERAGE MAXIMUM TEMPERATURE for every MONTH and QUARTER as well as for the Periods October to March, and April to September, with the Difference between the Hottest and Coldest Months and Seasons, and Mean Maximum Temperature for the Year, between Latitudes 5° 21' N. and 18° 56' N., and Longitudes 75° 30' E. and 100° 25' E. arranged in the order of Latitude, at Stations for the most part in the Presidency of Madras.

Place	PENANG			COLOMBO			TRINCOMALEE			PALAMCOTTAH.		
Latitude	5° 21' N.			6° 57' N.			8° 34' N.			8° 43' N.		
Longitude	100° 24' E.			80° 0' E.			81° 19' E.			77° 48' E.		
Height	A few feet									120 feet.		
MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.
	1859.		April to September.	1853.		April to September.	1854.		April to September.	1855 to 1859.		April to September.
January - - -	83	} 83	83	84	} 84	84	81	} 82	83	86	} 87	89
February - - -	84			85			85			84			86	88	90	93
March - - -	85	} 85	85	87	} 86	84	86	} 88	89	93	} 94	93
April - - -	85			86			84			89			90	93
May - - -	84	} 85	85	85	} 83	84	89	} 89	89	94	} 93	93
June - - -	86			84			83			90			92	93
July - - -	85	} 85	85	83	} 83	84	88	} 89	89	92	} 90	93
August - - -	84			83			88			89			93
September - - -	84	} 83	83	84	} 83	84	89	} 85	85	93	} 90	93
October - - -	83			83			85			85			91
November - - -	83	} 83	83	83	} 83	84	81	} 85	85	87	} 86	86
December - - -	82			84			80			80			86
Difference between Hottest and Coldest Months.	4	2	2	4	3	0	10	7	6	8	7	4
Mean for Year -	84			84			86			91		
Highest in	June.			March.			April and June.			April and May.		
Lowest in	December.			July, August, Oct. and Nov.			December.			January and December.		

(continued)

Place	WELLINGTON			CANNANORE			MERGUI			BANGALORE.		
Latitude	11° 25' N.			11° 52' N.			12° 27' N.			12° 57' N.		
Longitude	77° 5' E.			75° 30' E.			98° 42' E.			77° 38' E.		
Height	6,000 feet			15 feet			200 feet			3,000 feet.		
MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	10 Years.	Winter, Spring, Summer, Autumn.	October to March.	7 Years.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.
	1859.		April to September.	1850 to 1859.		April to September.	1853 to 1859.		April to September.	1859.		April to September.
January - - -	68	} 70	70	87	} 87	87	86	} 82	82	79	} 81	82
February - - -	66			87			88			78			83	88
March - - -	71	} 70	73	89	} 89	85	84	} 88	85	88	} 88	85
April - - -	67			90			88			90			86
May - - -	73	} 74	73	88	} 83	85	90	} 83	85	91	} 83	85
June - - -	73			83			80			84			84
July - - -	74	} 72	72	83	} 85	84	84	} 81	81	84	} 81	85
August - - -	75			82			80			84			81
September - - -	75	} 72	72	83	} 85	84	80	} 81	81	82	} 81	85
October - - -	74			84			80			80			82
November - - -	68	} 75	75	87	} 86	86	84	} 82	82	79	} 80	80
December - - -	75			86			82			82			80
Difference between Hottest and Coldest Months.	9	4	3	8	6	2	12	7	3	12	7	3
Mean for Year -	72			86			84			83		
Highest in	August.			April.			April.			May.		
Lowest in	February.			August.			February.			January.		

MADRAS PRESIDENCY.—I. Maximum Temperature of the Air—continued.

Place	POONAMALLEE			FORT ST. GEORGE.			FORT ST. GEORGE			MADRAS.		
Latitude	13° 2' N.			13° 4' N.			13° 4' N.			13° 6' N.		
Longitude	80° 10' E.			80° 14' E.			80° 14' E.			80° 21' E.		
Height	2 feet.			. . . . .			. . . . .			. . . . .
MONTH.	5 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	2 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	31 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	30 Years.	Winter, Spring, Summer, Autumn.	October, to March. April to September.
	1855 to 1859.			1777 and 1778.			1811 to 1841.			1796 to 1825.		
January - - -	80	} 81	81	82	} 85	86	86	} 86	88	84	} 85	88
February - - -	81			86			87			88			89	90	91	92	93
March - - -	82	} 84	85	88	} 94	97	90	} 95	94	91	} 95	96
April - - -	85			91			92			93			94	95	96	97	98
May - - -	86	} 86	85	103	} 99	97	99	} 92	94	100	} 96	95½
June - - -	87			99			98			99			100	101	102	103	104
July - - -	86	} 82	85	98	} 88	97	85	} 91	94	95	} 91	96
August - - -	84			91			92			93			94	95	96	97	98
September - - -	83	} 82	85	91	} 88	97	93	} 91	94	94	} 91	96
October - - -	82			88			89			90			91	92	93	94	95
November - - -	80	} 81	85	88	} 85	97	87	} 91	94	87	} 91	96
December - - -	81			85			86			87			88	89	90	91	92
Difference between Hottest and Coldest Months. Hottest and Coldest Seasons.												
	7	5	4	21	14	11	15	9	6	16	11	7½
Mean for Year -	83			92			91			92		
Highest in -	June.			May.			May.			May.		
Lowest in -	January.			January.			December.			January-December.		

(continued.)

Place	TAVOY			NELLORE			KURNOOL.		
Latitude	14° 7' N.			14° 20' N.			15° 50' N.		
Longitude	98° 18' E.			80° 0' E.			78° 5' E.		
Height	12 feet			50 feet			800 feet.		
MONTH.	11 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	2 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	3 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.
	1849 to 1859.			1859 and 1860.			1857 to 1859.		
January - - -	99	} 91	90	76	} 78	80	80	} 81	83
February - - -	92			80			81			82	83	84
March - - -	94	} 95	90	85	} 88	88	85	} 92	88
April - - -	98			86			87			88	89	90
May - - -	94	} 87	90	93	} 88	88	93	} 85	88
June - - -	90			87			88			89	90	91
July - - -	81	} 87	90	87	} 83	88	88	} 83	88
August - - -	89			86			87			88	89	90
September - - -	90	} 87	90	87	} 83	88	84	} 83	88
October - - -	83			85			86			87	88	89
November - - -	89	} 81	85	78	} 85	88	80	} 85	88
December - - -	82			77			78			79	80	81
Difference between Hottest and Coldest Months. Hottest and Coldest Seasons.									
	18	8	0	17	10	8	14	11	5
Mean for Year -	90			84			85		
Highest in -	January.			May.			April.		
Lowest in -	July.			January.			December.		

MADRAS PRESIDENCY.—I. Maximum Temperature of the Air—continued.

Place	GUNTOOR			BELLARY			SAMULCOTTAH.			
Latitude	16° 20' N.			17° 0' N.			17° 4' N.			
Longitude	80° 30' E.			77° 0' E.			82° 14' E.			
Height	100 feet			1,500 feet			50 feet.			
MONTH.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	9 Years.	Winter, Spring, Summer, Autumn.	October to March.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.	
	1855 to 1859.		April to September.	1851 to 1859.		April to September.	1857 to 1859.		April to September.	
January - - -	82	82	83	78	79	80	78	80	82	
February - - -	84			81			81			83
March - - -	91			85			85			88
April - - -	91	92	89	90	89	86	92	92	89	
May - - -	94			92			92			95
June - - -	94	89	89	90	83	86	90	87	89	
July - - -	86			86			82			85
August - - -	87			82			82			85
September - - -	84	82	81	84	81	81	85	83	83	
October - - -	81			80			80			83
November - - -	81	79	78	80	78	78	80	78	78	
December - - -	79			79			78			78
Difference between Hottest and Coldest Months.		15	10	6	14	10	6	17	12	7
Hottest and Coldest Seasons.										
Mean for Year -	86			83			85			
Highest in -	May.			May.			May.			
Lowest in -	December.			January.			December.			

(continued.)

Place	SECUNDERABAD			VIZAGAPATAM			TONGHOO.			
Latitude	17° 28' N.			17° 41' N.			18° 57' N.			
Longitude	78° 32' E.			83° 21' E.			96° 30' E.			
Height	1,800 feet			. . . . .			300 feet.		
MONTH.	10 Years.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	
	1850 to 1859.		April to September.	1859.		April to September.	1859.		April to September.	
January - - -	78	79	81	76	77	80	82	85	86	
February - - -	82			78			78			90
March - - -	87			86			90			90
April - - -	92	91	87	97	91	89	99	93	88	
May - - -	95			89			91			91
June - - -	86	84	87	89	88	89	84	84	88	
July - - -	83			88			84			84
August - - -	83			86			85			85
September - - -	82	81	83	85	83	83	86	85	88	
October - - -	82			84			86			86
November - - -	79	77	76	80	77	77	84	82	82	
December - - -	77			79			76			82
Difference between Hottest and Coldest Months.		18	12	6	21	14	9	17	9	2
Hottest and Coldest Seasons.										
Mean for Year -	84			85			87			
Highest in -	May.			April.			April.			
Lowest in -	December.			January.			January.			

MADRAS PRESIDENCY.—2. Minimum Temperature of the Air.

TABLE CX., showing the AVERAGE MINIMUM TEMPERATURE for every MONTH and QUARTER, as well as for the Periods October to March, and April to September, with the Difference between the Hottest and Coldest Months and Seasons, and Minimum Temperature for the Year, between the Latitudes 5° 21' N. and 18° 57' N., and Longitudes 75° 30' and 100° 25' E., arranged in the order of Latitude, at Stations for the most part in the Presidency of Madras.

Place	PENANG			COLOMBO			TRINCOMALEE			PALAMCOTTAH.			
Latitude	5° 21' N.			6° 57' N.			8° 34' N.			8° 43' N.			
Longitude	100° 23' E.			80° 0' E.			81° 19' E.			77° 48' E.			
Height	A few feet . . . . .			. . . . .			. . . . .			120 feet.		
MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March. April to September.	1 Year.	Winter, Spring, Summer, Autumn.	October to March. April to September.	1 Year.	Winter, Spring, Summer, Autumn.	October to March. April to September.	5 Years. 1855 to 1859.	Winter, Spring, Summer, Autumn.	October to March. April to September.	
	January - - -	77	76	77	73	74	75	75	75	75	76	77	79
February - - -	78	77			75			76			77		
March - - -	79	79	78	77	78	79	76	78	78	82	84	83	
April - - -	79			78			77			79			79	78	84
May - - -	78	79	78	79	79	79	80	78	79	84	83	83	
June - - -	79			78			80			79			79	84
July - - -	79	77	77	78	77	77	78	77	77	83	81	83	
August - - -	78			79			78			77			78	82
September - - -	78	77	77	78	77	77	78	77	77	83	81	83	
October - - -	76			77			77			76			77	82
November - - -	77	74	74	75	74	74	75	74	74	79	77	77	
December - - -	74			73			73			74			74	77
Difference between Hottest and Coldest Months.		5	3	1	7	5	4	6	3	4	8	7	4
Hottest and Coldest Seasons.													
Mean for Year -	78			77			77			81			
Highest in -	March.			June.			May.			April.			
Lowest in -	December.			January.			December.			January.			

(continued.)

Place	WELLINGTON			CANNANORE			MERCUI			BANGALORE.			
Latitude	11° 25' N.			11° 52' N.			12° 27' N.			12° 57' N.			
Longitude	77° 5' E.			75° 30' E.			98° 42' E.			77° 38' E.			
Height	6,000 feet			15 feet			200 feet			3,000 feet.			
MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March. April to September.	10 Years. 1850 to 1859.	Winter, Spring, Summer, Autumn.	October to March. April to September.	7 Years. 1853 to 1859.	Winter, Spring, Summer, Autumn.	October to March. April to September.	1 Year. 1859.	Winter, Spring, Summer, Autumn.	October to March. April to September.	
	January - - -	60	62	63	78	78	78	74	74	74	59	61	65
February - - -	60	63			79			74			74			63
March - - -	63	63	63	81	81	78	76	75	74	70	71	70	
April - - -	62			63			82			76			72	71
May - - -	65	64	63	80	77	78	74	73	74	72	69	69	
June - - -	65			63			77			74			70	69
July - - -	62	63	77	77	77	77	72	74	74	69	69	69	
August - - -	65			77			78			72			70	69
September - - -	59	63	77	77	77	77	74	74	74	70	69	69	
October - - -	65			76			76			74			69	69
November - - -	64	65	76	77	76	72	74	72	72	67	62	62	
December - - -	65			76			76			72			62	62
Difference between Hottest and Coldest Months.		6	2	0	6	4	0	4	2	0	13	10	5
Hottest and Coldest Seasons.													
Mean for Year -	63			74			74			67			
Highest in -	May.			April.			March.			May.			
Lowest in -	September.			October.			July.			January.			

MADRAS PRESIDENCY.—2. Minimum Temperature of the Air—continued.

Place	POONAMALLEE			FORT ST. GEORGE			FORT ST. GEORGE			MADRAS			
Latitude	13° 2' N.			13° 4' N.			13° 4' N.			13° 6' N.			
Longitude	80° 10' E.			80° 14' E.			80° 14' E.			80° 21' E.			
Height	2 feet. . . . .			. . . . .			. . . . .			. . . . .
MONTH.	5 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	2 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	31 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	30 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	
	1855 to 1859.			1777 and 1778.			1811 to 1841.			1796 to 1825.			
January - - -	74	75	76	64	65	67	65	66	68	69	70	72	
February - - -	76			65			66			66			70
March - - -	78	80	81	68	73	76	69	74	76	72	77	79	
April - - -	80			73			75			77			77
May - - -	81			77			79			79			81
June - - -	82	82	81	79	76	76	79	77	76	81	80	79	
July - - -	82			75			79			79			81
August - - -	82	77	76	75	72	76	73	70	76	79	76	76	
September - - -	79			76			72			72			78
October - - -	78			76			76			71			76
November - - -	75	76	76	65	72	76	68	70	76	73	76	76	
December - - -	76			66			66			66			71
Difference between Hottest and Coldest Months.		8	7	5	15	11	9	14	11	8	12	10	7
Hottest and Coldest Seasons.													
Mean for Year -	78			72			72			76			
Highest in -	June.			June.			May.			May and June.			
Lowest in -	January.			January.			January.			January.			

(continued.)

Place	TAVOY			NELLORE			KURNOOL			
Latitude	14° 7' N.			14° 20' N.			15° 50' N.			
Longitude	98° 18' E.			80° 0' E.			78° 5' E.			
Height	12 feet.			50 feet.			800 feet.			
MONTH.	11 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	2 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	3 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	
	1849 to 1859.			1859 and 1860.			1857 to 1859.			
January - - -	61	61	66	72	74	76	75	76	78	
February - - -	63			75			79			
March - - -	73	73	72	77	79	79	86	88	84	
April - - -	72					90
May - - -	73					88
June - - -	74	72	72	..	79	79	84	82	79	
July - - -	72					82
August - - -	70	70	70	..	79	79	81	79	79	
September - - -	73					81
October - - -	72					81
November - - -	66	70	70	76	79	79	76	79	79	
December - - -	59			74			74			74
Difference between Hottest and Coldest Months.		15	12	6	16	12	6
Hottest and Coldest Seasons.										
Mean for Year -	69			..			81			
Highest in -	June.			..			April.			
Lowest in -	December.			..			December.			

MADRAS PRESIDENCY.—2. Minimum Temperature of the Air—*continued.*

Place	GUNTOOR			SAMULCOTTAH			BELLARY			
	Latitude 16° 20' N.			Latitude 17° 4' N.			Latitude 17° 0' N.			
Longitude 80° 30' E.			Longitude 82° 14' E.			Longitude 77° 0' E.				
Height 100 feet			Height 50 feet			Height 1,500 feet				
MONTH.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.	9 Years.	Winter, Spring, Summer, Autumn.	October to March.	
	1855 to 1859.		April to September.	1857 to 1859.		April to September.	1851 to 1859.		April to September.	
January - - -	68	69	69	55	56	62	68	67	68	
February - - -	73		70	60		62	65		65	68
March - - -	72	79	79	65	73	77	68	73	74	
April - - -	81			81			75			77	75	73
May - - -	84	82	81	80	78	77	77	73	74	
June - - -	84			78			78			76	73
July - - -	80	73	73	78	71	71	72	72	68	
August - - -	81			77			76			70	73
September - - -	79	73	73	76	71	71	73	72	68	
October - - -	70			74			70			70
November - - -	72	65	65	63	53	53	72	68	68	
December - - -	65			53			53			68
Difference between Hottest and Coldest Months.		19	13	11	27	22	15	12	6	6
Hottest and Coldest Seasons.										
Mean for Year -	76			69			71			
Highest in -	May and June.			May.			May.			
Lowest in -	December.			December.			February.			

(continued.)

Place	SECUNDERABAD			VIZAGAPATAM			TONGHOO			
	Latitude 17° 28' N.			Latitude 17° 41' N.			Latitude 18° 57' N.			
Longitude 78° 32' E.			Longitude 83° 21' E.			Longitude 96° 30' E.				
Height 1,800 feet			Height 300 feet			Height 300 feet				
MONTH.	10 Years.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	
	1850 to 1859.		April to September.	1859.		April to September.	1859.		April to September.	
January - - -	64	65	67	71	74	77	57	62	67	
February - - -	66		67	76		77	63		67	
March - - -	73	77	77	81	86	86	70	76	78	
April - - -	76			77			90			86	81
May - - -	82	75	76	87	86	86	78	77	78	
June - - -	82			76			87			86	78
July - - -	77	70	70	85	82	82	77	73	78	
August - - -	75			70			85			82	77
September - - -	74	67	67	85	75	75	76	69	66	
October - - -	73			67			85			75	76
November - - -	71	64	64	83	75	75	75	69	66	
December - - -	67			64			78			75	69
December - - -	64	18	12	9	19	12	8	24	15	11
Difference between Hottest and Coldest Months.										
Hottest and Coldest Seasons.										
Mean for Year -	72			82			72			
Highest in -	May.			April.			April.			
Lowest in -	January.			January.			January.			

MADRAS PRESIDENCY.—3. Daily Range of Temperature.

TABLE CXL, showing the AVERAGE DAILY RANGE for every MONTH and QUARTER, as well as the Periods October to March, and April to September, with the Difference between the greatest and least Months, and the Mean Daily Range for the Year, between the Latitudes 5° 21' N. and 18° 57' N., and between the Longitudes 75° 30' E. and 100° 25' E., arranged in the order of Latitude, at Stations, for the most part, in the Presidency of Madras.

Place . . .	PENANG . . .			COLOMBO . . .			TRINCOMALEE . . .			PALAMCOTTAH . . .					
	Latitude . . .	Longitude . . .	Height . . .	Latitude . . .	Longitude . . .	Height . . .	Latitude . . .	Longitude . . .	Height . . .	Latitude . . .	Longitude . . .	Height . . .			
	5° 21' N.	100° 25' E.	A few feet.	6° 57' N.	80° 0' E.		8° 34' N.	81° 19' E.		8° 43' N.	77° 48' E.	120 feet.			
MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March. April to September.	1 Year.	Winter, Spring, Summer, Autumn.	October to March. April to September.	1 Year.	Winter, Spring, Summer, Autumn.	October to March. April to September.	5 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.			
	1859.			1853.			1854.			1855 to 1859.					
January	6	7	6	11	11	9	6	7	7	10	11	10			
February	6	6	6	10	8	6	8	10	11	13	10	10			
March	6			10			9			11			11	10	
April	6	6	6	9	4	6	11	11	11	10	10	10			
May	6			9			11			11			9	9	
June	7	6	6	4	4	6	11	11	11	9	10	10			
July	6			4			10			11			9	9	
August	6	6	6	4	7	6	11	9	9	11	9	9			
September	6			6			11			11			9	8	
October	7	6	6	6	7	6	9	9	9	9	8	8			
November	6			8			6			6			6	9	
December	8			11			6			9					
Difference between Greatest and Least Monthly Ranges.		Greatest and Least Seasonal Ranges.		2	1	0	7	7	3	5	4	4	5	2	0
Mean for Year	6			8			9			10					
Greatest in	December.			January and December.			April, June, Aug., Sept.			February.					
Least in	Several months.			June and August.			January, Nov., and Dec.			November.					

(continued.)

Place . . .	WELLINGTON . . .			CANNANORE . . .			MERGUI . . .			BANGALORE . . .					
	Latitude . . .	Longitude . . .	Height . . .	Latitude . . .	Longitude . . .	Height . . .	Latitude . . .	Longitude . . .	Height . . .	Latitude . . .	Longitude . . .	Height . . .			
	11° 25' N.	77° 5' E.	6,000 feet.	11° 52' N.	75° 30' E.	15 feet.	12° 27' N.	98° 42' E.	200 feet.	12° 57' N.	77° 38' E.	3,000 feet.			
MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March. April to September.	10 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	7 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	1 Year.	Winter, Spring, Summer, Autumn.	October to March. April to September.			
	1859.			1850 to 1859.			1853 to 1859.			1859.					
January	8	8	8	9	9	9	12	8	8	20	19	17			
February	6	7	8	8	8	6	4	13	8	20	17	15			
March	8			8			8			8			15		
April	5	10	10	8	5	6	14	10	11	15	14	15			
May	8			8			6			16			15		
June	8	10	10	6	8	6	10	7	7	15	12	12			
July	12			6			12			8			14		
August	10	10	10	4	8	6	8	7	7	12	12	12			
September	16			6			6			6			12		
October	9	10	10	8	8	6	6	7	7	13	12	12			
November	4			10			10			10			12		
December	10			10			10			18					
Difference between Greatest and Least Monthly Ranges.		Greatest and Least Seasonal Ranges.		12	3	2	6	4	3	12	6	3	8	7	2
Mean for Year	9			7			9			16					
Greatest in	September.			November and December.			May.			January and February.					
Least in	November.			August.			February.			August, Sept., and Nov.					

MADRAS PRESIDENCY.—3. Daily Range of Temperature—*continued.*

Place	POONAMALLEE			FORT ST. GEORGE			FORT ST. GEORGE			MADRAS					
	Latitude 13° 2' N.			Latitude 13° 4' N.			Latitude 13° 4' N.			Latitude 13° 6' N.					
Longitude 80° 10' E.			Longitude 80° 14' E.			Longitude 80° 14' E.			Longitude 80° 21' E.						
Height 2 feet . . . . .			. . . . .			. . . . .			. . . . .
MONTH.	5 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	2 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	31 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	30 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.			
	1855 to 1859.			1777 and 1778.			1811 to 1841.			1796 to 1825.					
January - - -	6	5	5	18	20	19	21	20	20	15	15	16			
February - - -	5	5	5	21	20	19	21	20	20	18	15	16			
March - - -	4	5		20	21		21	20		19	18				
April - - -	5	5		18	21		20	20		16	18				
May - - -	5	5		26			20	20		19					
June - - -	5	4	4	21	23	21	19	18	18	17	16	16			
July - - -	4	4		24			6	15		16	16				
August - - -	2			23			20			15					
September - - -	4			15			21			15					
October - - -	4	4		12	16		21	20		16	15				
November - - -	5			20			19			14					
December - - -	5			21			18			13					
Difference between Greatest and Least Monthly Ranges.		Greatest and Least Seasonal Ranges.		4	1	1	14	7	2	15	5	2	6	3	0
Mean for Year -		4			20			19			16				
Greatest in -		January.			May.			Several.			March and May.				
Least in -		August.			October.			July.			December.				

(continued.)

Place	TAVOY			NELLORE			KURNOOL					
	Latitude 14° 7' N.			Latitude 14° 20' N.			Latitude 15° 50' N.					
Longitude 98° 18' E.			Longitude 80° 0' E.			Longitude 78° 5' E.						
Height 12 feet . . . . .			. . . . . 50 feet. . . . .			. . . . . 800 feet.			
MONTH.	9 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	2 Years.	Winter, Autumn.	October to March.	3 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.			
	1851 to 1859.			1859 and 1860.			1857 to 1859.					
January - - -	38	30	24	4	4	4	5	5	5			
February - - -	29			5			6	4				
March - - -	21	23		8			5	4				
April - - -	26			.			3					
May - - -	21			.			5					
June - - -	16	15	18	.			4	3	3			
July - - -	9			.			3	3				
August - - -	19			.			2	4				
September - - -	17			8			3					
October - - -	11	17		4	5		4	4				
November - - -	23			2			4					
December - - -	23			3			5					
Difference between Greatest and Least Monthly Ranges.		Greatest and Least Seasonal Ranges.		29	15	6	4	2	2
Mean for Year -		21					4				
Greatest in -		January.					February.				
Least in -		July.					August.				

MADRAS PRESIDENCY.—3. Daily Range of Temperature—*continued.*

Place	GUNTOOR			SAMULCOTTAH			BELLARY.		
	Latitude 16° 20' N.			Latitude 17° 4' N.			Latitude 17° 0'.		
Longitude 80° 30' E.			Longitude 82° 14' E.			Longitude 77° 0'.			
Height 100 feet			Height 50 feet			Height 1,500 feet.			
MONTH.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.	9 Years.	Winter, Spring, Summer, Autumn.	October to March.
	1855 to 1859.		April to September.	1857 to 1859.		April to September.	1831 to 1859.		April to September.
January - - - - -	14	13	0	23	24	0	10	12	0
February - - - - -	11		13	23		20	16		12
March - - - - -	19	13	8	23	18	11	17	16	12
April - - - - -	10			8			17			10	15	10
May - - - - -	10	7	8	15	9	11	15	10	12
June - - - - -	10			8			12		
July - - - - -	6	8	8	7	12	11	10	10	12
August - - - - -	6			8			9			9	11	10
September - - - - -	5	8	9	9	12	11	11	10	12
October - - - - -	11			9			9		
November - - - - -	9	8	9	17	12	11	8	10	12
December - - - - -	14			9			25		
Difference between Greatest and Least Monthly Ranges.		6	5	18	15	9	9	6	0
Greatest and Least Seasonal Ranges.									
Mean for Year -	10			16			12		
Greatest in -	March.			December.			March.		
Least in -	September.			July.			November.		

(continued.)

Place	SECUNDERABAD			VIZAGAPATAM			TONGHOO.		
	Latitude 17° 28' N.			Latitude 17° 41' N.			Latitude 18° 57' N.		
Longitude 78° 32' E.			Longitude 83° 21' E.			Longitude 96° 30' E.			
Height 1,800 feet			Height			Height			
MONTH.	10 Years.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.
	1850 to 1859.		April to September.	1859.		April to September.	1859.		April to September.
January - - - - -	14	14	0	5	3	0	25	23	0
February - - - - -	16		13	2		3	27		19
March - - - - -	14	14	11	5	5	2	20	17	10
April - - - - -	16			11			7			6	18	10
May - - - - -	13	9	11	2	2	2	13	7	10
June - - - - -	9			11			2			6	6	7
July - - - - -	8	11	11	3	1	1	7	12	10
August - - - - -	9			11			1			8	8	7
September - - - - -	9	11	11	1	1	1	10	12	10
October - - - - -	11			11			0			11	11	12
November - - - - -	12	11	11	4	1	1	15	12	10
December - - - - -	13			11			1			16	16	10
Difference between Greatest and Least Monthly Ranges.		5	2	7	4	1	21	16	9
Greatest and Least Seasonal Ranges.									
Mean for Year -	12			3			14		
Greatest in -	February and April.			April.			February.		
Least in -	July.			September.			June.		

MADRAS PRESIDENCY.—4. *Temperature of the Air.*

TABLE CXII., showing the AVERAGE TEMPERATURE of the AIR for every MONTH and QUARTER, as well as for the Period October to March, and April to September, and the Difference between the Hottest and Coldest Months and Seasons, and Mean Temperature for the Year, between the Latitudes 1° 16' N. and 17° 41' N., and Longitudes 75° 30' E. and 103° 53' E., arranged in the order of Latitude, at Stations, for the most part, in the Presidency of Madras.

Place	SINGAPORE			PENANG			COLOMBO			COLOMBO.		
	Latitude 1° 16' N.			Latitude 6° 21' N.			Latitude 6° 57' N.			Latitude 6° 57' N.		
Longitude 103° 53' E.			Longitude 100° 25' E.			Longitude 80° 0' E.			Longitude 80° 0' E.			
Height 30 feet			Height A few feet			Height			Height			
MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March. April to September.	1 Year.	Winter, Spring, Summer, Autumn.	October to March. April to September.	2 Years. 1812 and 1815.	Winter, Spring, Summer, Autumn.	October to March. April to September.	2 Years. 1853 and 1854.	Winter, Spring, Summer, Autumn.	October to March. April to September.
	January - - -	80	°	°	80	°	°	79	°	°	81	°
February - - -	80	} 80	81	81	} 80	80	80	} 79	80	83	} 80	81
March - - -	82			82			82			85		
April - - -	81	} 82		82	} 82		84	} 83		85	} 85	
May - - -	82			81			84			84		
June - - -	82		82	83		82	82		82	83		83
July - - -	83	} 82		82	} 82		81	} 81		82	} 82	
August - - -	81			81			80			82		
September - - -	82			81			81			82		
October - - -	81	} 81		78	} 80		79	} 80		82	} 82	
November - - -	80			80			80			82		
December - - -	81			78			78			76		
Difference between Hottest and Coldest Months. Hottest and Coldest Seasons.												
} 3 2 1 5 2 2 6 4 2 9 5 2												
Mean for Year - 81 81 81 82												
Hottest in - July. June. April. March.												
Coldest in - January. October. December. December.												

(continued.)

Place	KANDY			TRINCOMALEE			PALAMCOTTAH			WELLINGTON.		
	Latitude 7° 17' N.			Latitude 8° 34' N.			Latitude 8° 43' N.			Latitude 11° 25' N.		
Longitude 80° 49' E.			Longitude 81° 19' E.			Longitude 77° 48' E.			Longitude 77° 5' E.			
Height			Height			Height 120 feet			Height 6,000 feet.			
MONTH.	3 Years. 1833 to 1835.	Winter, Spring, Summer, Autumn.	October to March. April to September.	1 Year. 1854.	Winter, Spring, Summer, Autumn.	October to March. April to September.	5 Years. 1855 to 1859.	Winter, Spring, Summer, Autumn.	October to March. April to September.	1 Year. 1859.	Winter, Spring, Summer, Autumn.	October to March. April to September.
	January - - -	71	°	°	80	°	°	81	°	°	64	°
February - - -	73	} 72	73	82	} 80	81	84	} 82	84	63	} 66	66
March - - -	75			84			87			67		
April - - -	74	} 75		87	} 86		89	} 88		64	} 67	
May - - -	75			87			89			69		
June - - -	73		73	87		86	89		88	69		68
July - - -	73	} 73		85	} 86		87	} 88		68	} 69	
August - - -	73			85			88			70		
September - - -	73			85			88			67		
October - - -	72	} 72		83	} 82		86	} 86		69	} 67	
November - - -	72			79			83			66		
December - - -	72			79			82			70		
Difference between Hottest and Coldest Months. Hottest and Coldest Seasons.												
} 4 3 0 8 6 5 8 6 4 7 3 2												
Mean for Year - 73 84 86 67												
Hottest in - March. April. April. August and December.												
Coldest in - January. November. January. February.												

MADRAS PRESIDENCY.—4. Temperature of the Air—continued.

Place	DODABETTA			OOTACAMUND			ANJARA KANDY			MANANTODDY			
	11° 25' N.			11° 35' N.			11° 40' N.			11° 48' N.			
Latitude	77° 5' E.			76° 45' E.			75° 40' E.			76° 4' E.			
Longitude	8,640 feet			7,361 feet . . . . .			. . . . .			. . . . .
Height	MONTH.			MONTH.			MONTH.			MONTH.			
	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.	10 Years.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	
	1817 and 1818.	April to September.	1831 to 1833.	1810 to 1813, and 1818 to 1823.	April to September.	1832.	April to September.	1832.	April to September.	1832.	April to September.		
January	52	52	53	53	54	56	80	81	81	57	62	66	
February	52			55			82			64			
March	55	56	63	60	62	60	84	85	81	71	72	69	
April	56			62			86			72			
May	57	53	54	62	59	60	84	79	81	72	68	69	
June	53			60			80			69			
July	53	53	58	58	57	60	78	80	81	67	68	65	
August	53			58			79			67			
September	53	53	58	58	57	60	79	80	81	68	68	65	
October	53			58			81			68			
November	52	53	58	56	57	60	81	80	81	68	68	65	
December	51			53			80			65			
Difference between Hottest and Coldest Months.		6	4	1	10	8	4	8	6	0	15	10	3
Mean for Year -		54			58			81			68		
Hottest in		May.			April.			April.			April.		
Coldest in		December.			January.			July.			January.		

(continued.)

Place	CANNANORE			MERCARA			SERINGAPATAM			BANGALORE			
	11° 52' N.			12° 24' N.			12° 45' N.			12° 57' N.			
Latitude	75° 30' E.			75° 48' E.			76° 51' E.			77° 38' E.			
Longitude	15 feet			4,500 feet			2,412 feet			3,000 feet			
Height	MONTH.			MONTH.			MONTH.			MONTH.			
	10 Years.	Winter, Spring, Summer, Autumn.	October to March.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	
	1850 to 1859.	April to September.	1838 to 1840.	1814 to 1816.	April to September.	1835.	April to September.	1835.	April to September.	1835.	April to September.		
January	82	82	82	67	67	68	71	73	75	70	71	72	
February	82			71			77			73			
March	84	85	73	74	73	69	81	83	79	79	79	76	
April	86			73			84			79			
May	85	79	81	72	67	69	85	76	79	78	74	76	
June	80			69			79			75			
July	79	79	66	69	67	69	75	76	79	74	73	72	
August	79			66			74			73			
September	79	81	66	66	67	69	77	76	79	74	72	69	
October	81			66			77			71			
November	82	81	67	67	67	69	74	76	79	71	72	69	
December	81			67			72			69			
Difference between Hottest and Coldest Months.		7	6	1	8	6	1	14	10	4	10	8	4
Mean for Year -		82			68			77			74		
Hottest in		April.			March.			May.			March and April.		
Coldest in		July.			August.			January.			December.		

MADRAS PRESIDENCY.—4. Temperature of the Air—*continued.*

Place	BANGALORE			FORT ST. GEORGE			FORT ST. GEORGE			MADRAS		
Latitude	12° 57' N.			13° 4' N.			13° 4' N.			13° 6' N.		
Longitude	77° 38' E.			80° 14' E.			80° 14' E.			80° 21' E.		
Height	3,000 feet.			....			....			....
MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March. April to September.	2 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	31 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	55 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.
	1859.			1777 and 1778.			1811 to 1841.			1796 to 1850.		
January - - -	69	71	73	73	76	77	76	77	79	76	77	79
February - - -	73			78			77			78		
March - - -	79	80	78	78	83	87	80	84	85	80	83	85
April - - -	79			82			82			84		
May - - -	82	76	78	90	88	87	87	86	85	87	85	85
June - - -	77			89			87			88		
July - - -	77	75	78	87	80	87	85	82	85	85	82	85
August - - -	75			84			84			84		
September - - -	76	75	78	82	80	87	84	82	85	84	82	85
October - - -	75			82			82			82		
November - - -	73	71	78	75	80	87	79	82	85	79	82	85
December - - -	71			77			76			76		
Difference between												
Hottest and Coldest Months.		13	9	5	17	12	10	12	9	6	11	8
Hottest and Coldest Seasons.												
Mean for Year -	76			82			82			82		
Hottest in -	May.			April.			June.			May and June.		
Coldest in -	January.			January.			January.			January.		

(continued.)

Place	TAVOT.			NELLORE			HURRYHUR.		
Latitude	14° 7' N.			14° 20' N.			14° 31' N.		
Longitude	98° 18' E.			80° 0' E.			75° 51' E.		
Height	12 feet.			50 feet.			1,831 feet.		
MONTH.	11 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	2 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	4 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.
	1849 to 1859.			1859 and 1860.			1857 to 1860.		
January - - -	80	76	78	74	76	78	74	76	78
February - - -	78			79			77			81
March - - -	84	84	82	80	86	87	81	82	80
April - - -	85			82			85			84
May - - -	84	80	82	92	87	87	84	80	80
June - - -	82			81			91			81
July - - -	77	79	82	85	81	87	79	79	79
August - - -	80			82			85			78
September - - -	82	79	82	83	81	87	79	79	79
October - - -	78			82			82			80
November - - -	78	71	82	77	81	87	78	79	79
December - - -	71			76			76			76
Difference between									
Hottest and Coldest Months.		14	8	4	18	11	9	10	6
Hottest and Coldest Seasons.									
Mean for Year -	80			82			79		
Hottest in -	April.			May.			May.		
Coldest in -	December.			January.			January.		

MADRAS PRESIDENCY.—4. Temperature of the Air—continued.

Place	KURNOOL			GUNTOOR			BELLARY.				
	Latitude 15° 50' N.			Latitude 16° 20' N.			Latitude 17° 0' N.				
Longitude 78° 5' E.			Longitude 80° 30' E.			Longitude 77° 0' E.					
Height 800 feet			Height 100 feet			Height 1,500 feet.					
MONTH.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	9 Years.	Winter, Spring, Summer, Autumn.	October to March.		
	1857 to 1859.		April to September.	1855 to 1859.		April to September.	1851 to 1859.		April to September.		
January - - - - -	78	79	81	75	75	77	74	75	77		
February - - - - -	82			79			82			79	85
March - - - - -	88			86			88			86	88
April - - - - -	91	90	86	89	86	85	86	86	82		
May - - - - -	90			89			83			83	80
June - - - - -	86	84	86	89	85	85	83	81	82		
July - - - - -	82			83			84			80	
August - - - - -	84			84			79			79	77
September - - - - -	83	81	86	82	78	85	79	77	82		
October - - - - -	83			76			78			74	
November - - - - -	78	81	86	76	78	85	74	77	82		
December - - - - -	77			77			73			73	
Difference between Hottest and Coldest Months.		14	11	5	17	11	8	15	11	5	
Hottest and Coldest Seasons.											
Mean for Year -	84			81			80				
Hottest in -	April.			May.			April.				
Coldest in -	December.			December.			December.				

(continued.)

Place	SAMULCOTTAH			SECUNDERABAD			VIZAGAPATAM.			
	Latitude 17° 4' N.			Latitude 17° 28' N.			Latitude 17° 41' N.			
Longitude 82° 14' E.			Longitude 78° 32' E.			Longitude 83° 21' E.				
Height 50 feet			Height 1,800 feet.			Height				
MONTH.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	10 Years.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	
	1858 and 1859.		April to September.	1850 to 1859.		April to September.	1859.		April to September.	
January - - - - -	67	68	72	73	74	76	74	75	79	
February - - - - -	71			76			81			76
March - - - - -	77			81			83			83
April - - - - -	84	83	83	86	85	83	83	88	88	
May - - - - -	87			89			88			88
June - - - - -	84	82	83	83	84	83	88	87	88	
July - - - - -	82			80			86			86
August - - - - -	81			79			86			86
September - - - - -	80	77	83	78	77	83	84	83	88	
October - - - - -	79			78			84			80
November - - - - -	72	77	83	76	77	83	80	83	88	
December - - - - -	66			73			76			76
Difference between Hottest and Coldest Months.		21	15	11	16	11	7	19	13	9
Hottest and Coldest Seasons.										
Mean for Year -	78			80			84			
Hottest in -	May.			May.			April.			
Coldest in -	December.			January.			January.			

MADRAS PRESIDENCY.—5. Readings of the Dry and Wet Bulb Thermometers.

Place	SINGAPORE				DODABETTA				MADRAS			
Latitude	1° 16' N.				11° 25' N.				13° 6' N.			
Longitude	103° 53' E.				77° 5' E.				80° 21' E.			
Height	30 feet				8,640 feet . . . . .				. . . . .
MONTH.	5 Years.		Winter, Spring, Summer, Autumn.		1 Year.		Winter, Spring, Summer, Autumn.		18 Years.		Winter, Spring, Summer, Autumn.	
	1841 to 1845.				1847.				1833 to 1850.			
	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.
January - - -	79	75	} 79	75	52	46	} 52	49	76	71	} 77	72
February - - -	79	75			52	51			78	72		
March - - -	80	77	} 81	77	55	50	} 56	53	81	75	} 84	78
April - - -	81	77			56	53			84	79		
May - - -	82	78	} 81	77	57	55	} 53	52	87	80	} 85	78
June - - -	82	78			53	52			86	78		
July - - -	81	77	} 80	77	53	52	} 53	52	85	78	} 81	76
August - - -	81	77			53	52			84	78		
September - - -	81	77	} 80	77	53	52	} 53	52	83	78	} 81	76
October - - -	80	77			53	52			82	77		
November - - -	80	76	} 79	76	52	51	} 77	72	78	74	} 77	72
December - - -	79	76			51	49			77	72		
Difference between												
Highest and Lowest Monthly Readings. Highest and Lowest Seasonal Readings.												
	3	3	2	2	6	9	4	4	11	9	8	6
Means - - -	80	77	80	77	53	51	53	51	82	76	82	76
Highest - - -	May and June.		May and June.		May.	May..		May.	May.		May.	
Lowest - - -	Jan., Feb., and Dec.		January and February.		December.	January.		January.	January.		January.	

(continued.)

Place	BELLARY				SECUNDERABAD				TONGHOO.			
Latitude	17° 0' N.				17° 28' N.				18° 57' N.			
Longitude	77° 0' E.				78° 32' E.				96° 30' E.			
Height	1,500 feet				1,800 feet				300 feet			
MONTH.	9 Years.		Winter, Spring, Summer, Autumn.		10 Years.		Winter, Spring, Summer, Autumn.		1 Year.		Winter, Spring, Summer, Autumn.	
	1851 to 1859.				1850 to 1859.				1859.			
	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.
January - - -	78	64	} 77	66	75	63	} 76	63	70	61	} 74	65
February - - -	80	68			80	63			77	65		
March - - -	90	70	} 89	72	83	69	} 87	71	80	69	} 85	75
April - - -	84	75			88	70			90	79		
May - - -	82	70	} 82	73	91	73	} 84	74	84	77	} 81	78
June - - -	85	75			87	74			81	78		
July - - -	79	73	} 78	70	83	74	} 78	71	80	77	} 79	75
August - - -	81	72			81	75			81	78		
September - - -	82	68	} 75	65	80	76	} 76	71	81	77	} 76	71
October - - -	79	72			79	71			81	76		
November - - -	73	69	} 72	65	75	65	} 74	68	76	71	} 74	68
December - - -	72	65			73	62			74	68		
Difference between												
Highest and Lowest Monthly Readings. Highest and Lowest Seasonal Readings.												
	18	11	12	7	18	14	11	11	20	18	11	13
Means - - -	81	70	81	70	81	70	81	70	80	73	80	73
Highest in - - -	March.		April and June.		May.	September.		April.	April		December.	
Lowest in - - -	December.		January.		December.	December.		January.	December.		December.	

MADRAS PRESIDENCY.—6. *Temperature of the Dew Point.*

TABLE CXIV., showing the AVERAGE TEMPERATURE of the DEW POINT for every MONTH and QUARTER, as well as for the period October to March, and April to September, with the Difference between the highest and lowest Month and Season and Mean Temperature of the Dew Point for the Year, between the Latitudes 1° 16' N. and 18° 57' N., and Longitudes 75° 50' E. and 103° 53' E., arranged in the order of Latitude, at Stations for the most part in the Presidency of Madras.

Place	SINGAPORE			DODABETTA			MADRAS												
	Latitude 1° 16' N.			Latitude 11° 25' N.			Latitude 13° 8' N.												
Longitude 103° 53' E.			Longitude 77° 5' E.			Longitude 80° 21' E.													
Height 30 feet			Height 8,640 feet			Height													
MONTH.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	18 Years.	Winter, Spring, Summer, Autumn.	October to March.										
	1841 to 1845.		April to September.	1847.		April to September.	1833 to 1850.		April to September.										
January - - -	72	73	74	40	46	47	67	68	70										
February - - -	72			50			68												
March - - -	75	75	74	45	49	51	71	74	74										
April - - -	74			50			76												
May - - -	75	74	74	53	51	51	76	73	74										
June - - -	75			51			73												
July - - -	74	75	74	51	51	51	73	73	74										
August - - -	74			51			74												
September - - -	74	75	74	51	51	51	75	73	74										
October - - -	75			51			74												
November - - -	75	74	74	50	47	47	71	69	74										
December - - -	74			47			69												
Difference between Highest and Lowest Monthly Readings of the Dew Point.		3		2		0		13		5		4		9		6		4	
Mean for Year -		74			49			72											
Highest in		May, June, October, and November.			May.			April and May.											
Lowest in		January and February.			January.			January.											

(continued.)

Place	BELLARY			SECUNDERABAD			TONGHOO												
	Latitude 17° 0' N.			Latitude 17° 28' N.			Latitude 18° 57' N.												
Longitude 77° 0' E.			Longitude 78° 32' E.			Longitude 96° 30' E.													
Height 1,500 feet			Height 1,800 feet			Height 300 feet.													
MONTH.	9 Years.	Winter, Spring, Summer, Autumn.	October to March.	10 Years.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.										
	1851 to 1859.		April to September.	1850 to 1859.		April to September.	1859.		April to September.										
January - - -	54	58	61	54	53	57	54	58	63										
February - - -	60			51			57												
March - - -	58	63	66	60	60	67	62	69	74										
April - - -	69			59			72												
May - - -	62	68	66	62	68	67	72	76	74										
June - - -	69			66			76												
July - - -	69	64	66	68	66	66	75	71	74										
August - - -	66			71			76												
September - - -	59	64	66	73	66	66	74	71	74										
October - - -	67			66			73												
November - - -	66	60	66	58	54	54	67	64	64										
December - - -	60			54			64												
Difference between Highest and Lowest Monthly Readings of the Dew Point.		15		10		5		22		15		10		22		18		11	
Mean for Year -		64			62			69											
Highest in		April, June, and July.			September.			June and August.											
Lowest in		January.			February.			January.											

MADRAS PRESIDENCY.—7. Amount of Vapour in a Cubic Foot of Air.

TABLE CXV., showing the AVERAGE AMOUNT OF VAPOUR in a CUBIC FOOT of AIR for every MONTH and QUARTER, as well as for the period October to March, and April to September, with the Difference between the greatest and least Months and Seasons, and the Mean for the Year, between the Latitudes 1° 56' N. and 18° 57' N., and Longitudes 75° 51' E. and 103° 53' E., at Stations for the most part in the Presidency of Madras.

Place	SINGAPORE			DODABETTA			MADRAS			HURRYHUR.																																						
	Latitude 1° 16' N.			11° 25' N.			13° 6' N.			14° 31' N.																																						
Longitude 103° 53' E.			77° 5' E.			80° 21' E.			75° 51' E.																																							
Height 30 feet			8,640 feet . . . . .			. . . . .			1,831 feet.																																				
MONTH.	5 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	1 Year.	Winter, Spring, Summer, Autumn.	October to March. April to September.	18 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	4 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.																																				
	1841 to 1845.			1847.			1833 to 1850.			1857 to 1860.																																						
January - - -	grs. 8.5	} 8.7	grs. 9.0	grs. 2.8	} 3.5	grs. 3.7	grs. 7.2	} 7.3	grs. 7.8	grs. 4.7	} ..	grs. ..																																				
February - - -	8.5			grs. 4.1			grs. 7.3			grs. ..																																						
March - - -	9.3	} 9.3	grs. 4.1	grs. 3.4	} 4.0	grs. 4.2	grs. 8.1	} 8.9	grs. 8.9	grs. ..	} ..	grs. ..																																				
April - - -	9.1			grs. 4.5			grs. 9.3			grs. ..																																						
May - - -	9.4	} 9.2	grs. 4.2	grs. 4.2	} 4.2	grs. 8.5	grs. 8.5	} 8.7	grs. 8.9	grs. ..	} ..	grs. ..																																				
June . - -	9.4			grs. 4.2			grs. 8.9			grs. ..																																						
July - - -	9.1	} 9.2	grs. 4.2	grs. 4.2	} 4.2	grs. 8.9	grs. 8.9	} 8.7	grs. 9.1	grs. ..	} ..	grs. ..																																				
August - - -	9.1			grs. 4.2			grs. 9.1			grs. ..																																						
September - - -	9.1	} 9.2	grs. 4.2	grs. 4.2	} 4.2	grs. 8.9	grs. 8.2	} 8.7	grs. 8.2	grs. 5.8	} ..	grs. ..																																				
October - - -	9.3			grs. 4.1			grs. 8.2			grs. ..																																						
November - - -	9.3	} 9.0	grs. 3.6	grs. 4.1	} 4.2	grs. 7.5	grs. 5.1	} 8.7	grs. 5.1	grs. 5.1	} ..	grs. ..																																				
December - - -	9.0			grs. 3.6			grs. 7.5			grs. ..																																						
Difference between																																																
Greatest and Least Monthly Amount.		Greatest and Least Seasonal Amount.		} 0.9			0.6			0.2			1.7			0.7			0.5			2.2			1.6			1.1													
Mean for Year -													9.1			4.0			8.4																
Greatest - - -													May and June.			Spring.			..			May.			Summer and Autumn.			..			April.			Spring.				
Least - - -													Jan. and Feb.			Winter.			..			Jan.			Winter.			..			Jan.			Winter.				

(continued.)

Place	BELLARY			SECUNDERABAD			TONGHOO.																													
	Latitude 17° 0' N.			17° 28' N.			18° 57' N.																													
Longitude 77° 0' E.			78° 32' E.			96° 30' E.																														
Height 1,500 feet			1,800 feet			300 feet.																														
MONTH.	9 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	10 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	1 Year.	Winter, Spring, Summer, Autumn.	October to March. April to September.																											
	1851 to 1859.			1850 to 1859.			1859.																													
January - - -	grs. 4.5	} 5.2	grs. 5.8	grs. 4.6	} 4.4	grs. 5.1	grs. 4.6	} 5.3	grs. 6.2																											
February - - -	5.5			grs. 4.1			grs. 4.9			grs. ..																										
March - - -	5.0	} 6.1	grs. 6.7	grs. 5.4	} 5.5	grs. 6.9	grs. 5.8	} 7.5	grs. 9.0																											
April - - -	7.5			grs. 5.8			grs. 8.3			grs. ..																										
May - - -	5.9	} 7.3	grs. 6.7	grs. 6.6	} 7.3	grs. 6.9	grs. 8.5	} 9.4	grs. 9.0																											
June - - -	7.4			grs. 7.3			grs. 9.5			grs. ..																										
July - - -	7.6	} 6.5	grs. 6.7	grs. 7.3	} 6.9	grs. 6.9	grs. 9.3	} 8.3	grs. 9.0																											
August - - -	6.8			grs. 8.1			grs. 9.5			grs. ..																										
September - - -	5.2	} 6.5	grs. 6.7	grs. 8.8	} 6.9	grs. 6.9	grs. 9.1	} 8.3	grs. 9.0																											
October - - -	7.2			grs. 6.8			grs. 8.6			grs. ..																										
November - - -	7.0	} 5.6	grs. 4.5	grs. 5.2	} 6.9	grs. 6.9	grs. 7.2	} 8.3	grs. 9.0																											
December - - -	5.6			grs. 4.5			grs. 6.4			grs. ..																										
Difference between																																				
Greatest and Least Monthly Amount.		Greatest and Least Seasonal Amount.		} 3.1			2.1			0.9			4.7			2.9			1.8			4.9			4.1			2.8								
Mean for Year -										6.3			6.0			7.6										
Greatest - - -										July.			Summer.			..			September.			Summer.			..			June and August.			Summer.			..		
Least - - -										January.			Winter.			..			February.			Winter.			..			January.			Winter.			..		

MADRAS PRESIDENCY.—8. *Additional Weight of Vapour required for Saturation.*

TABLE CXVI., showing the AVERAGE AMOUNT of VAPOUR required to SATURATE a CUBIC FOOT of AIR, for every MONTH and QUARTER, as well as for the period October to March, and April to September, with the Difference between the greatest and least Months and Seasons, and Mean for the Year, between the Latitudes 1° 56' N. and 18° 57' N., and Longitudes 75° 51' E. and 103° 53' E., arranged in the order of Latitude, at Stations for the most part in the Presidency of Madras.

Place	SINGAPORE			DODABETTA			MADRAS			HURRYHUR.			
Latitude	1° 16' N.			11° 25' N.			13° 6' N.			14° 31' N.			
Longitude	103° 53' E.			77° 5' E.			80° 21' E.			75° 51' E.			
Height	30 feet			8,640 feet						1,831 feet.			
MONTH.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	18 Years.	Winter, Spring, Summer, Autumn.	October to March.	4 Years.	Winter, Spring, Summer, Autumn.	October to March.	
	1841 to 1845.		April to September.	1847.		April to September.	1833 to 1850.		April to September.	1857 to 1860.		April to September.	
	grs.	grs.	grs.	grs.	grs.	grs.	grs.	grs.	grs.	grs.	grs.	grs.	
January - - -	2.1	} 1.9	} 1.8	1.6	} 0.8	} 0.8	2.5	} 2.7	} 2.7	4.4	} ..	} ..	
February - - -	2.1			1.5			3.0			..			
March - - -	1.7	} 2.1	} 2.2	0.3	} 1.0	} 0.4	3.2	} 3.5	} 3.7	..	} ..	} ..	
April - - -	2.2			0.7			3.0			..			
May - - -	2.3	} 2.2	} 0.3	0.7	} 0.3	} 0.4	4.3	} 4.1	} 3.7	..	} ..	} ..	
June - - -	2.3			0.3			4.7			..			
July - - -	2.2	} 1.9	} 0.3	0.3	} 0.3	} 2.6	4.1	} 2.6	} ..	..	} ..	} ..
August - - -	2.2			0.3			2.9			..			
September - - -	2.2	} 1.9	} 0.3	0.3	} 0.3	} 2.6	2.9	} 2.6	} ..	..	} ..	} ..
October - - -	1.7			0.3			2.8			..			
November - - -	1.7	} 1.9	} 0.3	0.3	} 0.3	} 2.6	2.1	} 2.6	} ..	4.5	} ..	} ..	
December - - -	1.6			0.6			2.5			4.6			
Difference between													
Greatest and Least Monthly Amount.		} 0.7		} 0.3		} 0.4		} 1.3		} 0.7		} 0.4	
Greatest and Least Seasonal Amount.		} 0.7		} 0.3		} 0.4		} 1.3		} 0.7		} 0.4	
Mean for Year -													
Greatest		} 2.0		} 0.6		} 3.2		} ..		} ..		} ..	
Least		} ..		} ..		} ..		} ..		} ..		} ..	
Greatest		} April and May.		} Summer.		} ..		} June.		} Summer.		} ..	
Least		} Dec.		} Autumn and Winter.		} ..		} Nov.		} Autumn.		} ..	

(continued.)

Place	BELLARY			SECUNDERABAD			TONGHOO.						
Latitude	17° 0' N.			17° 28' N.			18° 57' N.						
Longitude	77° 0' E.			78° 32' E.			96° 30' E.						
Height	1,500 feet			1,800 feet			300 feet.						
MONTH.	9 Years.	Winter, Spring, Summer, Autumn.	October to March.	10 Years.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.				
	1851 to 1859.		April to September.	1850 to 1859.		April to September.	1859.		April to September.				
	grs.	grs.	grs.	grs.	grs.	grs.	grs.	grs.	grs.				
January - - -	5.8	} 4.7	} 4.8	4.8	} 5.3	} 5.1	3.4	} 3.7	} 3.9				
February - - -	5.5			6.9			5.1						
March - - -	9.8	} 6.8	} 5.0	6.6	} 8.3	} 5.9	5.2	} 5.2	} 2.9				
April - - -	4.9			8.8			6.5						
May - - -	5.8	} 4.3	} 5.0	9.5	} 5.0	} 5.9	3.9	} 1.8	} ..				
June - - -	5.4			7.0			1.8						
July - - -	3.0	} 3.9	} 3.4	4.7	} 3.4	} 3.4	1.7	} 2.5	} ..				
August - - -	4.5			3.2			1.8						
September - - -	6.5	} 3.9	} 3.4	2.2	} 3.4	} 3.4	2.2	} 2.5	} ..				
October - - -	3.4			3.8			2.7						
November - - -	1.8	} 2.9	} 4.3	4.2	} 4.3	} 4.3	2.5	} 2.7	} ..				
December - - -	2.9			4.3			2.7						
Difference between													
Greatest and Least Monthly Amount.		} 8.0		} 2.9		} 0.2		} 7.3		} 4.9		} 0.8	
Greatest and Least Seasonal Amount.		} 8.0		} 2.9		} 0.2		} 7.3		} 4.9		} 0.8	
Mean for Year -													
Greatest		} 4.9		} 5.5		} 3.3		} ..		} ..		} ..	
Least		} ..		} ..		} ..		} ..		} ..		} ..	
Greatest		} March.		} Spring.		} ..		} May.		} Spring.		} ..	
Least		} November.		} Autumn.		} ..		} September.		} Autumn.		} ..	

MADRAS PRESIDENCY.—9. Degree of Humidity.

TABLE CXVII., showing the AVERAGE DEGREE OF HUMIDITY for every MONTH and QUARTER, as well as for the period October to March, and April to September, with the Difference between the most Humid and least Humid Months and Seasons, and Mean for the Year, between the Latitudes 1° 16' N. and 18° 57' N., and between the Longitudes 75° 51' E. and 103° 53' E., arranged in the order of Latitude, at Stations for the most part in the Presidency of Madras.

Place	SINGAPORE			DODABETTA			MADRAS			HURRYHUR.			
Latitude	1° 16' N.			11° 25' N.			13° 6' N.			14° 31' N.			
Longitude	103° 53' E.			77° 5' E.			80° 21' E.			75° 51' E.			
Height	30 feet			8,640 feet						1,831 feet.			
MONTH.	5 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	1 Year.	Winter, Spring, Summer, Autumn.	October to March. April to September.	18 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	4 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	
	1841 to 1845.			1847.			1833 to 1850.			1857 to 1860.			
January - - -	80	82	84	64	81	83	75	74	74	52	..	..
February - - -	80			93			70			71			72
March - - -	85	82	80	81	79	90	76	72	71	..	..	..
April - - -	80			87			81			69			..
May - - -	80	80	80	93	93	90	64	68	71	..	..	..
June - - -	80			93			93			68			72
July - - -	80	80	80	93	93	90	72	68	71	..	..	..
August - - -	80			93			93			76			76
September - - -	80	83	80	93	93	90	76	77	71	..	..	..
October - - -	85			93			93			79			77
November - - -	85	83	80	93	93	90	79	77	71	56	..	..
December - - -	85			86			86			75			75	52	52
Difference between													
Most Humid and Least Humid Months.		5	3	4	29	14	7	15	9	3	..	..
Most Humid and Least Humid Seasons.													
Mean for Year -		82			87			73			..		
Most Humid -	March, Oct., Nov., and Dec.	Spring, Autumn, Winter, Summer.	..	Feb., June, July, Aug., Sept., Oct., and Nov.	Summer and Autumn.	..	Nov.	Autumn.	..	..	..	..
Least Humid -	Jan., Feb., Ap., May, June, July, Aug., and Sept.	..	..	January	Spring.	..	June	Summer.	..	..	..	..

(continued.)

Place	BELLARY			SECUNDERABAD			TONGHOO.			
Latitude	17° 0' N.			17° 28' N.			18° 57' N.			
Longitude	77° 0' E.			78° 32' E.			96° 30' E.			
Height	1,500 feet			1,800 feet			300 feet.			
MONTH.	9 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	10 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	1 Year.	Winter, Spring, Summer, Autumn.	October to March. April to September.	
	1851 to 1859.			1850 to 1859.			1859.			
January - - -	44	53	56	49	46	50	57	59	64	
February - - -	50			37			50			50	53	..	..
March - - -	34	48	57	45	40	56	53	59	77	
April - - -	60			37			56			68
May - - -	51	63	57	38	60	56	63	85	77	
June - - -	58			49			60			85	85	..	..
July - - -	71	64	57	60	66	56	85	85	77	
August - - -	60			72			80			80	76	77	..
September - - -	45	64	57	80	66	56	76	77	77	
October - - -	67			63			63			76	75	..	..
November - - -	79	64	57	55	66	56	75	77	77	
December - - -	65			51			51			70	70	..	..
Difference between										
Most Humid and Least Humid Months.		45	16	1	35	26	6	35	26	13
Most Humid and Least Humid Seasons.										
Mean for Year -		57			53			70		
Most Humid -	November.	Autumn.	..	August.	Autumn.	..	June, July, and August.	Summer.	..	
Least Humid -	March.	Spring.	..	February and April.	Spring.	..	February.	Spring and Winter.	..	

MADRAS PRESIDENCY.—10. Sun Temperature.

TABLE CXVIII., showing the AVERAGE SUN TEMPERATURE for every MONTH and QUARTER, as well as for the Period from October to March, and April to September, with the Difference between the Hottest and Coldest Months and Seasons, and the Mean for the Year, between the Latitudes 8° 43' N. and 17° 41' N., and Longitudes 75° 51' E. and 98° 42' E., arranged in the order of Latitude, and for the most part in the Presidency of Madras.

Place	PALAMCOTTAH			MERCUR			TAVOY			HURRYHUR			KURNOOL		
Latitude	8° 43' N.			12° 27' N.			14° 7' N.			14° 31' N.			15° 50' N.		
Longitude	77° 48' E.			98° 42' E.			98° 18' E.			75° 51' E.			78° 5' E.		
Height	120 feet			200 feet			12 feet			1,831 feet			800 feet		
MONTH.	5 Years.	Winter, Spring, Summer, Autumn.	7 Years.	Winter, Spring, Summer, Autumn.	Oct. to March.	11 Years.	Winter, Spring, Summer, Autumn.	Oct. to March.	4 Years.	Winter, Spring, Summer, Autumn.	3 Years.	Winter, Spring, Summer, Autumn.	Oct. to March.		
	1855 to 1859.		1853 to 1859.		April to Sept.	1849 to 1859.		April to Sept.	1857 to 1860.		1857 to 1859.		April to Sept.		
January	104	} 104	100	} 100	99	110	} 110	109	102	} 97	99	} 97	94		
February	104		100			110			92		100				
March	107	} 107	114	} 115	99	115	} 108	104	96?	} ..	110	} 113	103		
April	107		115			115			91?		116				
May	108	} ..	115	} 93	99	105	} 102	104	94?	} ..	112	} 97	93		
June	106		100			100			88?		103				
July	? 83	} ..	90	} 90	99	100	} 104	104	89	} 98	96	} 93	93		
August	? 85		89			105			92		92				
September	106	} 105	89	} 90	99	100	} 104	104	97	} 98	97	} 93	93		
October	104		80			100			100		100				
November	105	} ..	100	} ..	99	112	} ..	104	98	} ..	88	} ..	93		
December	103		100			110			102		93				
Difference between Hottest and Coldest Months.		..	35	25	0	15	8	5	..	..	28	20	9
Mean for Year -		..	100			106			..			100			
Highest in		..	April and May.			March and April.			..			April.			
Lowest in		..	October.			June, July, Sept. and Oct.			..			November.			

(continued.)

Place	GUNTOOR			BELLARY			SECUNDERABAD			VIZAGAPATAM			
Latitude	16° 20' N.			17° 0' N.			17° 28' N.			17° 41' N.			
Longitude	80° 30' E.			77° 0' E.			78° 32' E.			83° 21' E.			
Height	100 feet			1,500 feet			1,800 feet . . . . .			....
MONTH.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	9 Years.	Winter, Spring, Summer, Autumn.	October to March.	10 Years.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	
	1855 to 1859.		April to September.	1851 to 1859.		April to September.	1850 to 1859.		April to September.	1859.		April to September.	
January	85	} 88	89	102	} 98	96	93	} 91	93	91	} ..	..
February	92			104			99			90			
March	96	} 105	101	105	} 106	100	104	} 107	97	88	} 96	..	
April	118			107			104			107			
May	101	} 97	101	106	} 98	100	113	} 94	97	99	} ..	..
June	106			99			98			98			
July	94	} 90	90	97	} 91	90	92	} 90	90	? 75	} ..	..
August	91			97			91			92			
September	93	} ..	90	94	} ..	90	86	} ..	90	? 54	} ..	..
October	89			91			91			92			
November	88	} ..	90	89	} ..	90	91	} ..	90	? 61	} ..	..
December	88			88			88			82			
Difference between Hottest and Coldest Months.		33	17	12	19	15	4	31	17	4
Mean for Year -		95			98			96				
Highest in		April.			April.			May.				
Lowest in		January.			December.			December.				

TABLES showing the MONTHLY, QUARTERLY, HALF YEARLY, and YEARLY MEANS, and DIFFERENCES between the HOTTEST and COLDEST MONTHS and SEASONS, of OBSERVATIONS taken for the most part in the PRESIDENCY of BOMBAY, arranged in the order of LATITUDE, of the following METEOROLOGICAL ELEMENTS:—

1. Maximum Temperature of the Air.
2. Minimum Temperature of the Air.
3. Daily Range of Temperature.
4. Temperature of the Air.
5. Readings of the Dry and Wet Thermometers.
6. Temperature of the Dew Point.
7. Amount of Vapour in a Cubic Foot of Air.
8. Amount of Vapour required for Saturation.
9. Degree of Humidity.
10. Sun Temperature.

BOMBAY PRESIDENCY.—1. *Maximum Temperature of the Air.*

TABLE CXIX., showing the AVERAGE MAXIMUM TEMPERATURE for every MONTH and QUARTER, as well as for the Periods October to March, and April to September, with the Difference between the Hottest and Coldest Months and Seasons, and Mean Maximum Temperature for the Year, between the Latitudes 15° 50' N. and 26° 20' N., and between the Longitudes 67° 2' E. and 76° 0' E., arranged in the order of Latitude, and for the most part in the Presidency of Bombay.

Place	VINGORLA			DHARWAR			BELGAUM			KULLADGHEE.			
	Latitude 15° 50' N.			Latitude 15° 50' N.			Latitude 15° 52' N.			Latitude 16° 11' N.			
Longitude 73° 41' E.			Longitude 75° 10' E.			Longitude 74° 42' E.			Longitude 75° 33' E.				
Height 20 feet			Height 2,482 feet.			Height 2,260 feet.			Height 1,750 feet.				
MONTH.	4 Years.	Winter, Spring, Summer, Autumn.	October to March.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	4 Years.	Winter, Spring, Summer, Autumn.	October to March.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	
	1856 to 1859.		April to September.	1859 and 1860.		April to September.	1856 to 1859.		April to September.	1855 to 1859.		April to September.	
January - - -	84	85	85	83	84	85	85	86	87	89	89	91	
February - - -	85	85	85	89	84	85	91	86	87	92	89	91	
March - - -	87	88	88	92	91	91	94	90	90	101	102	102	
April - - -	88	88	85	91	91	83	97	90	84	104	102	102	
May - - -	88	83	85	91	80	83	89	79	84	101	93	96	
June - - -	85	83	85	83	80	83	81	79	84	96	93	96	
July - - -	83	83	85	80	77	80	79	79	84	91	93	93	
August - - -	82	83	85	77	77	81	78	83	84	93	90	93	
September - - -	82	83	85	77	81	81	80	83	84	91	90	93	
October - - -	84	83	85	82	85	81	85	83	84	91	90	93	
November - - -	83	83	85	85	85	81	84	83	84	88	90	93	
December - - -	85	83	85	80	80	81	83	83	84	85	90	93	
Difference between													
Hottest and Coldest Months.		Hottest and Coldest Seasons.		Hottest and Coldest Months.		Hottest and Coldest Seasons.		Hottest and Coldest Months.		Hottest and Coldest Seasons.		Hottest and Coldest Months.	
6		5		0		15		10		2		19	
19		11		3		19		12		5		19	
Mean for Year -		85		84		85		93		85		93	
Highest in		April.		March.		April.		April.		April.		April.	
Lowest in		August, September.		August, September.		August.		December.		August, September.		December.	

(continued.)

Place	KOLAPORE			RUTNAGHERRY			SHOLAPORE			SATTARA.			
	Latitude 16° 42' N.			Latitude 17° 0' N.			Latitude 17° 40' N.			Latitude 17° 40' N.			
Longitude 74° 18' E.			Longitude 73° 20' E.			Longitude 76° 0' E.			Longitude 74° 2' E.				
Height 1,797 feet			Height 150 feet			Height 1,821 feet			Height 2,320 feet.				
MONTH.	10 Years.	Winter, Spring, Summer, Autumn.	October to March.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	11 Years.	Winter, Spring, Summer, Autumn.	October to March.	4 Years.	Winter, Spring, Summer, Autumn.	October to March.	
	1850 to 1859.		April to September.	1855 to 1859.		April to September.	1850 to 1860.		April to September.	1844 to 1847.		April to September.	
January - - -	77	79	80	86	87	87	80	81	83	82	81	83	
February - - -	82	79	80	87	87	87	84	81	83	82	81	83	
March - - -	87	88	88	90	92	92	91	92	92	92	94	94	
April - - -	88	88	81	92	93	92	93	92	88	96	94	94	
May - - -	89	78	81	93	86	88	93	85	88	95	77	83	
June - - -	81	78	81	89	86	88	88	85	88	80	77	83	
July - - -	77	78	81	85	86	88	84	85	88	76	77	83	
August - - -	77	79	81	84	86	88	84	85	88	74	77	83	
September - - -	78	79	81	85	86	88	84	83	88	78	80	83	
October - - -	80	79	81	87	86	88	83	83	88	83	80	83	
November - - -	78	79	81	87	86	88	81	83	88	78	80	83	
December - - -	77	79	81	87	86	88	78	83	88	80	80	83	
Difference between													
Hottest and Coldest Months.		Hottest and Coldest Seasons.		Hottest and Coldest Months.		Hottest and Coldest Seasons.		Hottest and Coldest Months.		Hottest and Coldest Seasons.		Hottest and Coldest Months.	
12		10		1		9		6		1		15	
22		11		5		22		17		0		22	
Mean for Year -		81		88		85		83		81		83	
Highest in		May.		May.		April.		April.		April.		April.	
Lowest in		January.		August.		December.		August.		January.		August.	

BOMBAY PRESIDENCY.—1. Maximum Temperature of the Air—continued.

Place	SATTARA			DAPOOLEE			MAHABLESHWUR			POORUNDHUR			
Latitude	17° 40' N.			17° 48' N.			17° 59' N.			18° 12' N.			
Longitude	74° 2' E.			73° 16' E.			73° 30' E.			73° 54' E.			
Height	2,320 feet			600 feet			4,500 feet			4,200 feet			
MONTH.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	
	1855 to 1859.		April to September.	1858 and 1859.		April to September.	1834.		April to September.	1852 and 1853.		April to September.	
January - - - - -	81	} 81	80	88	} 88	89	71	} 70	72	71	} 73	74	
February - - - - -	82			89			74			77			
March - - - - -	85	} 86	80	91	} 92	86	82	} 82	72	81	} 81	75	
April - - - - -	88			93			82			83			
May - - - - -	85	} 77	80	91	} 83	86	81	} 68	72	78	} 73	75	
June - - - - -	80			86			69			80			
July - - - - -	75	} 77	80	83	} 87	86	67	} 68	72	71	} 73	75	
August - - - - -	75			80			67			68			
September - - - - -	77	} 77	80	83	} 87	86	66	} 68	72	73	} 73	75	
October - - - - -	75			88			69			74			
November - - - - -	80	} 77	80	92	} 87	86	70	} 68	72	73	} 73	75	
December - - - - -	79			87			68			70			
Difference between Hottest and Coldest Months.		} 13	9	0	} 13	9	3	16	14	0	} 15	8	1
Hottest and Coldest Seasons.													
Mean for Year -	80			88			72			75			
Highest in -	April.			April.			March.			April.			
Lowest in -	July.			August.			September.			August.			

(continued.)

Place	POONA			SEROOR			MULLIGAUM			DHOOLIA			
Latitude	18° 30' N.			18° 50' N.			20° 32' N.			20° 54' N.			
Longitude	74° 0' E.			77° 25' E.			74° 30' E.			74° 45' E.			
Height	1,800 feet			1,752 feet			1,300 feet			1,000 feet			
MONTH.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	6 Years.	Winter, Spring, Summer, Autumn.	October to March.	
	1856 to 1860.		April to September.	1854 to 1858.		April to September.	1860.		April to September.	1853 to 1858.		April to September.	
January - - - - -	81	} 83	84	94	} 96	96	..	} ..	..	80	} 82	84
February - - - - -	87			94			..			86			
March - - - - -	91	} 93	85	101	} 102	94	..	} ..	..	92	} 97	91
April - - - - -	95			107			..			98			
May - - - - -	93	} 81	85	98	} 92	94	104	} 95	..	101	} 88	84	
June - - - - -	85			96			..			94			
July - - - - -	80	} 82	85	91	} 92	94	92	} ..	..	94	} 84	84
August - - - - -	78			88			..			84			
September - - - - -	79	} 82	85	84	} 92	94	..	} ..	..	86	} 84	84
October - - - - -	84			96			..			96			
November - - - - -	83	} 82	85	95	} 92	94	..	} ..	..	83	} 84	84
December - - - - -	80			99			..			81			
Difference between Hottest and Coldest Months.		} 17	12	1	} 23	10	2	} 21	15	7
Hottest and Coldest Seasons.													
Mean for Year -	85			95			....			88		
Highest in -	April.			April.			....			May.		
Lowest in -	August.			September.			....			January.		

BOMBAY PRESIDENCY.—I. Maximum Temperature of the Air—*continued.*

Place	SURAT			BARODA			RAJCOPE			MHOW.					
	Latitude	21° 10' N.			Latitude	22° 16' N.			Latitude	22° 18' N.			Latitude	22° 33' N.	
Longitude	72° 52' E.			Longitude	73° 14' E.			Longitude	70° 50' E.			Longitude	75° 46' E.		
Height	33 feet			Height	90 feet			Height	450 feet			Height	1,862 feet		
MONTH.	10 Years.	Winter, Spring, Summer, Autumn.	October to March.	7 Years.	Winter, Spring, Summer, Autumn.	October to March.	4 Years.	Winter, Spring, Summer, Autumn.	October to March.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.			
	1850 to 1859.	April to September.		1847 to 1853.	April to September.		1857 to 1860.	April to September.		1859 and 1860.	April to September.				
January - - -	87	} 89	91	84	} 88	89	78	} 80	84	75	} 75	78			
February - - -	91		90	88		83	89		80	77		75			
March - - -	98	} 100		96	} 98		89	} 95		85	} 91				
April - - -	101			94			94			97			95	92	85
May - - -	100	} 90	94	105	} 92	94	99	} 89	91	95	} 83	85			
June - - -	94			98			91			95			88	86	85
July - - -	90	} 91		91	} 89		88	} 87		86	} 79	85			
August - - -	87			90			88			84			77	78	81
September - - -	90	} 91		90	} 89		85	} 87		78	} 79				
October - - -	93			87			89			89			86	78	81
November - - -	91	} 88		90	} 89		86	} 87		78	} 79				
December - - -	88			89			89			79			74	74	74
Difference between Hottest and Coldest Months.		} 14	11	3	21	10	5	21	15	7	21	16	7		
Hottest and Coldest Seasons.															
Mean for Year -	92			92			88			82					
Highest in -	April.			May.			May.			May.					
Lowest in -	August.			January.			January.			December.					

(continued.)

Place	AHMEDABAD			AHMEDNUGGUR			NEEMUCH			MOUNT ABOO.					
	Latitude	23° 0' N.			Latitude	23° 34' N.			Latitude	24° 27' N.			Latitude	24° 45' N.	
Longitude	72° 0' E.			Longitude	73° 1' E.			Longitude	74° 54' E.			Longitude	72° 49' E.		
Height	320 feet			Height	1,900 feet			Height	1,476 feet			Height	4,000 feet		
MONTH.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	6 Years.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.			
	1858 and 1859.	April to September.		1854 to 1859.	April to September.		1860.	April to September.		1855 to 1859.	April to September.				
January - - -	78	} 84	86	83	} 83	85	62	} 70	76	71	} 74	77			
February - - -	96		86	87		83	85		71	70		78	74		
March - - -	94	} 102		94	} 97		80	} 89		82	} 87				
April - - -	104			98			98			92			87	87	87
May - - -	108	} 97	99	98	} 84	88	94	} 78	83	92	} 83	84			
June - - -	94			88			83			82			76	92	81
July - - -	104	} 89		83	} 82		76	} 78		76	} 79				
August - - -	92			82			82			75			77	78	76
September - - -	90	} 89		81	} 82		79	} 78		78	} 79				
October - - -	90			84			84			77			79	79	79
November - - -	87	} 88		82	} 89		78	} 87		79	} 79				
December - - -	79			80			80			76			76	73	73
Difference between Hottest and Coldest Months.		} 30	18	13	18	15	3	32	19	7	21	13	7		
Hottest and Coldest Seasons.															
Mean for Year -	93			87			79			81					
Highest in -	May.			April.			May.			May.					
Lowest in -	January.			December.			January.			January.					

BOMBAY PRESIDENCY.—1. Maximum Temperature of the Air—continued.

Place	KURRACHEE			KURRACHEE			DEESA.		
Latitude	24° 51' N.			24° 51' N.			25° 14' N.		
Longitude	67° 2' E.			67° 2' E.			72° 5' E.		
Height	27 feet			27 feet			400 feet.		
MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.
	1847.		April to September.	1856 to 1860.		April to September.	1857 to 1859.		April to September.
January - - -	83	80	85	75	78	83	79	82	87
February - - -	74			79			85		
March - - -	84	86	90	86	89	90	94	101	96
April - - -	84			89			102		
May - - -	90			91			106		
June - - -	94	93	90	95	92	90	100	93	96
July - - -	90			92			93		
August - - -	95	91	90	88	88	88	87	90	96
September - - -	90			87			89		
October - - -	93			90			93		
November - - -	91	83	83	87	83	83	89	83	83
December - - -	83			79			82		
Difference between Hottest and Coldest Months.		21	5	20	14	7	27	19	9
Hottest and Coldest Seasons.		13	5	14	7	9	19	9	9
Mean for Year -	87			86			93		
Highest in -	August.			June.			May.		
Lowest in -	February.			January.			January.		

(continued.)

Place	HYDERABAD			NUSSEERABAD			JACORABAD.		
Latitude	25° 30' N.			26° 20' N.			....	
Longitude	69° 5' E.			74° 50' E.			....	
Height	99 feet			1,500 feet			220 feet.		
MONTH.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	12 Years.	Winter, Spring, Summer, Autumn.	October to March.
	1856 and 1857.		April to September.	1859 and 1860.		April to September.	1848 to 1859.		April to September.
January - - -	71	74	80	65	70	76	77	79	85
February - - -	78			76			82		
March - - -	89	94	95	80	89	92	93	100	104
April - - -	94			91			100		
May - - -	99			95			108		
June - - -	99	96	95	99	93	92	109	106	104
July - - -	95			91			108		
August - - -	93	86	90	89	85	85	102	94	94
September - - -	90			86			101		
October - - -	89			84			94		
November - - -	80	73	69	84	73	79	88	79	79
December - - -	73			69			79		
Difference between Hottest and Coldest Months.		28	15	34	23	16	32	27	19
Hottest and Coldest Seasons.		22	15	23	16	19	27	19	19
Mean for Year -	87			84			95		
Highest in -	May.			June.			June.		
Lowest in -	January.			January.			January.		

BOMBAY PRESIDENCY.—2. *Minimum Temperature of the Air.*

TABLE CXX., showing the AVERAGE MINIMUM TEMPERATURE for every MONTH and QUARTER, as well as for the Periods from October to March, and April to September, with the Difference between the Hottest and Coldest Months and Seasons, and Mean Minimum Temperature for the Year, between the Latitudes 15° 50' N. and 26° 20' N., and Longitudes 67° 2' E. and 76° 0' E., arranged in the order of Latitude, and for the most part in the Presidency of Bombay.

Place	VINGORLA			DHARWAR			BELGAUM			KULLADGHEE			
	Latitude 15° 50' N.			Latitude 15° 50' N.			Latitude 15° 52' N.			Latitude 16° 11' N.			
Longitude 73° 41' E.			Longitude 75° 10' E.			Longitude 74° 42' E.			Longitude 75° 33' E.				
Height 20 feet			Height 2,482 feet			Height 2,260 feet			Height 1,750 feet				
MONTH.	4 Years.	Winter, Spring, Summer, Autumn.	October to March.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	4 Years.	Winter, Spring, Summer, Autumn.	October to March.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	
	1856 to 1859.		April to September.	1859 and 1860.		April to September.	1856 to 1859.		April to September.	1855 to 1859.		April to September.	
January - - -	72	73	74	61	65	68	57	58	60	60	64	65	
February - - -	73			71			74			62			74	66	66	74
March - - -	76	78	77	73	75	73	66	65	65	74	74	73	
April - - -	79			77			70			66			72	73	73
May - - -	80	76	77	75	73	73	66	66	65	73	73	68	
June - - -	77			70			70			66			73	68	63
July - - -	76	76	77	70	70	70	65	63	63	68	68	60	
August - - -	76			71			70			64			73	63	60
September - - -	76	76	77	71	70	70	62	63	63	63	63	60	
October - - -	77			69			64			57			60	60
November - - -	75	76	77	64	70	70	57	63	63	60	63	60	
December - - -	73			64			64			57			60	60
Difference between Hottest and Coldest Months.		8	5	3	16	10	5	9	8	5	14	12	8
Hottest and Coldest Seasons.													
Mean for Year -		76			70			63			69		
Highest in -		May.			May.			April.			March.		
Lowest in -		January.			January.			January.			January.		

(continued.)

Place	KOLAPORE			RUTNAGHERRY			SHOLAPORE			SATTARA			
	Latitude 16° 42' N.			Latitude 17° 0' N.			Latitude 17° 40' N.			Latitude 17° 40' N.			
Longitude 74° 18' E.			Longitude 73° 20' E.			Longitude 76° 0' E.			Longitude 74° 2' E.				
Height 1,797 feet			Height 150 feet			Height 1,821 feet			Height 2,320 feet				
MONTH.	10 Years.	Winter, Spring, Summer, Autumn.	October to March.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	11 Years.	Winter, Spring, Summer, Autumn.	October to March.	4 Years.	Winter, Spring, Summer, Autumn.	October to March.	
	1850 to 1859.		April to September.	1855 to 1859.		April to September.	1850 to 1860.		April to September.	1844 to 1847.		April to September.	
January - - -	67	68	70	70	70	71	69	69	72	65	64	66	
February - - -	69			71			74			72			71	64	66
March - - -	75	76	75	74	76	76	78	82	80	75	74	73	
April - - -	76			76			76			85			76	73
May - - -	77	74	75	77	76	76	83	78	78	76	71	68	
June - - -	76			77			76			79			77	70
July - - -	74	74	75	74	74	74	78	75	75	71	68	63	
August - - -	73			77			77			77			70	64
September - - -	74	74	75	77	74	74	77	75	75	70	68	63	
October - - -	75			74			74			76			73	63
November - - -	72	74	75	71	74	74	73	75	75	64	68	63	
December - - -	67			70			70			66			66	63
Difference between Hottest and Coldest Months.		10	8	5	7	6	5	19	13	8	13	10	7
Hottest and Coldest Seasons.													
Mean for Year -		73			74			75			69		
Highest in -		May.			May.			April.			May.		
Lowest in -		January.			January.			December.			December.		

BOMBAY PRESIDENCY.—2. Minimum Temperature of the Air—continued.

Place	SATTARA			DAPPOLEE			MAHABLESHWUR			POORUNDHUR.		
Latitude	17° 40' N.			17° 45' N.			17° 59' N.			18° 12' N.		
Longitude	74° 2' E.			73° 16' E.			73° 30' E.			73° 54' E.		
Height	2,320 feet			600 feet			4,500 feet			4,200 feet.		
MONTH.	5 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	2 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	1 Year.	Winter, Spring, Summer, Autumn.	October to March. April to September.	2 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.
	1855 to 1859.			1858 and 1859.			1834.			1852 and 1853.		
January - - -	63	} 64	66	61	} 61	65	60	} 59	60	62	} 63	65
February - - -	67			67			62			66			61	67	67	70
March - - -	72	} 74	72	69	} 73	74	66	} 67	64	71	} 70	66
April - - -	75			74			74			67			75	68	65	65
May - - -	74	} 72	72	76	} 74	74	67	} 63	64	68	} 65	66
June - - -	73			71			75			63			63	65	65
July - - -	71	} 68	70	75	} 69	70	63	} 61	61	64	} 66	66
August - - -	71			72			72			64			64	65	65
September - - -	70	} 68	70	72	} 69	70	64	} 61	61	65	} 66	66
October - - -	69			66			66			62			57	65	65
November - - -	65	} 68	70	66	} 69	70	57	} 61	61	65	} 66	66
December - - -	62			61			61			56		
Difference between Hottest and Coldest Months.		} 13	6	15	} 13	9	11	8	4	12	7	1
Hottest and Coldest Season.												
Mean for Year -	69			69			62			65		
Highest in -	April.			May.			May.			April.		
Lowest in -	December.			January.			December.			December.		

(continued.)

Place	POONA			SEROOR			MULLIGAUM			DHOOLIA.		
Latitude	18° 30' N.			18° 50' N.			20° 32' N.			20° 54' N.		
Longitude	74° 0' E.			77° 25' E.			74° 30' E.			74° 45' E.		
Height	1,800 feet			1,752 feet			1,300 feet			1,000 feet.		
MONTH.	5 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	5 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	1 Year.	Winter, Spring, Summer, Autumn.	October to March. April to September.	6 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.
	1856 to 1860.			1854 to 1858.			1860.			1853 to 1858.		
January - - -	58	} 60	62	50	} 50	56	..	}	..	62	} 63	66
February - - -	63			62			51			..			65
March - - -	68	} 71	70	59	} 64	67	..	} 75	..	72	} 78	79
April - - -	71			71			64			78			79
May - - -	74	} 70	70	69	} 68	67	76	} 75	..	83	} 79	79
June - - -	72			70			69			76			81
July - - -	70	} 65	70	68	} 64	70	76	} 71	..	79	} 71	71
August - - -	69			66			68			74			77
September - - -	68	} 65	70	66	} 64	70	..	} 71	..	76	} 71	71
October - - -	66			66			68			..			73
November - - -	61	} 65	70	59	} 64	70	..	} 71	..	65	} 71	71
December - - -	58			58			50			..			61
Difference between Hottest and Coldest Months.		} 16	8	19	} 18	11	4	..	..	22	16	13
Hottest and Coldest Season.												
Mean for Year -	66			62			76			73		
Highest in -	May.			May.			....			May.		
Lowest in -	January and December.			December.			...			December.		

BOMBAY PRESIDENCY.—2. Minimum Temperature of the Air—*continued.*

Place	SURAT			BARODA			RAJCOTE			MHOW			
	Latitude	Longitude	Height	Latitude	Longitude	Height	Latitude	Longitude	Height	Latitude	Longitude	Height	
	21° 10' N.	75° 52' E.	33 feet	22° 16' N.	73° 14' E.	90 feet	22° 18' N.	70° 50' E.	450 feet	22° 33' N.	75° 46' E.	1,862 feet.	
MONTH:	10 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	7 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	4 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	2 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	
	1850 to 1859.			1847 to 1853.			1857 to 1860.			1859 and 1860.			
January - - -	59	64	67	58	57	61	59	62	66	65	67	70	
February - - -	69			56			62			68			
March - - -	70	75		71	74		71	77		75	77		
April - - -	76			69			77			79			
May - - -	80	79	78	83	78	79	83	81	80	79	72	74	
June - - -	80			80			83			81			
July - - -	80	72		80	71		83	74		64	73		
August - - -	78			76			77			79			
September - - -	79	72		76	71		79	74		78	73		
October - - -	77			77			79			73			
November - - -	73	72		73	71		77	74		74	73		
December - - -	67			64			66			66			
December - - -	63			58			64			67			
Difference between Hottest and Coldest Months.		21	15	11	27	21	18	24	19	14	14	10	4
Hottest and Coldest Seasons.													
Mean for Year -	72			69			73			72			
Highest in -	May.			May.			May.			April.			
Lowest in -	January.			February.			January.			January.			

(continued.)

Place	AHMEDABAD			AHMEDNUGGUR			NEEMUCH			MOUNT ABOO			
	Latitude	Longitude	Height	Latitude	Longitude	Height	Latitude	Longitude	Height	Latitude	Longitude	Height	
	23° 0' N.	72° 0' E.	320 feet	23° 34' N.	73° 1' E.	1,900 feet	24° 27' N.	74° 54' E.	1,476 feet	24° 45' N.	72° 49' E.	4,000 feet.	
MONTH.	2 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	6 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	1 Year.	Winter, Spring, Summer, Autumn.	October to March. April to September.	5 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	
	1858 and 1859.			1854 to 1859.			1860.			1855 to 1859.			
January - - -	65	63	68	59	60	64	49	51	56	43	44	51	
February - - -	65			62			50			47			
March - - -	73	80		69	73		60	68		60	63		
April - - -	82			75			70			61			
May - - -	86	79	71	76	73	73	75	75	73	66	65	64	
June - - -	84			74			78			66			
July - - -	77	75		73	67		73	64		65	59		
August - - -	77			71			73			64			
September - - -	77	75		70	67		71	64		62	59		
October - - -	77			69			66			61			
November - - -	70	75		63	67		56	64		55	59		
December - - -	60			59			55			43			
Difference between Hottest and Coldest Months.		26	17	8	17	13	9	29	24	17	23	21	13
Hottest and Coldest Seasons.													
Mean for Year -	74			68			64			57			
Highest in -	May.			May.			June.			May.			
Lowest in -	December.			January.			January.			January.			

BOMBAY PRESIDENCY.—2. Minimum Temperature of the Air—continued.

Place	KURRACHEE			KURRACHEE			DEESA			
	24° 51' N.			24° 51' N.			25° 14' N.			
Longitude	67° 2' E.			67° 2' E.			72° 5' E.			
Height	27 feet			27 feet			400 feet			
MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.	
	1847.		April to September.	1856 to 1860.		April to September.	1857 to 1859.		April to September.	
January	53	52	58	50	54	59	50	51	55	
February	59			55			54			
March	70	74	79	62	69	76	62	70	76	
April	75			70			69			
May	77	80	80	76	79	76	78	78	76	
June	80			80			79			
July	78	69	68	80	68	68	79	63	63	
August	82			77			76			
September	80	69	58	76	58	58	73	48	48	
October	72			69			58			
November	54	44	44	58	44	44	53	44	44	
December	44			44			44			
Difference between Hottest and Coldest Months.		38	21	30	25	17	31	27	21	
Hottest and Coldest Seasons.										
Mean for Year		68			67			65		
Highest in		August.			June and July.			June and July.		
Lowest in		December.			January.			December.		

(continued.)

Place	HYDERABAD			NUSSEERABAD			JACOBABAD			
	25° 30' N.			26° 20' N.			
Longitude	69° 5' E.			74° 50' E.			
Height	99 feet			1,500 feet			220 feet			
MONTH.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	12 Years.	Winter, Spring, Summer, Autumn.	October to March.	
	1856 and 1857.		April to September.	1859 and 1860.		April to September.	1848 to 1859.		April to September.	
January	58	59	65	61	63	67	44	46	52	
February	62			69			63			
March	72	78	82	73	80	80	56	69	82	
April	78			83			80			
May	83	84	84	84	83	80	83	87	82	
June	85			88			83			
July	84	74	76	84	73	73	87	68	68	
August	82			77			83			
September	80	65	59	76	66	66	81	46	46	
October	76			78			73			
November	65	58	58	66	59	59	53	46	46	
December	58			58			59			
Difference between Hottest and Coldest Months.		27	17	29	20	13	46	41	30	
Hottest and Coldest Seasons.										
Mean for Year		73			75			67		
Highest in		June.			June.			June.		
Lowest in		January and December.			December.			January.		

BOMBAY PRESIDENCY.—3. *Daily Range of Temperature.*

TABLE CXXI, showing the AVERAGE DAILY RANGE for every MONTH and QUARTER, as well as for the Periods October to March, and April to September, with the Difference between the Greatest and Least Months and Seasons, and Mean Daily Range for the Year, between the Latitudes 15° 50' N. and 26° 20' N., and between the Longitudes 67° 2' E. and 76° 0' E., arranged in the order of Latitude, and for the most part in the Presidency of Bombay.

Place	VINGORLA			DHARWAR			BELGAUM			KULLADGHEE.		
Latitude	15° 50' N.			15° 50' N.			15° 52' N.			16° 11' N.		
Longitude	73° 41' E.			75° 10' E.			74° 42' E.			75° 33' E.		
Height	20 feet			2,482 feet			2,260 feet			1,750 feet		
MONTH.	4 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	2 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	4 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	5 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.
	1856 to 1859.			1859 and 1860.			1856 to 1859.			1855 to 1859.		
January - - -	12	} 12	10	22	} 19	17	28	} 29	27	29	} 27	26
February - - -	12			18			32			26		
March - - -	11	} 9	7	18	} 17	10	32	} 29	19	27	} 28	23
April - - -	9			14			31			30		
May - - -	8	} 7	7	8	} 7	11	15	} 14	20	24	} 21	22
June - - -	8			7			13			18		
July - - -	7	} 7	7	7	} 11	16	13	} 20	23	20	} 22	25
August - - -	6			7			13			20		
September - - -	6	} 7	7	7	} 11	16	16	} 20	23	18	} 22	25
October - - -	7			11			23			23		
November - - -	8	} 7	7	16	} 11	16	22	} 20	23	25	} 22	25
December - - -	12			16			26			25		
Difference between Greatest and Least Monthly Ranges.		} 6	3	15	12	7	19	15	8	12	7	3
Greatest and Least Seasonal Ranges.												
Mean for Year -	9			13			23			24		
Greatest in -	Jan., Feb., and Dec.			January.			February and March.			April.		
Least in -	August and September.			July, Aug., and Sept.			July and August.			July and September.		

(continued.)

Place	KOLAPORE			RUTNAGHERRY			SHOLAPORE			SATTARA.		
Latitude	16° 42' N.			17° 0' N.			17° 40' N.			17° 40' N.		
Longitude	74° 18' E.			73° 20' E.			76° 0' E.			74° 2' E.		
Height	1,797 feet			150 feet			1,821 feet			2,320 feet		
MONTH.	10 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	5 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	11 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	4 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.
	1850 to 1859.			1855 to 1859.			1850 to 1860.			1844 to 1847.		
January - - -	10	} 11	9	16	} 16	15	11	} 12	10	17	} 17	17
February - - -	13			16			12			18		
March - - -	12	} 12	8	16	} 16	12	13	} 10	8	21	} 20	11
April - - -	12			16			8			21		
May - - -	12	} 7	7	16	} 10	12	10	} 7	8	19	} 5	11
June - - -	15			12			9			8		
July - - -	3	} 7	7	11	} 10	12	6	} 7	8	5	} 5	11
August - - -	3			8			7			3		
September - - -	4	} 5	7	8	} 12	12	7	} 7	8	8	} 12	11
October - - -	5			13			7			8		
November - - -	6	} 5	7	16	} 12	12	8	} 7	8	13	} 12	11
December - - -	10			17			12			17		
Difference between Greatest and Least Monthly Ranges.		} 12	1	9	6	3	7	5	2	18	15	6
Greatest and Least Seasonal Ranges.												
Mean for Year -	9			14			9			13		
Greatest in -	June.			December.			March.			March and April.		
Least in -	July and August.			August and September.			Aug., Sept., and Oct.			August.		

BOMBAY PRESIDENCY.—3. Daily Range of Temperature—*continued.*

Place	SATTARA			DAPOOLEE			MAHABLESHWUR			POORUNDHUR		
Latitude	17° 40' N.			17° 45' N.			17° 59' N.			18 12' N.		
Longitude	74° 2' E.			73° 16' E.			73° 30' E.			73° 54' E.		
Height	2,320 feet			600 feet			4,500 feet.			4,200 feet.		
MONTH.	5 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	2 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	1 Year.	Winter, Spring, Summer, Autumn.	October to March. April to September.	2 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.
	1855 to 1859.			1858 and 1859.			1834.			1852 and 1853.		
January - - -	18	} 17	14	27	} 27	24	11	} 12	12	9	} 10	9
February - - -	15			27			13			10		
March - - -	13	} 12	8	22	} 19	12	16	} 15	8	11	} 11	9
April - - -	13			19			15			12		
May - - -	11	} 5	8	15	} 9	12	14	} 5	8	10	} 8	9
June - - -	7			11			6			15		
July - - -	4	} 9	8	8	} 18	12	4	} 7	8	6	} 8	9
August - - -	4			7			4			4		
September - - -	7	} 9	8	11	} 18	12	2	} 7	8	8	} 8	9
October - - -	6			18			7			8		
November - - -	15	} 12	6	26	} 18	12	13	} 10	4	7	} 3	0
December - - -	17			26			11			11		
Difference between Greatest and Least Monthly Ranges.		} 14	6	20	18	12	14	10	4	11	3	0
Greatest and Least Seasonal Ranges.												
Mean for Year -	11			18			10			9		
Greatest in -	January.			January and February.			March.			June.		
Least in -	July and August.			August.			September.			August.		

(continued.)

Place	POONA			SEROOR			MULLIGAUM			DHOOLIA		
Latitude	18° 30' N.			18° 50' N.			20° 32' N.			20° 54' N.		
Longitude	74° 0' E.			77° 25' E.			74° 30' E.			74° 45' E.		
Height	1,800 feet			1,752 feet			1,500 feet			1,000 feet.		
MONTH.	5 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	5 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	1 Year.	Winter, Spring, Summer, Autumn.	October to March. April to September.	6 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.
	1856 to 1860.			1854 to 1858,			1860.			1853 to 1858.		
January - - -	23	} 23	22	44	} 45	40	..	} 19	..	18	} 20	18
February - - -	24			43			..			21		
March - - -	23	} 22	14	42	} 38	26	..	} 19	..	20	} 19	12
April - - -	24			43			..			18		
May - - -	19	} 11	14	29	} 23	26	28	} 19	..	19	} 9	12
June - - -	13			27			24			13		
July - - -	10	} 17	8	23	} 27	26	16	} 19	..	6	} 13	12
August - - -	9			20			18			7		
September - - -	11	} 12	8	18	} 27	26	..	} 19	..	8	} 13	12
October - - -	18			28			..			13		
November - - -	22	} 15	8	36	} 27	26	..	} 19	..	18	} 11	6
December - - -	22			49			..			20		
Difference between Greatest and Least Monthly Ranges.		} 15	8	31	22	14	..	..	..	15	11	6
Greatest and Least Seasonal Ranges.												
Mean for Year.	13			33			21			15		
Greatest in -	February and April.			December.			....			February.		
Least in -	August.			September.			....			July.		

BOMBAY PRESIDENCY.—3. Daily Range of Temperature—*continued.*

Place	SURAT			BARODA			RAJCOTE			MHOW			
Latitude	21° 10' N.			22° 16' N.			22° 18' N.			22° 33' N.			
Longitude	72° 52' E.			73° 14' E.			70° 50' E.			75° 46' E.			
Height	33 feet			90 feet			450 feet			1,862 feet			
MONTH.	10 Years.	Winter, Spring, Summer, Autumn.	October to March.	7 Years.	Winter, Spring, Summer, Autumn.	October to March.	4 Years.	Winter, Spring, Summer, Autumn.	October to March.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	
	1850 to 1859.		April to September.	1847 to 1853.		April to September.	1857 to 1860.		April to September.	1859 to 1860.		April to September.	
January - - -	28	} 25	24	26	} 30	26	19	} 18	17	10	} 9	8	
February - - -	22			34			21			9			
March - - -	28	} 24	24	25	} 24	26	18	} 18	17	10	} 13	11	
April - - -	25			25			20			13			
May - - -	20	} 11	15	22	} 14	17	16	} 8	11	17	} 11	11	
June - - -	14			18			12			8			
July - - -	12	} 19	15	11	} 18	17	7	} 13	11	8	} 6	6	
August - - -	8			12			5			3			
September - - -	13	} 19	15	13	} 18	17	6	} 13	11	5	} 6	6	
October - - -	20			14			12			7			
November - - -	24	} 19	15	26	} 18	17	20	} 13	11	5	} 6	6	
December - - -	25			31			15			7			
Difference between													
Greatest and Least Monthly Ranges.		} 20	14	9.	23	16	9	16	10	6	18	15	3
Greatest and Least Seasonal Ranges.													
Mean for Year -	20			21			15			10			
Greatest in -	January and March.			February.			February.			June.			
Least in -	August.			July.			August.			August.			

(continued.)

Place	AHMEDABAD			AHMEDNUGGER			NEMUCH			MOUNT ABOO			
Latitude	23° 0' N.			23° 34' N.			24° 27' N.			24° 45' N.			
Longitude	72° 0' E.			73° 1' E.			74° 54' E.			72° 49' E.			
Height	320 feet			1,900 feet			1,476 feet			4,000 feet			
MONTH.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	6 Years.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	
	1858 and 1859.		April to September.	1854 to 1859.		April to September.	1860.		April to September.	1855 to 1859.		April to September.	
January - - -	13	} 21	19	24	} 23	21	13	} 18	18	28	} 30	25	
February - - -	31			25			21			31			
March - - -	21	} 22	18	25	} 23	21	20	} 20	10	22	} 25	18	
April - - -	22			22			22			26			
May - - -	22	} 17	18	22	} 12	15	19	} 3	10	26	} 18	18	
June - - -	10			14			4			26			
July - - -	27	} 14	18	10	} 15	15	4	} 14	10	16	} 19	18	
August - - -	15			11			2			12			
September - - -	13	} 14	18	11	} 15	15	8	} 14	10	16	} 19	18	
October - - -	13			15			8			15			
November - - -	17	} 14	18	19	} 15	15	11	} 14	10	24	} 19	18	
December - - -	19			21			21			22			
Difference between													
Greatest and Least Monthly Ranges.		} 21	8	1	15	11	6	20	17	8	19	12	7
Greatest and Least Seasonal Ranges.													
Mean for Year -	18			18			14			23			
Greatest in -	February.			February and March.			April and November.			February.			
Least in -	June.			July.			August.			August.			

BOMBAY PRESIDENCY. 3. Daily Range of Temperature.—*continued.*

Place	KURRACHEE			KURRACHEE			DRESSA			
	Latitude	Longitude	Height	Latitude	Longitude	Height	Latitude	Longitude	Height	
	24° 51' N.	67° 2' E.	27 feet.	24° 51' N.	67° 2' E.	27 feet.	25° 14' N.	72° 5' E.	400 feet.	
MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March. April to September.	5 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	3 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	
	1847.			1856 to 1860.			1857 to 1859.			
January - - - - -	30	28	26	25	23	24	29	31	34	
February - - - - -	15	12	26	24	19	24	31	30	34	
March - - - - -	14			24			32			
April - - - - -	9	13	12	19	13	14	31	15	20	
May - - - - -	13			15			28			
June - - - - -	14			15			21			
July - - - - -	12	23	12	12	20		14	28		
August - - - - -	13			11			11			
September - - - - -	10	23	12	11	20		16	28		
October - - - - -	21			21			31			
November - - - - -	37	23	12	29	20		36	28		
December - - - - -	39			21			34			
Difference between										
Greatest and Least Monthly Ranges.	Greatest and Least Seasonal Ranges.	80	16	14	18	10	10	25	16	14
Mean for Year -		19			19			26		
Greatest in		December.			November.			November.		
Least in		April.			August and September.			August.		

(continued.)

Place	HYDERABAD			NUSSEERABAD			JACOBABAD			
	Latitude	Longitude	Height	Latitude	Longitude	Height	Latitude	Longitude	Height	
	25° 30' N.	69° 5' E.	99 feet.	26° 20' N.	74° 50' E.	1,500 feet	Unknown.	ditto.	220 feet	
MONTH.	2 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	2 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	12 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	
	1856 and 1857.			1859 and 1860.			1848 to 1859.			
January - - - - -	13	15	15	4	7	9	33	33	32	
February - - - - -	16			7			34			
March - - - - -	17	16	13	7	9	9	37	31	22	
April - - - - -	16			8			30			
May - - - - -	16			11			25			
June - - - - -	14	12	13	11	10	9	19	20		
July - - - - -	11			7			21			
August - - - - -	11	13	13	12	11		19	27		
September - - - - -	10			10			20			
October - - - - -	13	13	13	6	11		25	27		
November - - - - -	15			18			35			
December - - - - -	15	13	13	10	11		33	27		
				15			33			
Difference between										
Greatest and Least Monthly Ranges.	Greatest and Least Seasonal Ranges.	7	4	2	14	4	0	18	13	10
Mean for Year -		14			9			27		
Greatest in		March.			November.			March.		
Least in		September.			January.			June and August.		

BOMBAY PRESIDENCY.—4. *Temperature of the Air.*

TABLE CXXII., showing the AVERAGE TEMPERATURE OF THE AIR, for every MONTH and QUARTER, as well as for the Periods from October to March and April to September, with the Difference between the Hottest and Coldest Months and Seasons, and Mean Temperature for the Year, between the Latitudes 12° 45' N. and 26° 20' N., and between the Longitudes 45° 15' E. and 79° 11' E., arranged in the order of Latitude, and for the most part in the Presidency of Bombay.

Place . . .	ADEN . . .			VINGORLA . . .			DHARWAR . . .			BELGAUM.		
	Latitude . . .	Longitude . . .	Height . . .	Latitude . . .	Longitude . . .	Height . . .	Latitude . . .	Longitude . . .	Height . . .	Latitude . . .	Longitude . . .	Height . . .
Latitude . . .	12° 45' N.	45° 15' E.	123 feet	15° 50' N.	73° 41' E.	20 feet	15° 50' N.	75° 10' E.	2,482 feet	15° 52' N.	74° 42' E.	2,260 feet.
Height . . .												
MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March. April to September.	4 Years. 1856 to 1859.	Winter, Spring, Summer, Autumn.	October to March. April to September.	1 Year. 1859.	Winter, Spring, Summer, Autumn.	October to March. April to September.	4 Years. 1856 to 1859.	Winter, Spring, Summer, Autumn.	October to March. April to September.
January - - -	76	77	79	78	78	79	72	75	77	72	72	73
February - - -	78			75			79			80		
March - - -	83	87	91	82	83	81	83	83	78	78	79	75
April - - -	87			81			83			82		
May - - -	90	93	91	85	80	81	84	76	78	78	73	75
June - - -	94			81			85			84			81	79	76
July - - -	93	84	91	79	80	81	76	75	78	75	73	75
August - - -	93			81			79			73		
September - - -	89	84	91	79	80	81	73	75	78	74	73	75
October - - -	81			81			79			76			81	76	74
November - - -	82	84	91	79	80	81	77	75	78	72	73	75
December - - -	76			79			78			77			81	72	70
Difference between Hottest and Coldest Months. Hottest and Coldest Seasons.												
18 16 12 7 5 2 12 8 1 11 7 2												
Mean for Year -	85			80			77			74		
Highest in -	June.			May.			May.			April.		
Lowest in -	January and December.			January and December.			January and December.			December.		

(continued.)

Place . . .	KULLADGHEE . . .			RUTNAGHERY . . .			SATTARA . . .			SATTARA.		
	Latitude . . .	Longitude . . .	Height . . .	Latitude . . .	Longitude . . .	Height . . .	Latitude . . .	Longitude . . .	Height . . .	Latitude . . .	Longitude . . .	Height . . .
Latitude . . .	16° 11' N.	75° 33' E.	1,750 feet.	17° 0' N.	73° 20' E.	150 feet	17° 40' N.	74° 2' E.	2,320 feet.	17° 40' N.	74° 2' E.	2,320 feet
Height . . .												
MONTH.	5 Years. 1855 to 1859.	Winter, Spring, Summer, Autumn.	October to March. April to September.	5 Years. 1855 to 1859.	Winter, Spring, Summer, Autumn.	October to March. April to September.	4 Years. 1844 to 1847.	Winter, Spring, Summer, Autumn.	October to March. April to September.	5 Years. 1855 to 1859.	Winter, Spring, Summer, Autumn.	October to March. April to September.
January - - -	75	75	78	78	79	80	73	72	74	70	72	74
February - - -	79			75			79			73			75	75
March - - -	88	88	84	82	84	82	81	84	78	78	80	77
April - - -	89			81			84			85			82	81	81
May - - -	87	83	84	85	81	82	86	74	78	81	75	77
June - - -	84			83			85			86			82	81	76
July - - -	82	79	84	80	81	82	74	74	78	76	74	77
August - - -	83			80			82			73			81	73	74
September - - -	82	79	84	82	81	82	74	74	78	74	74	77
October - - -	79			83			82			74		
November - - -	76	79	84	79	81	82	77	74	78	75	74	77
December - - -	72			79			79			71		
Difference between Hottest and Coldest Months. Hottest and Coldest Seasons.												
17 13 6 7 5 2 15 12 4 11 8 3												
Mean for Year -	81			81			76			75		
Highest in -	April.			May.			May.			April and May.		
Lowest in -	December.			January.			December.			January.		

BOMBAY PRESIDENCY.—4. Temperature of the Air—continued.

Place	SHOLAPORE			DAPOOLEE			MAHABLESHWUR			POONA.		
Latitude	17° 40' N.			17° 48' N.			17° 59' N.			18° 30' N.		
Longitude	76° 0' E.			73° 16' E.			73° 30' E.			74° 0' E.		
Height	1,821 feet			600 feet			4,500 feet			1,800 feet.		
MONTH.	11 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	2 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	15 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	6 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.
	1850 to 1860.			1858 and 1859.			1829 to 1843.			1825 to 1830.		
January - - -	75	75	78	75	—	—	64	64	66	72	73	76
February - - -	78			75			72			75		
March - - -	84	87	84	81	84	84	72	73	67	79	82	79
April - - -	89			81			86			83		
May - - -	88	81	84	86	82	82	75	64	67	83	78	77
June - - -	83			82			86			81		
July - - -	81	79	80	82	80	80	66	65	67	85	77	73
August - - -	80			80			79			81		
September - - -	81	77	76	79	76	76	63	65	67	77	77	73
October - - -	80			80			64			64		
November - - -	77	72	73	80	—	—	64	63	63	76	73	73
December - - -	72			72			63			63		
Difference between Hottest and Coldest Months.		17	12	6	11	—	12	9	1	13	9	3
Hottest and Coldest Seasons.												
Mean for Year -	81			81			66			78		
Highest in -	April.			....			April.			May.		
Lowest in -	December.			....			July, August, December.			January.		

(continued.)

Place	POONA			SEROOR			BOMBAY			MULLIGAUM.		
Latitude	18° 30' N.			18° 50' N.			18° 53' N.			20° 32' N.		
Longitude	74° 0' E.			77° 25' E.			72° 52' E.			74° 30' E.		
Height	1,800 feet			1,752 feet			. . . . .			1,300 feet.		
MONTH.	5 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	5 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	12 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	1 Year.	Winter, Spring, Summer, Autumn.	October to March. April to September.
	1856 to 1860.			1854 to 1858.			1847 to 1858.			1860.		
January - - -	69	70	74	72	72	74	74	75	77	—	85	—
February - - -	73			72			76			75		
March - - -	79	82	79	80	83	80	80	83	82	—	85	—
April - - -	84			83			86			83		
May - - -	84	77	79	83	78	80	86	82	82	88	85	—
June - - -	78			81			81			83		
July - - -	77	76	76	76	76	76	81	80	82	88	85	—
August - - -	75			76			81			81		
September - - -	75	76	76	76	76	76	81	80	82	88	85	—
October - - -	77			77			82			82		
November - - -	75	69	72	75	72	72	79	76	76	84	85	—
December - - -	69			72			76			76		
Difference between Hottest and Coldest Months.		15	12	5	16	11	12	8	5	—	—	—
Hottest and Coldest Seasons.												
Mean for Year -	76			77			80			—		
Highest in -	April and May.			April.			May.			—		
Lowest in -	January and December.			February.			January.			—		

BOMBAY PRESIDENCY.—4. Temperature of the Air—continued.

Place	DROOLIA			NAGPORE			SURAT			BARODA.			
Latitude	20° 54' N.			21° 8' N.			21° 10' N.			22° 16' N.			
Longitude	74° 45' E.			79° 11' E.			72° 52' E.			73° 14' E.			
Height	1,000 feet.						33 feet			90 feet.			
MONTH.	6 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	4 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	10 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	7 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	
	1853 to 1858.			1814 to 1817.			1850 to 1859.			1847 to 1853.			
January - - -	70	73	76	71	73	77	73	75	78	71	71	76	
February - - -	76	87	84	75	90	86	77	87	84	70	86	86	
March - - -	82			84			84			86			86
April - - -	88	83	84	93	83	86	88	85	84	81	86	86	
May - - -	91			84			93			81			86
June - - -	87	79	84	86	80	86	87	81	84	89	80	86	
July - - -	82			84			81			83			86
August - - -	80	79	84	81	80	86	83	81	84	84	80	86	
September - - -	80			84			82			82			86	83	81	83	80	80	86
October - - -	80	79	84	82	80	86	83	81	84	80	80	86	
November - - -	76			84			75			75			86	78	81	77	77	80	86
December - - -	72	79	84	73	80	86	74	81	84	73	80	86	
Difference between Hottest and Coldest Months.		21	14	8	22	17	9	16	12	6	24	15	10
Hottest and Coldest Seasons.													
Mean for Year -	81			81			82			81			
Highest in -	May.			April and May.			May.			May.			
Lowest in -	January.			January.			January.			February.			

(continued.)

Place	RAJCOLE			MHOW			AHMEDABAD			AHMEDNUGGER.			
Latitude	22° 18' N.			22° 33' N.			23° 0' N.			23° 34' N.			
Longitude	70° 50' E.			75° 46' E.			72° 0' E.			73° 1' E.			
Height	450 feet			1,862 feet.			320 feet			1,900 feet.			
MONTH.	4 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	2 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	2 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	6 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	
	1857 to 1860.			1859 and 1860.			1858 and 1859.			1854 to 1859.			
January - - -	69	72	78	70	71	74	71	73	77	71	72	74	
February - - -	75	86	85	72	84	79	80	91	89	75	85	80	
March - - -	82			85			80			87			89	83	88	82	87	85
April - - -	86	85	85	86	77	79	93	88	89	87	78	80	
May - - -	90			85			87			82			77	97	88	87	81	85
June - - -	89	80	85	74	76	79	89	81	89	81	75	80	
July - - -	85			85			74			75			79	89	81	81	77	78
August - - -	82	80	85	75	76	79	84	81	89	76	75	80	
September - - -	81			85			75			75			79	83	81	76	77	75
October - - -	83	80	85	77	76	79	83	81	89	77	75	80	
November - - -	77			85			75			75			76	78	81	76	73	75
December - - -	73	80	85	71	76	79	69	81	89	70	75	80	
Difference between Hottest and Coldest Months.		21	14	7	17	13	5	23	18	12	17	13	6
Hottest and Coldest Seasons.													
Mean for Year -	81			77			83			77			
Highest in -	May.			May.	Spring.		May.			April and May.			
Lowest in -	January.			January.	Winter.		December.			December.			

BOMBAY PRESIDENCY.—4. Temperature of the Air—continued.

Place	NEEMUCH			MOUNT ABOO			KURRACHEE			KURRACHEE.			
	Latitude 24° 27' N.			24° 45' N.			24° 51' N.			24° 51' N.			
Longitude 74° 54' E.			72° 49' E.			67° 2' E.			67° 2' E.				
Height 1,476 feet			4,000 feet			27 feet			27 feet.				
MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	
	1860.		April to September.	1855 to 1859.		April to September.	1847.		April to September.	1856 to 1860.		April to September.	
January - - -	55	} 60	65	57	} 59	64	67	} 66	71	62	} 65	70	
February - - -	60			63			67						
March - - -	70	} 78	78	71	} 74	74	77	} 80	84	74	} 81	84	
April - - -	81			72			79						
May - - -	84	} 76	78	79	} 74	74	83	} 86	84	84	} 86	84	
June - - -	80			74			87						
July - - -	74	} 71	78	74	} 69	74	84	} 79	84	88	} 78	84	
August - - -	74			70			88						
September - - -	75	} 71	78	70	} 69	74	86	} 79	84	81	} 78	84	
October - - -	71			71			80						
November - - -	67	} 71	78	67	} 69	74	72	} 79	84	79	} 78	84	
December - - -	65			58			63						
Difference between Hottest and Coldest Months.		29	18	13	22	15	10	25	20	13	26	16	14
Mean for Year -		71			69			78			78		
Highest in -		May.			May and June.			August.			June and July.		
Lowest in -		January.			January.			Dec.			January.		

(continued.)

Place	DEESA			HYDERABAD			NUSSEERABAD			JACOBABAD.			
	Latitude 25° 14' N.			25° 30' N.			26° 20' N.			Not known.			
Longitude 72° 5' E.			69° 5' E.			74° 50' E.			ditto.				
Height 400 feet			99 feet.			1,500 feet.			220 feet.				
MONTH.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	12 Years.	Winter, Spring, Summer, Autumn.	October to March.	
	1857 to 1859.		April to September.	1856 and 1857.		April to September.	1859 and 1860.		April to September.	1848 to 1859.		April to September.	
January - - -	64	} 68	—	64	} 67	73	63	} 65	71	60	} 63	69	
February - - -	70			71			68						
March - - -	80	} 86	—	81	} 86	—	77	} 84	87	74	} 85	—	
April - - -	87			87			77						
May - - -	91	} 86	—	91	} 90	89	89	} 88	87	95	} 96	93	
June - - -	89			92			89						
July - - -	88	} 86	—	91	} 90	89	88	} 88	87	99	} 96	—	
August - - -	82			88			88						
September - - -	83	} 86	—	85	} 80	—	83	} 78	87	92	} 81	—	
October - - -	81			85			81						
November - - -	84?	} 86	—	82	} 80	—	79	} 78	87	81	} 81	—	
December - - -	69			73			75						
Difference between Hottest and Coldest Months.		27	—	—	28	23	16	31	23	16	39	36	24
Mean for Year -		80			81			79			81		
Highest in -		May.			June.			June.			June.		
Lowest in -		January.			January.			January.			January.		

BOMBAY PRESIDENCY.—5. Readings of the Dry and Wet Bulb Thermometers.

TABLE CXXIII., showing the AVERAGE READINGS of the DRY and WET BULB THERMOMETERS for every MONTH and QUARTER as well as for the periods October to March and April to September, with the Difference between the Highest and Lowest Months and Seasons, and Mean for the Year between the Latitudes 15° 52' N. and 25° 30' N., and between Longitudes 69° 5' E. and 77° 25' E., arranged in the order of Latitude and for the most part in the Presidency of Bombay.

Place . . . . .	. . . . BELGAUM . . . .				. . . . SATTARA . . . .				. . . . DAPOOLKE . . . .				. . . . MAHABLESHWUR.						
	Latitude 15° 52' N. . . . .				. . . . 17° 40' N. . . . .				. . . . 17° 48' N. . . . .				. . . . 17° 59' N.							
	Longitude 74° 42' E. . . . .				. . . . 74° 2' E. . . . .				. . . . 73° 16' E. . . . .				. . . . 73° 30' E.							
Height . . . . .	. . . . 2,260 feet . . . .				. . . . 2,320 feet . . . .				. . . . 600 feet . . . .				. . . . 4,500 feet.						
MONTH.	2 Years.		Winter, Spring, Summer, Autumn.		5 Years.		Winter, Spring, Summer, Autumn.		2 Years.		Winter, Spring, Summer, Autumn.		9 Years.		Winter, Spring, Summer, Autumn.																	
	1858 and 1859.				1855 to 1859.				1858 and 1859.				1835 to 1843.																			
	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.																
January - - -	73	62	74	62	71	64	72	65	75	71	75	71	69	59	69	58																
February - - -	78	62	74	62	75	67	72	65	77	73	75	71	70	57	69	58																
March - - -	81	67	81	69	78	68	80	70	81	77	84	80	75	60	76	63																
April - - -	82	69	81	69	82	69	80	70	85	81	84	80	78	63	76	63																
May - - -	79	71	73	70	81	72	75	71	85	82	82	77	76	67	69	67																
June - - -	75	71	73	70	76	72	75	71	86	76	82	77	71	68	69	67																
July - - -	73	70	73	70	76	71	75	71	81	78	82	77	69	67	69	67																
August - - -	72	69	74	68	73	71	74	69	79	77	77	75	67	66	68	65																
September - - -	73	69	74	68	74	71	74	69	78	76	77	75	68	65	68	66																
October - - -	75	67	74	68	75	70	74	69	79	75	77	75	68	66	67	64																
November - - -	75	67	74	68	74	67	74	69	75	73	77	75	67	60	67	64																
December - - -	72	62	74	68	71	65	74	69	74	68	77	75	67	59	67	64																
Difference between Highest and Lowest	} 10		} 9		} 8		} 8		} 11		} 8		} 8		} 5		} 12		} 14		} 9		} 9		} 11		} 10		} 8		} 9	
Monthly Readings.	} 10		} 9		} 8		} 8		} 11		} 8		} 8		} 5		} 12		} 14		} 9		} 9		} 11		} 10		} 8		} 9	
Seasonal Readings.	} 10		} 9		} 8		} 8		} 11		} 8		} 8		} 5		} 12		} 14		} 9		} 9		} 11		} 10		} 8		} 9	
Mean for Year -	75	67	75	67	75	69	75	69	79	75	79	75	70	63	70	63																
Highest in -	April.	May and June.	Spring	Summer.	April.	May and June.	Spring	Summer.	June.	May.	Spring	Spring	April.	May and July.	Spring	Summer.																
Lowest in -	Dec.	Jan., Feb., and Dec.	Summer.	Winter	Jan. and Dec.	Jan.	Winter.	Winter.	Dec.	Dec.	Winter.	Winter.	Aug., Nov., and Dec.	Feb.	Autumn.	Winter.																

(continued.)

Place . . . . .	. . . . POONA . . . .				. . . . SEROOR . . . .				. . . . BOMBAY.						
	Latitude 18° 30' N. . . . .				. . . . 18° 50' N. . . . .				. . . . 18° 53' N.							
	Longitude 74° 0' E. . . . .				. . . . 77° 25' E. . . . .				. . . . 72° 52' E.							
Height . . . . .	. . . . 1,800 feet . . . .				. . . . 1,752 feet.													
MONTH.	5 Years.		Winter, Spring, Summer, Autumn.		5 Years.		Winter, Spring, Summer, Autumn.		12 Years.		Winter, Spring, Summer, Autumn.													
	1856 to 1860.				1854 to 1858.				1847 to 1858.															
	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.												
January - - -	69	59	71	60	73	64	72	58	74	68	75	68												
February - - -	76	61	71	60	72	58	72	58	76	69	75	68												
March - - -	78	64	81	68	81	52	84	61	80	73	83	76												
April - - -	84	69	81	68	87	63	84	61	83	77	83	76												
May - - -	82	72	76	72	84	69	84	61	86	79	83	78												
June - - -	79	72	76	72	81	71	78	71	83	79	81	78												
July - - -	76	72	76	72	76	71	78	71	81	78	82	78												
August - - -	74	71	76	72	76	70	76	65	81	77	80	75												
September - - -	74	70	75	67	76	70	76	65	80	77	80	75												
October - - -	76	68	75	67	77	66	76	65	82	77	80	75												
November - - -	74	63	75	67	75	59	76	65	79	73	79	75												
December - - -	69	59	72	65	72	52	72	52	76	69	76	69												
Difference between Highest and Lowest	} 15		} 13		} 10		} 12		} 15		} 19		} 12		} 13		} 12		} 11		} 8		} 10	
Monthly Readings.	} 15		} 13		} 10		} 12		} 15		} 19		} 12		} 13		} 12		} 11		} 8		} 10	
Seasonal Readings.	} 15		} 13		} 10		} 12		} 15		} 19		} 12		} 13		} 12		} 11		} 8		} 10	
Mean for Year -	76	66	76	66	77	63	77	63	80	74	80	74												
Highest in -	April.	May, June, and July.	Spring.	Summer.	April.	June and July.	Spring.	Summer.	May.	May and June.	Spring.	Summer.												
Lowest in -	January and December.	January and December.	Winter.	Winter.	February and December.	March and December.	Winter.	Winter.	January.	January.	Winter.	Winter.												

BOMBAY PRESIDENCY. 5. Readings of the Dry and Wet Thermometers—*continued.*

Place	DHOOLIA				RAJCOTE				AHMEDNUGGER.			
	Latitude 20° 54' N.				Latitude 22° 18' N.				Latitude 23° 34' N.			
	Longitude 74° 45' E.				Longitude 70° 50' E.				Longitude 73° 1' E.			
Height	1,000 feet				450 feet				1,900 feet			
MONTH.	6 Years.		Winter, Spring, Summer, Autumn.		4 Years.		Winter, Spring, Summer, Autumn.		6 Years.		Winter, Spring, Summer, Autumn.	
	1853 to 1858.				1857 to 1860.				1854 to 1859.			
	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.
January - - -	70	63	73	63	69	55	71	56	71	60	72	60
February - - -	76	65			74	57			75	61		
March - - -	82	68			81	62			82	65		
April - - -	88	74	87	73	87	68	86	68	87	68	85	68
May - - -	91	77			91	74			87	72		
June - - -	87	79			89	78			80	72		
July - - -	82	77	83	78	85	77	85	77	77	72	78	71
August - - -	80	77			82	76			76	70		
September - - -	80	77			82	73			76	72		
October - - -	80	74	79	73	83	69	80	66	77	69	75	68
November - - -	76	67			75	57			73	64		
December - - -	72	63			71	55			70	60		
Difference between Highest and Lowest Monthly Readings.	21	16	14	15	22	23	15	21	17	12	13	11
Mean for Year -	80	72	80	72	81	66	81	66	77	67	77	67
Highest in -	May.	June.	Spring.	Summer.	May.	June.	Spring.	Summer.	April and May.	May, June, July, & Sept.	Spring.	Summer.
Lowest in -	January.	Jan. and Dec.	Winter.	Winter.	January.	Jan. and Dec.	Winter.	Winter.	Dec.	Jan. and Dec.	Winter.	Winter.

(continued.)

Place	KURRACHEE				DEESA				HYDRABAD.			
	Latitude 24° 51' N.				Latitude 25° 14' N.				Latitude 25° 30' N.			
	Longitude 77° 2' E.				Longitude 72° 5' E.				Longitude 69° 5' E.			
Height	27 feet				400 feet				99 feet			
MONTH.	5 Years.		Winter, Spring, Summer, Autumn.		3 Years.		Winter, Spring, Summer, Autumn.		2 Years.		Winter, Spring, Summer, Autumn.	
	1856 to 1860.				1857 to 1859.				1856 and 1857.			
	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.
January - - -	68	57	70	59	68	58	71	59	64	56	67	58
February - - -	71	62			75	62			71	60		
March - - -	79	68			85	67			81	67		
April - - -	84	73	83	73	92	72	90	72	87	72	86	72
May - - -	87	79			93	78			91	76		
June - - -	89	81			90	79			92	79		
July - - -	86	80	86	80	85	79	85	78	91	81	90	80
August - - -	83	78			81	77			88	80		
September - - -	83	76			82	76			85	78		
October - - -	83	73	82	71	84	72	82	71	82	73	80	71
November - - -	79	63			81	64			73	61		
December - - -	71	59			71	58			66	57		
Difference between Highest and Lowest Monthly Readings.	21	24	16	21	25	21	19	19	28	25	23	23
Mean for Year -	80	70	80	70	82	70	82	70	80	70	80	70
Highest in -	June.	June.			May.	June and July.			June.	July.		
Lowest in -	January.	January.			January.	Jan. and Dec.			January.	January.		

BOMBAY PRESIDENCY.—6. *Temperature of the Dew-Point.*

TABLE CXXIV., showing the AVERAGE TEMPERATURE of the DEW-POINT, for every MONTH and QUARTER, as well as for the periods October to March and April to September, with the Difference between the Highest and Lowest Months and Seasons, and Mean for the Year, between the Latitudes 15° 52' N. and 25° 30' N., and between the Longitudes 69° 5' E. and 77° 2' E., arranged in the order of Latitude at Stations for the most part in the Presidency of Bombay.

Place	BELGAUM			SATTARA			DAPOLEE			MAHABLESHWUR.		
	Latitude 18° 52' N.			Latitude 17° 40' N.			Latitude 17° 48' N.			Latitude 17° 59' N.		
Longitude 74° 42' E.			Longitude 74° 2' E.			Longitude 73° 16' E.			Longitude 73° 30' E.			
Height 2,260 feet			Height 2,320 feet			Height 600 feet			Height 4,500 feet.			
MONTH.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	9 Years.	Winter, Spring, Summer, Autumn.	October to March.
	1858 and 1859.		April to September.	1855 to 1859.		April to September.	1858 and 1859.		April to September.	1835 to 1843.		April to September.
January - - -	54	} 53	57	59	} 60	61	68	} 67	70	51	} 50	53
February - - -	51			61			70			47		
March - - -	58	} 61	66	61	} 62	67	74	} 77	76	49	} 54	62
April - - -	60			66			78			53		
May - - -	66	} 68	66	66	} 69	67	80	} 74	76	61	} 65	62
June - - -	68			69			70			66		
July - - -	68	} 63	66	67	} 66	67	76	} 73	73	66	} 60	62
August - - -	67			69			76			65		
September - - -	66	} 63	66	70	} 66	67	76	} 73	73	65	} 60	62
October - - -	61			66			72			63		
November - - -	61	} 63	66	62	} 66	67	72	} 73	73	64	} 60	62
December - - -	55			60			64			53		
Difference between Highest and Lowest												
Monthly Readings. } Seasonal Readings. }												
Mean for Year -												
Highest in -												
Lowest in -												

(continued.)

Place	POONA			SEROOR			BOMBAY.		
	Latitude 18° 30' N.			Latitude 18° 50' N.			Latitude 18° 53' N.		
Longitude 74° 0' E.			Longitude 77° 25' E.			Longitude 72° 52' E.			
Height 1,800 feet			Height 1,752 feet.			Height			
MONTH.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	12 Years.	Winter, Spring, Summer, Autumn.	October to March.
	1856 to 1860.		April to September.	1854 to 1858.		April to September.	1847 to 1858.		April to September.
January - - -	51	} 51	54	57	} 47	47	64	} 64	67
February - - -	50			48			64		
March - - -	54	} 59	66	32	} 46	61	68	} 72	75
April - - -	59			48			73		
May - - -	65	} 68	66	59	} 66	61	75	} 75	75
June - - -	67			64			76		
July - - -	69	} 61	66	67	} 57	61	76	} 72	75
August - - -	69			66			74		
September - - -	67	} 61	66	66	} 57	61	75	} 72	75
October - - -	62			58			74		
November - - -	55	} 61	66	48	} 57	61	67	} 72	75
December - - -	51			37			64		
Difference between Highest and Lowest									
Monthly Readings. } Seasonal Readings. }									
Mean for Year -									
Highest in -									
Lowest in -									

BOMBAY PRESIDENCY.—6. Temperature of the Dew Point—continued.

Place	DHOOLIA			RAJCOTE			AHMEDNUGGER.		
Latitude	20° 54' N.			22° 18' N.			23° 34' N.		
Longitude	74° 45' E.			70° 50' E.			73° 1' E.		
Height	1,000 feet			450 feet			1,900 feet.		
MONTH.	6 Years.	Winter, Spring, Summer, Autumn.	October to March.	4 Years.	Winter, Spring, Summer, Autumn.	October to March.	6 Years.	Winter, Spring, Summer, Autumn.	October to March.
	1853 to 1858.		April to September.	1857 to 1860.		April to September.	1854 to 1859.		April to September.
January - - -	58	57	59	44	44	47	52	52	55
February - - -	57			45			51		
March - - -	59	64	72	49	56	67	54	57	65
April - - -	65			56			56		
May - - -	68			64			62		
June - - -	74	74	72	71	72	67	67	67	63
July - - -	74			72			69		
August - - -	75	69	67	72	57	63	66	63	57
September - - -	75			67			69		
October - - -	70	69	67	60	57	63	63	63	57
November - - -	61			60			57		
December - - -	56	44	43	52	52				
Difference between Highest and Lowest	19	17	13	29	28	20	18	15	10
Monthly Readings.									
Mean for Year -	66			57			59		
Highest in -	August and September.	Summer.		July and August.	Summer.		July and September.	Summer.	
Lowest in -	December.	Winter.		December.	Winter.		February.	Winter.	

(continued)

Place	KURRACHEE			DEESA			HYDERABAD.		
Latitude	24° 51' N.			25° 14' N.			25° 30' N.		
Longitude	77° 2' E.			72° 5' E.			69° 5' E.		
Height	27 feet			400 feet			99 feet.		
MONTH.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.
	1856 to 1860.		April to September.	1857 to 1859.		April to September.	1856 and 1857.		April to September.
January - - -	48	50	55	50	50	54	49	50	54
February - - -	55			53			52		
March - - -	60	67	73	55	61	70	58	62	70
April - - -	66			60			62		
May - - -	74			69			67		
June - - -	76	76	73	72	74	63	71	74	64
July - - -	76			75			75		
August - - -	75	63	64	74	63	63	75	64	52
September - - -	71			72			73		
October - - -	66	63	64	64	63	63	67	64	50
November - - -	52			64			52		
December - - -	47	53	48	50	50				
Difference between Highest and Lowest	29	26	18	25	24	16	26	24	16
Monthly Readings.										Seasonal Readings.
Mean for Year -	64			62			62		
Highest in -	June and July.	Summer.		July.	Summer.		July and August.	Summer.	
Lowest in -	December.	Winter.		December.	Winter.		January.	Winter.	

BOMBAY PRESIDENCY.—7. Amount of Vapour in a Cubic Foot of Air.

TABLE CXXV., showing the AVERAGE AMOUNT OF VAPOUR in a CUBIC FOOT of AIR for every MONTH and QUARTER as well as for the periods October to March and April to September, with the Difference between the Hottest and Coldest Months and Seasons, and the Mean for the Year between the Latitudes 15° 52' N. and 25° 30' N., and between the Longitudes 69° 5' E. and 77° 2' E., arranged in the order of Latitude, at Stations for the most part in the Presidency of Bombay.

Place . . . . .	. . . . . BELGAUM . . . . .			. . . . . SATTARA . . . . .			. . . . . DAPOOLEE . . . . .			. . . . . MAHABLESHWUR.		
	Latitude 15° 52' N. . . . .			. . . . . 17° 40' N. . . . .			. . . . . 17° 48' N. . . . .			. . . . . 17° 59' N.		
Longitude 74° 42' E. . . . .			. . . . . 74° 2' E. . . . .			. . . . . 73° 16' E. . . . .			. . . . . 73° 30' E.			
Height 2,260 feet . . . . .			. . . . . 2320 feet . . . . .			. . . . . 600 feet . . . . .			. . . . . 4,500 feet.			
MONTH.	2 Years.		October to March.	5 Years.		October to March.	2 Years.		October to March.	9 Years.		October to March.	
	1858 and 1859.	Winter, Spring, Summer, Autumn.		1855 to 1859.	Winter, Spring, Summer, Autumn.		1858 and 1859.	Winter, Spring, Summer, Autumn.		1835 to 1843.	Winter, Spring, Summer, Autumn.		
	grs.	grs.	grs.	grs.	grs.	grs.	grs.	grs.	grs.	grs.	grs.	grs.	
January - - -	4.5	4.4	4.9	5.4	5.6	5.9	7.4	7.3	7.9	4.1	4.0	4.5	
February - - -	4.0			5.8			8.0			3.5			
March - - -	5.1	5.8	6.9	5.8	6.1	7.1	9.1	10.1	9.5	3.8	4.6	6.4	
April - - -	5.6			5.6			10.3			4.3			
May - - -	6.8	7.8	6.9	6.8	7.6	7.1	10.9	8.9	9.5	5.7	6.9	6.4	
June - - -	7.4			7.2			7.6			6.9			
July - - -	7.4	7.3	6.9	7.7	7.6	7.1	7.6	8.9	9.5	6.9	6.9	6.4	
August - - -	7.1			7.8			9.5			6.8			
September - - -	7.0	6.2	6.9	7.6	6.9	7.1	9.2	8.7	9.5	6.2	5.8	6.4	
October - - -	5.8			7.0			8.5			6.6			
November - - -	5.8	4.7	6.9	6.0	5.7	7.1	8.4	8.7	9.5	4.7	4.4	6.4	
December - - -	4.7			5.7			6.4			4.4			
Difference between Greatest and Least													
Monthly Amount.		3.4	2.9	2.0	2.4	2.0	1.2	4.5	2.8	1.6	3.4	2.9	1.9
Seasonal Amount.													
Mean for Year -													
5.9													
6.5													
8.7													
5.3													
Highest in -	June and July.	Summer.		August.	Summer.		May.	Spring.		June and July.	Summer.		
Lowest in -	February	Winter.		January.	Winter.		Dec.	Winter.		February	Winter.		

(continued.)

Place . . . . .	. . . . . POONA . . . . .			. . . . . SEROOR . . . . .			. . . . . BOMBAY.		
	Latitude 18° 30' N. . . . .			. . . . . 18° 50' N. . . . .			. . . . . 18° 53' N.		
Longitude 74° 0' E. . . . .			. . . . . 77° 25' E. . . . .			. . . . . 72° 52' E.			
Height 1,800 feet . . . . .			. . . . . 1,752 feet.						
MONTH.	5 Years.		October to March.	5 Years.		October to March.	12 Years.		October to March.	
	1856 to 1860.	Winter, Spring, Summer, Autumn.		1854 to 1858.	Winter, Spring, Summer, Autumn.		1847 to 1858.	Winter, Spring, Summer, Autumn.		
	grs.	grs.	grs.	grs.	grs.	grs.	grs.	grs.	grs.	
January - - -	4.1	4.0	4.5	5.1	3.7	3.3	6.4	6.4	7.1	
February - - -	3.9			3.6			6.4			
March - - -	4.5	5.5	6.9	1.6	3.5	6.0	7.4	8.3	9.2	
April - - -	5.3			3.6			8.6			
May - - -	6.7	7.5	6.9	5.3	6.8	6.0	9.0	9.4	9.2	
June - - -	7.2			6.4			9.7			
July - - -	7.7	6.0	6.9	7.2	5.2	6.0	9.5	8.5	9.2	
August - - -	7.6			6.8			9.1			
September - - -	7.2	6.0	6.9	6.8	5.2	6.0	9.3	8.5	9.2	
October - - -	6.1			5.3			8.9			
November - - -	4.7	4.1	6.9	3.6	2.4	6.0	7.2	6.4	9.2	
December - - -	4.1			2.4			6.4			
Difference between Greatest and Least										
Monthly Amount.		3.8	3.5	2.4	5.6	3.3	2.7	3.3	3.0	2.1
Seasonal Amount.										
Mean for Year -										
5.7										
4.8										
8.1										
Highest in -	July.	Summer.		July.	Summer.		June.	Summer.		
Lowest in -	February.	Winter.		March.	Spring.		Jan., Feb., and Dec.	Winter.		

BOMBAY PRESIDENCY.—7. Amount of Vapour in a Cubic Foot of Air—continued.

Place	DHOOLIA			RAJCOTE			AHMEDNUGGER.				
	Latitude 20° 54' N.			22° 18' N.			23° 34' N.				
Longitude			74° 45' E.			70° 50' E.			73° 1' E.		
Height			1,000 feet.			450 feet.			1900 feet.		
MONTH.	6 Years.	Winter, Spring, Summer, Autumn.	October to March.	4 Years.	Winter, Spring, Summer, Autumn.	October to March.	6 Years.	Winter, Spring, Summer, Autumn.	October to March.		
	1853 to 1858.		April to September.	1857 to 1860.		April to September.	1854 to 1859.		April to September.		
January - - - - -	grs. 5.2	} 5.1	grs. 5.7	grs. 3.2	} 3.1	grs. 3.6	grs. 4.2	} 4.2	grs. 4.7		
February - - - - -	5.1		grs. 3.2	} 4.8		grs. 4.4	} 5.0		grs. 4.7	} 7.1	grs. 6.2
March - - - - -	5.2	} 6.3	} 8.3		grs. 4.7	} 8.2		} 7.1	} 7.1		} 6.4
April - - - - -	6.5			grs. 8.0	} 5.2		grs. 6.1			} 5.2		} 6.3	} 5.1	} 4.3
May - - - - -	7.2	grs. 8.3	} 3.5	grs. 8.0		} 3.5	} 3.7	} 2.9	} 1.5		
June - - - - -	8.8	grs. 8.4		} 5.3	grs. 8.3					} 5.3	} 5.7
July - - - - -	8.9	grs. 7.1	} 1.5		grs. 8.4	} 1.5	} 1.5	} 1.5	} 1.5		
August - - - - -	9.3	grs. 5.4		} 1.5	grs. 7.1					} 1.5	} 1.5
September - - - - -	9.3	grs. 3.1	} 1.5		grs. 5.4	} 1.5	} 1.5	} 1.5	} 1.5		
October - - - - -	7.8	grs. 3.0		} 1.5	grs. 3.1					} 1.5	} 1.5
November - - - - -	5.7		} 1.5		grs. 3.0	} 1.5	} 1.5	} 1.5	} 1.5		
December - - - - -	5.0			} 1.5						} 1.5	} 1.5
Difference between Greatest and Least											
Monthly Amount. Seasonal Amount.											
Mean for Year -											
Greatest in -											
Least in -											

(continued.)

Place	KURRACHEE			DEESA			HYDERABAD.				
	Latitude 24° 51' N.			25° 14' N.			25° 30' N.				
Longitude			77° 2' E.			72° 5' E.			69° 5' E.		
Height			27 feet.			400 feet.			99 feet.		
MONTH.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.		
	1856 to 1860.		April to September.	1857 to 1859.		April to September.	1856 and 1857.		April to September.		
January - - - - -	grs. 3.7	} 4.1	grs. 5.0	grs. 4.0	} 4.0	grs. 4.5	grs. 3.9	} 4.0	grs. 4.7		
February - - - - -	4.7		grs. 4.6	} 5.8		grs. 5.1	} 5.9		grs. 5.1	} 5.9	grs. 7.9
March - - - - -	5.6	} 7.0	} 8.6		grs. 5.3	} 8.9		} 8.3	} 8.7		} 7.9
April - - - - -	6.7			grs. 7.4	} 6.3		grs. 8.3			} 6.3	
May - - - - -	8.8	grs. 9.1	} 3.2	grs. 9.2		} 3.2	} 3.2	} 3.2	} 3.2		
June - - - - -	9.4	grs. 8.4		} 3.2	grs. 9.1					} 3.2	} 3.2
July - - - - -	9.5	grs. 6.3	} 3.2		grs. 9.1	} 3.2	} 3.2	} 3.2	} 3.2		
August - - - - -	9.1	grs. 4.2		} 3.2	grs. 8.4					} 3.2	} 3.2
September - - - - -	8.2	grs. 4.2	} 3.2		grs. 6.3	} 3.2	} 3.2	} 3.2	} 3.2		
October - - - - -	6.9	grs. 3.9		} 3.2	grs. 4.2					} 3.2	} 3.2
November - - - - -	4.2		} 3.2		grs. 3.7	} 3.2	} 3.2	} 3.2	} 3.2		
December - - - - -	3.9			} 3.2						} 3.2	} 3.2
Difference between Greatest and Least											
Monthly Amount. Seasonal Amount.											
Mean for Year -											
Highest in -											
Lowest in -											

BOMBAY PRESIDENCY.—8. Amount of Vapour required for Saturation.

TABLES CXXVI., showing the AVERAGE AMOUNT OF VAPOUR required to Saturate a Cubic Foot of Air, for every MONTH and QUARTER, as well as for the Periods from October to March and April to September, with the Difference between the Greatest and Least Months and Seasons, and the Mean for the Year, between the Latitudes 15° 52' N. and 25° 30' N., and between the Longitudes 69° 5' E. and 77° 2' E., arranged in the order of Latitude, at Stations for the most part in the Presidency of Bombay.

Place	BELGAUM			SATTARA			DAPPOLEE			MAHABLESHWUR.		
	Latitude 15° 52' N.			Latitude 17° 40' N.			Latitude 17° 48' N.			Latitude 17° 59' N.		
Longitude 74° 42' E.			Longitude 74° 2' E.			Longitude 73° 16' E.			Longitude 73° 30' E.			
Height 2,260 feet			Height 2,320 feet			Height 600 feet			Height 4,500 feet			
MONTH.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	9 Years.	Winter, Spring, Summer, Autumn.	October to March.
	1858 and 1859.	April to September.	1855 to 1859.	1858 and 1859.	April to September.	1835 to 1843.	April to September.					
January - - -	grs. 4.3	grs. 4.8	grs. 4.6	grs. 2.9	grs. 3.0	grs. 3.2	grs. 2.0	grs. 2.2	grs. 2.0	grs. 3.7	grs. 3.7	grs. 3.2
February - - -	6.3	5.4	4.6	3.6	5.0	3.2	2.0	2.2	2.0	4.5	3.7	3.2
March - - -	6.2			4.5			2.2			5.6		
April - - -	6.1	2.9	4.6	6.1	1.8	2.9	2.5	2.2	2.3	6.0	5.2	2.3
May - - -	3.8			4.5			1.9			4.0		
June - - -	2.0	1.6	2.9	2.0	1.8	2.9	5.6	2.8	2.3	1.4	0.9	2.3
July - - -	1.4			2.5			1.8			0.9		
August - - -	1.4	3.0	2.9	1.0	2.3	2.9	1.1	1.4	2.3	0.5	1.6	2.3
September - - -	1.8			1.5			1.1			1.3		
October - - -	3.6	3.0	2.9	2.4	2.3	2.9	2.1	1.4	2.3	0.9	1.6	2.3
November - - -	3.6			3.1			1.0			2.6		
December - - -	3.8	2.6	2.9	2.7	2.9							
Difference between Greatest and Least Monthly Amount.	4.9	3.8	1.7	5.1	3.2	0.3	4.6	1.4	0.3	5.5	4.3	0.9
Seasonal Amount.												
Mean for Year -	3.7			3.0			2.2			2.8		
Greatest in	February	Spring.		April.	Spring.		June.	Summer.		April.	Spring.	
Least in	July and August.	Summer.		August.	Summer.		Nov.	Autumn.		August.	Summer.	

(continued.)

Place	POONA			SEROOR			BOMBAY.		
	Latitude 18° 30' N.			Latitude 18° 50' N.			Latitude 18° 53' N.		
Longitude 74° 0' E.			Longitude 77° 25' E.			Longitude 72° 52' E.			
Height 1,800 feet			Height 1,752 feet			Height			
MONTH.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	12 Years.	Winter, Spring, Summer, Autumn.	October to March.
	1856 to 1860.	April to September.	1854 to 1858.	1847 to 1858.	April to September.				
January - - -	grs. 3.7	grs. 4.4	grs. 4.5	grs. 3.7	grs. 4.9	grs. 5.8	grs. 2.7	grs. 3.1	grs. 3.2
February - - -	5.8	6.0	4.5	4.9	8.2	5.8	3.3	3.7	3.2
March - - -	5.8			9.7			3.6		
April - - -	7.1	2.3	3.5	7.7	3.4	4.5	3.4	2.1	2.6
May - - -	5.0			7.1			4.2		
June - - -	3.4	3.3	3.5	4.9	4.5	4.5	2.3	2.6	2.6
July - - -	2.0			2.5			1.8		
August - - -	1.5	3.3	3.5	2.9	4.5	4.5	2.2	2.6	2.6
September - - -	1.9			2.9			1.7		
October - - -	8.6	3.3	3.5	4.7	4.5	4.5	2.8	2.6	2.6
November - - -	4.4			5.8			3.4		
December - - -	3.7	6.1	3.3						
Difference between Greatest and Least Monthly Amount.	5.6	3.7	1.0	7.2	4.8	1.3	2.5	1.6	0.6
Seasonal Amount.									
Mean for year -	4.0			5.2			2.9		
Greatest in	April.	Spring.		March.	Spring.		May.	Spring.	
Least in	August.	Summer.		July.	Summer.		September.	Summer.	

BOMBAY PRESIDENCY.—8. Amount of Vapour required for Saturation—*continued.*

Place	DHOOLIA			RAJCOPE			AHMEDNUGUR.			
	Latitude 20° 54' N.			Latitude 22° 18' N.			Latitude 23° 34' N.			
Longitude 74° 45' E.			Longitude 70° 50' E.			Longitude 73° 1' E.				
Height 1,000 feet			Height 450 feet			Height 1,900 feet.				
MONTH.	6 Years.	Winter, Spring, Summer, Autumn.	October to March.	4 Years.	Winter, Spring, Summer, Autumn.	October to March.	6 Years.	Winter, Spring, Summer, Autumn.	October to March.	
	1853 to 1858.		April to September.	1857 to 1860.		April to September.	1854 to 1859.		April to September.	
January - - -	grs. 2·8	} 3·6	grs. 4·1	grs. 4·6	} 5·3	grs. 6·0	grs. 4·1	} 4·4	grs. 4·6	
February - - -	4·6		grs. 4·1	5·9		5·3	6·0		5·4	4·4	4·6
March - - -	6·5	} 7·4	} 4·7	7·6	} 8·6	} 6·1	7·3	} 8·0	} 4·8	
April - - -	7·5			8·9			8·6			8·9	8·0	8·0
May - - -	8·1	} 3·1	} 4·7	9·2	} 4·7	} 6·1	7·7	} 3·1	} 4·8	
June - - -	4·8			6·4			4·7			4·0	3·1	4·0
July - - -	2·8	} 3·0	} 4·7	4·5	} 5·8	} 6·1	2·5	} 3·1	} 4·8	
August - - -	1·7			3·3			5·8			2·9	3·1	2·0
September - - -	1·7	} 3·0	} 4·7	4·6	} 5·8	} 6·1	2·0	} 3·1	} 4·8	
October - - -	3·2			6·6			5·8			3·7	3·1	3·7
November - - -	4·0	} 3·0	} 4·7	6·3	} 5·8	} 6·1	3·7	} 3·1	} 4·8	
December - - -	3·5			5·3			5·8			3·7	3·7
Difference between Greatest and Least		} 6·4	} 4·4	} 0·6	} 5·9	} 3·9	} 0·1	} 6·9	} 4·9	} 4·2
Monthly Amount.	Seasonal Amount.									
Mean for Year -	4·3			6·1			4·7			
Greatest in -	May.	Spring.		May.	Spring.		April.	Spring.		
Least in -	August and September.	Autumn.		August.	Summer.		September.	Summer, Autumn.		

(continued.)

Place	KURRACHEE			DEESA			HYDERABAD.			
	Latitude 24° 51' N.			Latitude 25° 14' N.			Latitude 25° 30' N.			
Longitude 77° 2' E.			Longitude 72° 5' E.			Longitude 69° 5' E.				
Height 27 feet			Height 400 feet			Height 99 feet.				
MONTH.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	8 Years.	Winter, Spring, Summer, Autumn.	October to March.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	
	1856 to 1860.		April to September.	1857 to 1859.		April to September.	1856 and 1857.		April to September.	
January - - -	grs. 3·8	} 3·9	grs. 4·7	grs. 3·5	} 4·4	grs. 5·7	grs. 2·7	} 3·3	grs. 4·2	
February - - -	3·6		grs. 4·7	5·1		4·4	5·7		4·1	3·3	4·2
March - - -	5·0	} 5·2	} 4·1	8·2	} 9·1	} 5·8	6·2	} 7·5	} 6·5	
April - - -	6·7			10·4			9·1			7·7	7·5
May - - -	4·8	} 3·9	} 4·1	8·8	} 4·1	} 5·8	8·5	} 6·3	} 6·5	
June - - -	5·0			6·5			4·1			7·8	6·5
July - - -	3·7	} 5·1	} 4·1	3·6	} 5·5	} 5·8	6·3	} 4·4	} 6·5	
August - - -	2·9			2·2			5·5			4·9	4·4
September - - -	3·8	} 5·1	} 4·1	3·3	} 5·5	} 5·8	4·1	} 4·4	} 6·5	
October - - -	5·1			6·1			5·5			4·6	4·4
November - - -	6·4	} 5·1	} 4·1	7·1	} 5·5	} 5·8	4·6	} 4·4	} 6·5	
December - - -	4·4			4·6			5·5			3·1	4·4
Difference between Greatest and Least		} 3·5	} 1·3	} 0·6	} 8·2	} 5·0	} 0·1	} 5·8	} 4·2	} 2·3
Monthly Amount.	Seasonal Amount.									
Mean for Year -	4·5			5·8			5·4			
Greatest in -	November.	Spring.		April.	Spring.		May.	Spring.		
Least in -	August.	Summer and Winter.		August.	Summer.		January.	Winter.		

BOMBAY PRESIDENCY.—9. Degree of Humidity.

TABLE CXXVII., showing the AVERAGE DEGREE OF HUMIDITY for every MONTH and QUARTER as well as for the Periods October to March and April to September, with the Difference between the Most Humid and Driest Months and Seasons, and Mean Degree of Humidity for the Year, between the Latitudes 15° 52' N. and 25° 30' N., and between the Longitudes 69° 5' E. and 77° 2' E., arranged in the order of Latitude, at Stations for the most part in the Presidency of Bombay.

Place . . . . .	. . . . . BELGAUM . . . . .			. . . . . SATTARA . . . . .			. . . . . DAPOOLEE . . . . .			. . . . . MAHABLESHWUR.		
	Latitude 15° 52' N. . . . .			. . . . . 17° 40' N. . . . .			. . . . . 17° 48' N. . . . .			. . . . . 17° 59' N.		
Longitude 74° 42' E. . . . .			. . . . . 74° 2' E. . . . .			. . . . . 73° 16' E. . . . .			. . . . . 73° 30' E.			
Height 2,260 feet . . . . .			. . . . . 2,320 feet . . . . .			. . . . . 600 feet . . . . .			. . . . . 4,500 feet.			
MONTH.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	9 Years.	Winter, Spring, Summer, Autumn.	October to March.
	1858 and 1859.		April to September.	1855 to 1859.		April to September.	1858 and 1859.		April to September.	1835 to 1843.		April to September.
January - - -	51	} 48	52	65	} 65	65	79	} 76	79	53	} 52	58
February - - -	39			44			62			79			44
March - - -	44	} 52	73	56	} 55	72	80	} 82	81	40	} 47	74
April - - -	48			41			48			80			41
May - - -	63	} 82	73	60	} 81	72	85	} 78	81	59	} 88	74
June - - -	79			83			79			58			83
July - - -	84	} 68	73	75	} 75	72	85	} 86	81	88	} 78	74
August - - -	84			94			89			90			94
September - - -	79	} 68	73	84	} 75	72	89	} 86	81	83	} 78	74
October - - -	62			88			74			80			88
November - - -	62	} 68	73	66	} 75	72	89	} 86	81	64	} 78	74
December - - -	54			60			69			70			60
Difference between Most Humid and Least Humid Months. | Seasons.	45	34	21	41	26	7	32	10	2	54	41	16
Mean for Year -	63			69			80			66		
Most humid -	July and August.	Summer.		August.	Summer.		August.	Autumn.		August.	Summer.	
Driest - - -	February	Winter.		April.	Spring.		June.	Winter.		March.	Spring.	

(continued.)

Place . . . . .	. . . . . POONA . . . . .			. . . . . SEROOR . . . . .			. . . . . BOMBAY.		
	Latitude 18° 30' N. . . . .			. . . . . 18° 50' N. . . . .			. . . . . 18° 53' N.		
Longitude 74° 0' E. . . . .			. . . . . 77° 25' E. . . . .			. . . . . 72° 52' E.			
Height 1,800 feet . . . . .			. . . . . 1,752 feet.					
MONTH.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	12 Years.	Winter, Spring, Summer, Autumn.	October to March.
	1856 to 1860.		April to September.	1854 to 1858.		April to September.	1847 to 1858.		April to September.
January - - -	53	} 49	51	58	} 43	35	70	} 68	64
February - - -	40			42			43			67
March - - -	44	} 48	68	15	} 27	57	67	} 69	80
April - - -	43			25			72		
May - - -	57	} 77	68	43	} 67	57	68	} 82	76
June - - -	67			56			80		
July - - -	79	} 65	68	75	} 54	57	85	} 76	76
August - - -	84			71			80		
September - - -	79	} 65	68	71	} 54	57	85	} 76	76
October - - -	63			53			76		
November - - -	52	} 65	68	38	} 54	57	67	} 76	76
December - - -	53			28			67		
Difference between Most Humid and Least Humid Months. | Seasons.	44	29	17	60	40	22	18	14	16
Mean for Year -	59			48			74		
Most humid -	August.	Summer.		July.	Summer.		July and September.	Summer.	
Driest - - -	February.	Spring.		March.	Spring.		Feb., Mar., Nov. & Dec.	Winter.	

BOMBAY PRESIDENCY.—9. Degree of Humidity—*continued.*

Place		DHOOLIA			RAJCOLE			AHMEDSUGGER.		
Latitude		20° 54' N.			22° 18' N.			23° 34' N.		
Longitude		74° 45' E.			70° 50' E.			73° 1' E.		
Height		1,000 feet			450 feet			1,900 feet.		
MONTH.	6 Years.	Winter, Spring, Summer, Autumn.	October to March.	4 Years.	Winter, Spring, Summer, Autumn.	October to March.	6 Years.	Winter, Spring, Summer, Autumn.	October to March.	
	1853 to 1858.		April to September.	1857 to 1860.		April to September.	1854 to 1859.		April to September.	
January - - -	65	} 58	58	41	} 37	37	50	} 49	51	
February - - -	52			43						
March - - -	45	} 46	67	33	} 36	54	38	} 39	61	
April - - -	46			35						
May - - -	47	} 75	67	40	} 64	54	43	} 70	61	
June - - -	65			55						
July - - -	76	} 72	67	64	} 46	54	75	} 67	61	
August - - -	85			72						
September - - -	85	} 72	67	60	} 46	54	79	} 67	61	
October - - -	71			45						
November - - -	59	} 72	67	33	} 46	54	63	} 67	61	
December - - -	57			36						
Difference between Most Humid and Least Humid		} 40	27	9	39	28	17	44	31	10
Months. Seasons.										
Mean for Year -		63			46			56		
Most humid -		Aug. and September.	Summer.		August.	Summer.		September.	Summer.	
Driest - - -		March.	Spring.		March and November.	Spring.		April.	Spring.	

(continued.)

Place		KURRACHEE			DEESA			HYDERABAD.		
Latitude		24° 51' N.			25° 14' N.			25° 30' N.		
Longitude		77° 2' E.			72° 5' E.			69° 5' E.		
Height		27 feet.			400 feet.			99 feet.		
MONTH.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	
	1856 to 1860.		April to September.	1857 to 1859.		April to September.	1856 and 1857.		April to September.	
January - - -	49	} 51	50	52	} 47	43	59	} 55	53	
February - - -	57			46						
March - - -	53	} 57	67	36	} 38	59	44	} 44	55	
April - - -	54			34						
May - - -	65	} 71	67	45	} 69	59	44	} 58	55	
June - - -	65			56						
July - - -	72	} 55	67	72	} 53	59	59	} 59	55	
August - - -	76			80						
September - - -	68	} 55	67	72	} 53	59	68	} 59	55	
October - - -	57			51						
November - - -	39	} 55	67	37	} 53	59	60	} 59	55	
December - - -	47			44						
Difference between Most Humid and Least Humid		} 37	20	17	46	31	16	25	15	2
Months. Seasons.										
Mean for Year -		58			51			54		
Most humid -		August.	Summer.		August.	Summer.		September.	Autumn.	
Driest - - -		November.	Winter.		April.	Spring.		April.	Spring.	

BOMBAY PRESIDENCY.—10. Sun Temperature—continued.

Place	RAJCOTE			AHMEDNUGGUR			NEEMUCH			MOUNT ABOO					
Latitude	22° 18' N.			23° 34' N.			24° 27' N.			24° 45' N.					
Longitude	70° 50' E.			73° 1' E.			74° 54' E.			72° 49' E.					
Height	450 feet.			1,900 feet.			1,476 feet.			4,000 feet.					
MONTH.	4 Years.	Winter, Spring, Summer, Autumn.	October to March.	6 Years.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	4 Years.	Winter, Spring, Summer, Autumn.	October to March.			
	1857 to 1860.		April to September.	1854 to 1859.		April to September.	1860.		April to September.	1855 to 1858.		April to September.			
January	103	108		106	107	107	75	82		78	86	88			
February	111			110			114			84			97	86	
March	117	118		114	112		97	96		91	97	96			
April	119			109			114			97			100	96	
May	117			109	89	96	94	82		100	83	87			
June	111			94			109			82			95	87	
July	—			86	89		—	82		83	80	87			
August	—			87			89			—			83	80	
September	—			89	99		82	89		80	91	87			
October	119			103			103			89			91	87	
November	123			106			89	87		90	93				
December	110			105			105			87			93	93	
Difference between Hottest and Coldest Months.				28	23		11				22	10		1	
Mean for Year				102						89					
Highest in				March and April	Spring.					May.	Spring.				
Lowest in				July.	Summer.					January.	Winter.				

(continued)

Place	KURRACHEE			DEESA			HYDERABAD								
Latitude	24° 51' N.			25° 14' N.			25° 30' N.								
Longitude	67° 2' E.			72° 5' E.			69° 5' E.								
Height	27 feet.			400 feet.			99 feet.								
MONTH.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.						
	1856 to 1860.		April to September.	1857 to 1859.		April to September.	1856 and 1857.		April to September.						
January	91	94	99	104	107	111	—	118							
February	96			102			109			102					
March	102	102	100	118	123		115	115	107						
April	103			102			126			117					
May	102	100		127	116	119	122	108	107						
June	107			120			122			123					
July	98	104		106	117		114	104	107						
August	95			114			106			108					
September	99			114			104	103	92						
October	106			122			114			113					
November	107			116			103	92							
December	94			108			108			92					
Difference between Hottest and Coldest Months.		16		10		1		23		16		8			
Mean for Year		100		115				115							
Highest in		June.		Spring.				May.		Spring.					
Lowest in		January.		Winter.				January.		Winter.					

TABLES showing the MONTHLY, QUARTERLY, HALF YEARLY, and YEARLY MEANS, and DIFFERENCES between the HOTTEST and COLDEST MONTHS and SEASONS, of OBSERVATIONS taken for the most part in the PRESIDENCY of BENGAL, arranged in the order of LATITUDE, of the following METEOROLOGICAL ELEMENTS :—

- | | |
|---------------------------------------------------|---------------------------------------------------------|
| 1. Maximum Temperature of the Air. | 6. Temperature of the Dew Point. |
| 2. Minimum Temperature of the Air. | 7. Amount of Vapour in a Cubic Foot of Air. |
| 3. Daily Range of Temperature. | 8. Additional Weight of Vapour required for Saturation. |
| 4. Temperature of the Air. | 9. Degree of Humidity. |
| 5. Readings of the Dry and Wet Bulb Thermometers. | 10. Sun Temperature. |

BENGAL PRESIDENCY.—1. *Maximum Temperature of the Air.*

TABLE CXXIX. showing the AVERAGE MAXIMUM TEMPERATURE for every MONTH and QUARTER as well as for the Periods October to March, and April to September, with the Difference between the Hottest and Coldest Months and Seasons, and Mean Maximum Temperature for the Year, between the Latitudes 20° 15' N. and 34° 20' N., and between the Longitudes 71° 29' E. and 92° 46' E., arranged in the order of Latitude, at Stations for the most part in the Presidency of Bengal.

Place	THYET MYO			SEETABULDEE			FORT WILLIAM			BERHAMPORE.		
Latitude	20° 15' N. . . .			21° 10' N. . . .			22° 34' N. . . .			24° 5' N.		
Longitude	92° 46' E. . . .			79° 9' E. . . .			88° 25' E. . . .			88° 17' E.		
Height	240 feet			939 feet			8 feet			76 feet.		
MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March. April to September.	3 Years. 1858 to 1860.	Winter, Spring, Summer, Autumn.	October to March. April to September.	5 Years. 1855 to 1859.	Winter, Spring, Summer, Autumn.	October to March. April to September.	3 Years. 1857 to 1859.	Winter, Spring, Summer, Autumn.	October to March. April to September.
	January - - -	89	} 89	} 89	80	} 79	} 82	78	} 79	} 83	76	} 78	} 82
February - - -	95	84			83			82			83			82
March - - -	98	} 97	} 90	88	} 95	} 89	90	} 92	} 88	91	} 96	} 95
April - - -	101			97			90			97			95	90	98
May - - -	93	} 86	} 86	99	} 86	} 89	94	} 89	} 88	99	} 94	} 95
June - - -	84			86			86			90			86	91	100
July - - -	87	} 87	} 83	84	} 83	} 87	88	} 86	} 87	92	} 87	} 88
August - - -	87			87			83			87			86	90	91
September - - -	88	} 87	} 79	84	} 83	} 82	88	} 86	} 81	88	} 87	} 88
October - - -	87			87			79			87			86	88	88
November - - -	85	} 84	} 74	79	} 77	} 77	82	} 75	} 75	81	} 75	} 75
December - - -	84			84			74			77		
Difference between Hottest and Coldest Months. Hottest and Coldest Seasons.												
} 17 11 1 25 12 7 17. 13 5 25 18 13												
Mean for Year - 90 86 86 89												
Highest in April. May. May. June.												
Lowest in December. December. December. December.												

(continued.)

Place	CHUNAR			CHIRRAPOONGEE			BENARES			GHAZEEPORE.		
Latitude	25° 5' N. . . .			25° 14' N. . . .			25° 17' N. . . .			25° 49' N.		
Longitude	83° 0' E. . . .			91° 45' E. . . .			83° 4' E. . . .			80° 48' E.		
Height	250 feet			4,118 feet			270 feet . . . .			....
MONTH.	10 Years. 1850 to 1859.	Winter, Spring, Summer, Autumn.	October to March. April to September.	2 Years. 1859 and 1860.	Winter, Spring, Summer, Autumn.	October to March. April to September.	2 Years. 1858 and 1859.	Winter, Spring, Summer, Autumn.	October to March. April to September.	4 Years. 1856 to 1859.	Winter, Spring, Summer, Autumn.	October to March. April to September.
	January - - -	76	} 78	} 84	61	} 61	} 64	73	} 72	} 74	79	} 79	} 84
February - - -	82	84			65			74			84	
March - - -	93	} 98	} 97	67	} 71	} 72	78	} 88	} 89	95	} 100	} 99
April - - -	98			98			72			88			99
May - - -	102	} 98	} 97	74	} 72	} 72	98	} 87	} 89	105	} 100	} 99
June - - -	103			98			71			90			103
July - - -	96	} 90	} 70	73	} 70	} 81	87	} 80	} 81	97	} 90	} 90
August - - -	94			90			71			83			100
September - - -	93	} 85	} 64	72	} 68	} 68	86	} 74	} 74	93	} 85	} 85
October - - -	91			85			73			81			91
November - - -	85	} 77	} 58	64	} 58	} 58	74	} 74	} 74	85	} 74	} 74
December - - -	77			77			58			68		
Difference between Hottest and Coldest Months. Hottest and Coldest Seasons.												
} 27 20 13 16 11 8 30 16 15 31 21 15												
Mean for Year - 91 68 82 92												
Highest in June. May. May. May.												
Lowest in January. December. December. December.												

BENGAL PRESIDENCY.—I. Maximum Temperature of the Air—*continued.*

Place	LUCKNOW			GWALIOR			KHERWARAH			DARJEELING					
	Latitude 26° 0' N.			26° 15' N.			26° 42' N.			27° 2' N.					
Longitude 82° 0' E.			78° 0' E.			79° 12' E.			88° 18' E.						
Height 360 feet . . . . .			. . . . .			1,200 feet			7,000 feet			
MONTH.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.			
	1858 to 1860.	April to September.	1859.	1854 to 1858.	April to September.	1857 to 1859.	April to September.								
January - - -	78	74	79	79	82	88	74	77	81	50	51	53			
February - - -	78			95			94			91			99	60	
March - - -	89	96	95	102	102	103	83	98	93	57	60	64			
April - - -	98			111			110			103			93	63	
May - - -	100	94	95	112	103	87	103	88	88	65	65	61			
June - - -	98			87			99			85			88	64	
July - - -	96	84	93	87	95	87	85	85	85	65	61	57			
August - - -	88			99			92			88			81	65	
September - - -	88	78	73	93	73	74	87	74	74	61	57	52			
October - - -	86			73			73			74			74	52	
November - - -	78	34	22	16	39	21	15	29	21	12	15	14	11		
December - - -	66													73	73	74	74	52
Difference between Hottest and Coldest Months.		Hottest and Coldest Seasons.		34		22		16		39		21		15	
Mean for Year -	87			96			87			59					
Highest in -	May.			July.			May.			June, August, and September.					
Lowest in -	December.			December.			January and December.			January.					

(continued.)

Place	AGRA			MEERUT			NYNEE TAL			ROORKEE					
	Latitude 27° 11' N.			28° 59' N.			29° 20' N.			29° 53' N.					
Longitude 77° 53' E.			77° 46' E.			79° 30' E.			77° 57' E.						
Height 800 feet . . . . .			. . . . . 900 feet . . . . .			. . . . . 6,400 feet						
MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	9 Years.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.			
	1860.	April to September.	1859.	1846 to 1854.	April to September.	1860.	April to September.								
January - - -	73	104	92	72	72	77	64	65	69	98	97	97			
February - - -	82			76			76			72			78	96	
March - - -	95	94	90	92	90	94	78	78	78	98	97	97			
April - - -	109			99			99			83			81	98	
May - - -	109	94	85	103	96	94	83	74	74	96	97	97			
June - - -	112			92			92			81			77	98	
July - - -	102	81	85	99	85	94	81	74	74	94	97	97			
August - - -	92			85			85			76			76	94	
September - - -	95	69	69	90	85	94	76	74	74	94	97	97			
October - - -	90			81			81			76			76	92	
November - - -	81	34	24	17	19	13	9	9	9	9	9	9			
December - - -	69												69	69	67
Difference between Hottest and Coldest Months.		Hottest and Coldest Seasons.		34		24		17		19		13		9	
Mean for Year -	86			74			86			74					
Highest in -	May.			May.			May.			January.					
Lowest in -	December.			December.			January.			January.					

BENGAL PRESIDENCY.—1. Maximum Temperature of the Air—*continued.*

Place	UMBALLA			MEAN MEER			FEROZEPOR			PUNJAB, UMRITSR, AND GOVINDGURH.		
Latitude	30° 23' N.			30° 34' N.			30° 55' N.			31° 40' N.		
Longitude	76° 44' E.			74° 4' E.			74° 35' E.			74° 45' E.		
Height	1,050 feet			1,128 feet			720 feet			800 to 900 feet		
MONTH.	2 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	5 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	5 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	3 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.
	1851 and 1852.			1855 to 1859.			1855 to 1859.			1857 to 1859.		
January - - -	81	} 81	84	64	} 68	74	72	} 74	80	61	} 64	70
February - - -	86			72			77			66		
March - - -	84	} 98	105	80	} 90	94	89	} 96	99	76	} 83	88
April - - -	101			92			95			83		
May - - -	109	} 107	96	98	} 95	101	105	} 101	89	89	} 90	88
June - - -	113			95			106			92		
July - - -	108	} 94	91	96	} 84	96	101	} 89	86	89	} 81	88
August - - -	100			95			96			88		
September - - -	100	} 84	78	91	} 84	96	96	} 89	84	86	} 81	88
October - - -	98			84			89			84		
November - - -	84	} 76	69	78	} 73	73	81	} 73	65	72	} 65	65
December - - -	76			69			73			65		
Difference between Hottest and Coldest Months. Hottest and Coldest Seasons.												
	37	26	21	34	27	20	34	27	19	31	26	18
Mean for Year -	95			84			90			79		
Highest in -	June.			May.			June.			June.		
Lowest in -	December.			January.			January.			January.		

(continued.)

Place	SEALKOTE			JHELUM			PESHAWUR		
Latitude	32° 29' N.			32° 56' N.			34° 20' N.		
Longitude	74° 33' E.			73° 47' E.			71° 29' E.		
Height	900 feet			1,000 feet			1,056 feet		
MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March. April to September.	1 Year.	Winter, Spring, Summer, Autumn.	October to March. April to September.	6 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.
	1859.			1859.			1855 to 1860.		
January - - -	63	} 64	72	..	} 99	..	60	} 62	71
February - - -	66			..			62		
March - - -	80	} 88	93	..	} 99	..	73	} 85	96
April - - -	89			..			87		
May - - -	94	} 94	98	100	} 99	..	96	} 100	85
June - - -	98			100			102		
July - - -	93	} 84	95	98	} 99	..	100	} 85	85
August - - -	92			95			99		
September - - -	91	} 84	90	96	} 99	..	99	} 85	85
October - - -	86			90			94		
November - - -	76	} 64	..	..	} 99	..	86	} 85	85
December - - -	64			..			74		
Difference between Hottest and Coldest Months. Hottest and Coldest Seasons.									
	35	30	21	..	..	..	42	38	25
Mean for Year -	83			..			83		
Highest in -	June.			..			June.		
Lowest in -	January.			..			January.		

BENGAL PRESIDENCY.—2. *Minimum Temperature of the Air.*

TABLE CXXX., showing the AVERAGE MINIMUM TEMPERATURE of the AIR for every MONTH and QUARTER, as well as for the Periods October to March and April to September, with the Difference between the Hottest and Coldest Months and Seasons, and Mean Minimum Temperature for the Year between the Latitudes 20° 15' N. and 34° 20' N., and between the Longitudes 71° 29' E. and 92° 46' E., arranged in the order of Latitude, and for the most part in the Presidency of Bengal.

Place . . .	THRYET MYO . . .			SEETABULDEE . . .			FORT WILLIAM . . .			BERHAMPORE.			
	20° 15' N. . . .			21° 10' N. . . .			22° 34' N. . . .			24° 5' N.			
Latitude . . .	92° 46' E. . . .			79° 9' E. . . .			88° 25' E. . . .			88° 17' E.			
Longitude . . .	240 feet			939 feet . . . .			. . . . .			.76 feet.			
Height . . .	MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.
		1859.		April to September.	1858 to 1860.		April to September.	1855 to 1859.		April to September.	1857 to 1859.		April to September.
January - - -	53	} 59	64	61	} 67	71	60	} 61	68	51	} 53	58	
February - - -	62			65			66			67			68
March - - -	67	} 74		78	} 86		73	} 76		61	} 67		
April - - -	77			87			88			89			90
May - - -	78	} 77		92	} 82	84	79	} 80	79	71	} 77	74	
June - - -	75			86			87			88			89
July - - -	77	} 73		81	} 75		80	} 75		77	} 69		
August - - -	78			80			81			82			83
September - - -	78	} 73		80	} 75		80	} 75		78	} 69		
October - - -	76			77			78			79			80
November - - -	66	} 73		69	} 75		67	} 75		60	} 69		
December - - -	62			65			66			67			68
Difference between Hottest and Coldest Months.		25	18	13	31	19	13	22	19	11	27	24	16
Mean for Year -		71			78			73			67		
Highest in		May, August, and September.			May.			June.			September.		
Lowest in		January.			January.			December.			January.		

(continued.)

Place . . .	CHUNAR			BENARES			GHAZEEPORE . . .			CHIRRAPOONGEE.			
	25° 5' N. . . .			25° 17' N. . . .			25° 49' N. . . .			25° 14' N.			
Latitude . . .	83° 0' E. . . .			83° 4' E. . . .			80° 48' E. . . .			91° 45' E.			
Longitude . . .	250 feet			270 feet . . . .			. . . . .			4,118 feet.			
Height . . .	MONTH.	10 Years.	Winter, Spring, Summer, Autumn.	October to March.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	4 Years.	Winter, Spring, Summer, Autumn.	October to March.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.
		1850 to 1859.		April to September.	1858 and 1859.		April to September.	1856 to 1859.		April to September.	1859 and 1860.		April to September.
January - - -	54	} 55	60	60	} 61	66	57	} 58	63	52	} 50	53	
February - - -	57			65			66			67			68
March - - -	63	} 72		71	} 80		67	} 75		56	} 62		
April - - -	74			80			81			82			83
May - - -	80	} 79	74	88	} 83	83	82	} 82	81	66	} 67	66	
June - - -	81			85			86			87			88
July - - -	79	} 70		85	} 75		83	} 72		68	} 60		
August - - -	78			81			82			83			84
September - - -	77	} 70		80	} 75		81	} 72		67	} 60		
October - - -	72			81			82			83			84
November - - -	62	} 70		78	} 75		74	} 72		65	} 60		
December - - -	53			67			68			69			70
Difference between Hottest and Coldest Months.		28	24	14	29	22	17	27	24	18	21	17	13
Mean for Year -		69			75			72			60		
Highest in		June.			May.			July.			July.		
Lowest in		December.			December.			December.			December.		

BENGAL PRESIDENCY.—2. Minimum Temperature of the Air—continued.

Place	UMBALLA			MEAN MEER			FEROZEPORÉ			THE PUNJAB.			
	Latitude 30° 23' N.			30° 34' N.			30° 55' N.			31° 40' N.			
Longitude 76° 44' E.			74° 4' E.			74° 35' E.			74° 45' E.				
Height 1,050 feet.			1,128 feet.			720 feet.			800 to 900 feet.				
MONTH.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.	
	1851 and 1852.		April to September.	1855 to 1859.		April to September.	1855 to 1859.		April to September.	1857 to 1859.		April to September.	
January - - -	37	} 40	44	45	} 48	55	47	} 52	57	47	} 48	52	
February - - -	46			54			48			58			54
March - - -	50	} 55	69	62	} 67	75	63	} 71	78	60	} 71	83	
April - - -	54			74			66			67			71
May - - -	62	} 75	77	74	} 79	80	83	} 80	85	82	} 85	88	
June - - -	76			82			78			84			80
July - - -	74	} 53	66	78	} 66	68	80	} 68	78	85	} 66	80	
August - - -	76			74			77			78			84
September - - -	65	} 39	25	74	} 31	20	78	} 28	21	80	} 37	29	
October - - -	54			66			66			69			68
November - - -	41	} 35	37	59	} 31	37	56	} 28	21	51	} 37	29	
December - - -	37			51			51			52			52
Difference between Hottest and Coldest Months.													
Hottest and Coldest Seasons.													
Mean for Year -	56			65			68			68			
Highest in -	June and August.			June.			June.			June.			
Lowest in -	January and December.			January.			January.			December.			

(continued.)

Place	SEALKOTE			JHELUM			PESHAWUR.				
	Latitude 32° 29' N.			32° 56' N.			34° 20' N.				
Longitude 74° 33' E.			73° 47' E.			71° 29' E.					
Height 900 feet.			1,000 feet.			1,056 feet.					
MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	6 Years.	Winter, Spring, Summer, Autumn.	October to March.		
	1859.		April to September.	1859.		April to September.	1855 to 1860.		April to September.		
January - - -	51	} 52	56	..	} 79	79	44	} 47	53		
February - - -	51			..			49				
March - - -	58	} 66	76	..	} 79	79	57	} 66	75		
April - - -	67			74			73			64	
May - - -	74	} 80	74	73	} 79	79	78	} 79	80		
June - - -	81			80			79			79	
July - - -	80	} 65	73	79	} 65	65	81	} 65	65		
August - - -	78			72			74			77	
September - - -	72	} 30	20	74	} ..	..	73	} 32	22	
October - - -	64			65			73			67	
November - - -	60	} 28	20	..	} ..	..	54	} 32	22	
December - - -	54			60			..			48	
Difference between Hottest and Coldest Months.											
Hottest and Coldest Seasons.											
Mean for Year -	66			..			64				
Highest in -	June.			..			July.				
Lowest in -	January and February.			..			January.				

BENGAL PRESIDENCY.—3. *Daily Range of Temperature.*

TABLE CXXXI., showing the AVERAGE DAILY RANGE for every MONTH and QUARTER, as well as for the Periods October to March, and April to September, with the Difference between the Greatest and Least Months and Seasons, and Mean for the Year, between the Latitudes 20° 15' N. and 34° 20' N., and between the Longitudes 71° 29' E. and 92° 46' E., arranged in the order of Latitude, at Stations for the most part in the Presidency of Bengal.

Place . . .	THYET MYO . . .			SEETABULDEE . . .			FORT WILLIAM . . .			BERHAMPORE.			
	Latitude . . .	Longitude . . .	Height . . .	Latitude . . .	Longitude . . .	Height . . .	Latitude . . .	Longitude . . .	Height . . .	Latitude . . .	Longitude . . .	Height . . .	
	20° 15' N.	92° 46' E.	240 feet	21° 10' N.	79° 9' E.	939 feet	22° 34' N.	88° 25' E.		24° 5' N.	88° 17' E.	76 feet.	
MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March. April to September.	2 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	5 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	3 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	
	1859.			1858 to 1860.			1855 to 1859.			1857 to 1859.			
January - - -	86	30	25	19	12	11	18	18	16	25	24	24	
February - - -	33	23	25	9	9	11	18	16	16	28	29	24	
March - - -	31			10			17			30			
April - - -	24	9	13	19	3	5	16	9	11	29	17	20	
May - - -	15			7			15			28			
June - - -	9	13	13	4	7	7	10	11	11	23	17	20	
July - - -	10			3			8			16			
August - - -	9	13	13	3	7	7	8	11	11	13	17	20	
September - - -	10			4			8			13			
October - - -	11	13	13	8	7	7	10	11	11	18	17	20	
November - - -	19			10			15			21			
December - - -	22	13	13	9	7	7	18	11	11	20	17	20	
				9			18			20			
Difference between Greatest and Least Monthly Ranges.		27	21	12	16	9	6	10	9	5	17	12	4
Mean for Year -		19			8			13			22		
Greatest in -		January.			January.			Jan., Feb., and Dec.			March.		
Least in -		June and August.			July and August.			July, Aug., and Sept.			Aug. and Sept.		

(continued.)

Place . . .	CHUNAR . . .			BENARES . . .			GHAZEEPORE . . .			CHIRRAPOONGEE.			
	Latitude . . .	Longitude . . .	Height . . .	Latitude . . .	Longitude . . .	Height . . .	Latitude . . .	Longitude . . .	Height . . .	Latitude . . .	Longitude . . .	Height . . .	
	25° 5' N.	83° 0' E.	250 feet	25° 17' N.	83° 4' E.	270 feet	25° 49' N.	80° 48' E.		25° 14' N.	91° 45' E.	4,118 feet.	
MONTH.	10 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	2 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	4 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	2 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	
	1850 to 1859.			1858 and 1859.			1856 to 1859.			1859 and 1860.			
January - - -	22	24	24	13	10	8	22	21	22	9	12	12	
February - - -	25	25	24	9	8	8	24	24	24	15	9	12	
March - - -	30			7			28			11			
April - - -	24	18	19	8	3	5	22	18	18	8	5	6	
May - - -	22			10			23			8			
June - - -	22	19	19	5	5	5	21	17	17	5	10	6	
July - - -	17			2			14			5			
August - - -	16	19	19	3	5	5	19	17	17	4	10	6	
September - - -	16			5			12			5			
October - - -	19	19	19	3	5	5	17	17	17	8	10	6	
November - - -	23			7			23			16			
December - - -	24	19	19	9	5	5	18	17	17	11	10	6	
				9			18			11			
Difference between Greatest and Least Monthly Ranges.		14	7	5	11	7	3	16	7	4	12	7	6
Mean for Year -		22			7			20			9		
Greatest in -		March.			January.			March.			November.		
Least in -		Aug. and Sept.			July.			September.			August.		

BENGAL PRESIDENCY.—3. Daily Range of Temperature—continued.

Place	LUCKNOW			GWALIOR			KHERWARAH			DARJEELING.			
	Latitude 26° 0' N.			26° 15' N.			26° 42' N.			27° 2' N.			
Longitude 82° 0' E.			78° 0' E.			79° 12' E.			88° 18' E.				
Height 360 feet . . . . .			. . . . .			1,200 feet			7,000 feet.			
MONTH.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.	
	1858 to 1860.		April to September.	1859.		April to September.	1854 to 1858.		April to September.	1857 to 1859.		April to September.	
January - - -	25	18	17	21	29	27	21	22	23	11	12	12	
February - - -	19			12			12			12			
March - - -	20	20	14	32	32	25	24	22	14	11	10	8	
April - - -	20			10			10			10			
May - - -	19			7			7			7			
June - - -	16	13	14	30	24	25	12	10	14	6	7	8	
July - - -	16			7			7			7			
August - - -	7	12	14	9	20	25	9	19	14	7	11	11	
September - - -	6			9			9			9			
October - - -	13			11			11			11			
November - - -	16	11	11	28	23	23	27	13	13	13	13	13	
December - - -	11			13			13			13			
Difference between Greatest and Least Monthly Ranges.		19		8		3		33		12		2	
Difference between Greatest and Least Seasonal Ranges.		18		12		9		7		5		4	
Mean for Year -	16			26			18			10			
Greatest in -	January.			February.			November.			November and December.			
Least in -	September.			August.			July and August.			July.			

(continued.)

Place	AGRA			MEERUT			NYNEE TAL			ROORKEE.			
	Latitude 27° 11' N.			28° 59' N.			29° 20' N.			29° 53' N.			
Longitude 77° 53' E.			77° 46' E.			79° 30' E.			77° 57' E.				
Height 800 feet			900 feet			6,400 feet.						
MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	9 Years.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	
	1860.		April to September.	1859.		April to September.	1846 to 1854.		April to September.	1860.		April to September.	
January - - -	30	36	36	22	19	22	36	34	33	11	18	18	
February - - -	31			17			17			17			
March - - -	37	36	36	18	22	16	34	33	24	19	18	18	
April - - -	39			17			17			17			
May - - -	32			16			16			16			
June - - -	29	20	20	14	13	16	24	20	24	19	18	18	
July - - -	20			16			16			16			
August - - -	12	22	22	12	22	22	18	28	28	16	33	33	
September - - -	9			17			17			17			
October - - -	27			33			33			33			
November - - -	31	16	16	31	16	16	33	32	32	33	33	33	
December - - -	16			32			32			32			
Difference between Greatest and Least Monthly Ranges.		36		22		9		6		18		14	
Difference between Greatest and Least Seasonal Ranges.		18		14		9		9		33		33	
Mean for Year -	36			19			29			33			
Greatest in -	January.			November.			January.			January.			
Least in -	September.			September.			July and August.			July and August.			

BENGAL PRESIDENCY.—3. Daily Range of Temperature.—*continued.*

Place	UMBALLA			MEAN MEER			FEROZEPORE			THE PUNJAB.					
	Latitude 30° 23' N.			30° 34' N.			30° 55' N.			31° 40' N.					
Longitude 76° 44' E.			74° 4' E.			74° 35' E.			74° 45' E.						
Height 1,050 feet.			1,128 feet			720 feet			800 to 900 feet.						
MONTH.	2 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	5 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	5 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	3 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.			
	1851 and 1852.			1855 to 1859.			1855 to 1859.			1857 and 1859.					
January - - -	44	} 41	41	19	} 20	19	25	} 22	23	14	} 19	17			
February - - -	40			12			24			19			16	12	
March - - -	34	} 43	37	18	} 23	19	26	} 25	22	16	} 12	6			
April - - -	47			7			26			22			22	7	
May - - -	47	} 32	37	24	} 16	19	22	} 21	22	6	} 5	6			
June - - -	37			4			13			22			21	4	
July - - -	34	} 41	37	18	} 18	19	21	} 21	22	4	} 15	6			
August - - -	24			6			18			20			21	4	
September - - -	35	} 41	37	17	} 18	19	18	} 21	22	6	} 15	6			
October - - -	44			17			18			20			21	6	
November - - -	43	} 41	37	19	} 18	19	25	} 21	22	21	} 15	6			
December - - -	39			21			18			21			21	21	
Difference between															
Greatest and Least Monthly Ranges.		Greatest and Least Seasonal Ranges.		23	11	4	13	7	0	10	4	1	17	14	11
Mean for Year -		39			19			22			13				
Greatest in -		April and May.			April.			April.			November and December.				
Least in -		August.			June.			September.			July and August.				

(continued.)

Place	SEALKOTE			JHELUM			PESHAWUR.					
	Latitude 32° 29' N.			32° 56' N.			34° 20' N.					
Longitude 74° 33' E.			73° 47' E.			71° 29' E.						
Height 900 feet			1,000 feet			1,056 feet.						
MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March. April to September.	1 Year.	Winter, Spring, Summer, Autumn.	October to March. April to September.	5 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.			
	1859.			1859.			1855 to 1859.					
January - - -	12	} 12	16	—	} 19	19	16	} 15	16			
February - - -	15			—			13			—	15	
March - - -	22	} 21	17	—	} 19	19	16	} 19	21			
April - - -	22			—			23			—	18	
May - - -	20	} 15	17	—	} 19	19	18	} 21	21			
June - - -	17			—			20			—	23	
July - - -	13	} 19	17	—	} 19	19	19	} 20	21			
August - - -	14			—			19			—	19	
September - - -	19	} 19	17	—	} 19	19	22	} 20	21			
October - - -	22			—			21			—	19	
November - - -	16	} 19	17	—	} 19	19	19	} 20	21			
December - - -	10			—			17			—	20	
Difference between												
Greatest and Least Monthly Ranges.		Greatest and Least Seasonal Ranges.		12	9	1	10	6	5
Mean for Year -		17			...			19				
Greatest in -		March, April, and October.			...			April and June.				
Least in -		December.			...			February.				

BENGAL PRESIDENCY.—4. *Temperature of the Air.*

TABLE CXXXII., showing the AVERAGE TEMPERATURE of the AIR, for every MONTH and QUARTER, as well as for the Periods October to March, and April to September, with the Difference between the Hottest and Coldest Months and Seasons, and Mean Temperature for the Year, between the Latitudes 20° 18' N. and 34° 20' N., and between the Longitudes 71° 29' E. and 92° 46' E., arranged in the order of Latitude, and for the most part in the Presidency of Bengal.

Place . . .	THYET MYO . . .			SEETABULDER . . .			CALCUTTA . . .			BANCOORAH.			
	. . . 20° 18' N. . .			. . . 21° 10' N. . .			. . . 22° 34' N. . .			. . . 23° 30' N.		
Latitude . . .	. . . 92° 46' E. . .			. . . 79° 9' E. . .			. . . 88° 25' E. . .			. . . 87° 12' E.		
Longitude . . .	. . . 240 feet . . .			. . . 939 feet . . .								
Height . . .	MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.		Winter, Spring, Summer, Autumn.	October to March.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.
		1859.		April to September.	1858 to 1860.		April to September.			April to September.	1827 and 1828.		April to September.
January - - -	71	74	77	71	73	76	70	72	77	67	69	73	
February - - -	79			72			79			83			75	72	79
March - - -	82	85	84	82	90	87	83	87	86	85	84	84	
April - - -	89			88			92			88			88	87	88
May - - -	85	81	84	85	84	87	89	86	86	88	84	84	
June - - -	80			83			88			87			85	86	86
July - - -	82	80	84	83	79	83	85	83	83	83	79	84	
August - - -	82			81			81			85			85	82	82
September - - -	83	80	84	82	79	83	85	83	83	82	79	84	
October - - -	81			81			81			84			83	80	80
November - - -	75	80	84	74	79	83	-84	83	83	74	79	84	
December - - -	73			69			69			72			69
Difference between Hottest and Coldest Months.		18	11	7	26	17	11	19	15	9	21	15	11
Hottest and Coldest Seasons.													
Mean for Year -	80			82			82			79			
Hottest in -	April.			May.			May.			May.			
Coldest in -	January.			December.			January.			January.			

(continued.)

Place . . .	Dacca . . .			BERHAMPORE . . .			UTTRA MULLAY . . .			CHUNAR.			
	. . . 23° 42' N. . .			. . . 24° 5' N. . .			. . . 24° 55' N. . .			. . . 25° 5' N.		
Latitude . . .	. . . 90° 17' E. . .			. . . 88° 17' E. . .			. . . 85° 20' E. . .			. . . 83° 0' E.		
Longitude . . .	. . . 76 feet . . .			. . . 76 feet . . .			. . . 4,600 feet . . .			. . . 250 feet.		
Height . . .	MONTH.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	10 Years.	Winter, Spring, Summer, Autumn.	October to March.
		1840 and 1841.		April to September.	1857 to 1859.		April to September.	1845 and 1846.		April to September.	1850 to 1859.		April to September.
January - - -	71	..	..	64	66	70	63	64	65	65	67	72
February - - -	59?			68			68			65			65	70	78
March - - -	82	86	84	76	81	85	68	67	66	86	85	88	
April - - -	89			83			83			66			66	88
May - - -	88	84	84	85	83	85	66	65	66	91	88	88	
June - - -	87			84			84			64			65	66	82
July - - -	87	84	84	89	83	85	64	65	66	92	88	88	
August - - -	88			83			83			65			65	86
September - - -	58?	84	84	84	78	83	66	65	66	85	80	88	
October - - -	81			79			79			64			64	82
November - - -	79	84	84	70	78	83	65	65	66	74	80	88	
December - - -	70			65			65			63			63	65
Difference between Hottest and Coldest Months.		25	19	15	5	2	1	27	21	16
Hottest and Coldest Seasons.													
Mean for Year -	..			77			65			80			
Hottest in -				June.			March and April.			June.			
Coldest in -	January.			January.			January and December.			January and December.			

BENGAL PRESIDENCY.—4. Temperature of the Air—continued.

Place	CHIRRAPOONGEE			BENARES			GHAZEPORE			LUCKNOW.			
Latitude	25° 14' N.			25° 17' N.			25° 49' N.			26° 0' N.			
Longitude	91° 45' E.			83° 4' E.			80° 48' E.			82° 0' E.			
Height	4,118 feet			270 feet . . . . .			. . . . .			360 feet		
MONTH.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	4 Years.	Winter, Spring, Summer, Autumn.	October to March.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.	
	1859 and 1860.		April to September.	1858 and 1859.		April to September.	1856 to 1859.		April to September.	1858 to 1860.		April to September.	
January - - -	57	} 56	59	66	} 66	70	68	} 68	74	66	} 65	70	
February - - -	60			69			72			68			
March - - -	62	} 67	69	75	} 84	86	82	} 88	90	79	} 86	88	
April - - -	68			84			88			88			
May - - -	70	} 70	89	93	} 85	86	94	} 90	90	91	} 87	88	
June - - -	70			88			92			90			
July - - -	70	} 65	89	86	} 77	86	90	} 81	81	88	} 78	84	
August - - -	69			82			89			89			
September - - -	70	} 57	89	83	} 77	86	87	} 81	81	85	} 78	84	
October - - -	68			79			82			87			
November - - -	57	} 52	89	70	} 77	86	74	} 81	81	79	} 78	84	
December - - -	52			64			65			65			
Difference between Hottest and Coldest Months.		} 18	14	10	} 29	19	16	} 29	22	16	} 31	22	18
Hottest and Coldest Seasons.													
Mean for Year -	64			78			82			79			
Hottest in -	May, June, July and September.			May.			May.			May.			
Coldest in -	December.			December.			December.			December.			

(continued.)

Place	MOZUFFERPUR			GWALIOR			NASIRABAD			CAWNPORE.			
Latitude	26° 7' N.			26° 15' N.			26° 18' N.			26° 29' N.			
Longitude	83° 24' E.			78° 0' E.			74° 45' E.			80° 22' E.			
Height . . . . .	. . . . .			. . . . .			. . . . .			500 feet		
MONTH.	4 Years.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	
	1833 to 1836.		April to September.	1859.		April to September.	1832 to 1834.		April to September.	1834 and 1835.		April to September.	
January - - -	57	} 61	67	69	} 68	74	62	} 62	69	64	} 67	71	
February - - -	65			74			65			70			
March - - -	74	} 81	84	78	} 87	91	75	} 84	88	72	} ...	89?	
April - - -	82			87			83			89?			
May - - -	87	} 84	84	95	} 91	91	95	} 89	88	97	} 88	87	
June - - -	86			95			94			97			
July - - -	84	} 76	84	95	} 85	86	88	} 81	81	87	} 80	87	
August - - -	83			83			85			85			
September - - -	83	} 68	84	92	} 85	86	87	} 81	81	85	} 80	87	
October - - -	78			85			82			87			
November - - -	68	} 60	84	78	} 85	86	73	} 81	81	79	} 80	87	
December - - -	60			62			59			59			
Difference between Hottest and Coldest Months.		} 30	23	17	} 33	23	17	} 36	27	19	} 33
Hottest and Coldest Seasons.													
Mean for Year -	76			83			79			97			
Hottest in -	May.			May, June, and July.			May.			May.			
Coldest in -	January.			December.			December.			December.			

BENGAL PRESIDENCY.—4. Temperature of the Air—*continued.*

Place	KHERWARAH			FUTTYGHUR			DARJEELING			AGRA.		
Latitude	26° 42' N.			27° 2' N.			27° 2' N.			27° 11' N.		
Longitude	79° 12' E.			79° 30' E.			88° 18' E.			77° 53' E.		
Height	1,200 feet.			600 feet.			7,000 feet.			800 feet.		
MONTH.	5 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	2 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	3 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	1 Year.	Winter, Spring, Summer, Autumn.	October to March. April to September.
	1854 to 1858.			1832 and 1833.			1857 to 1859.			1860.		
January	64	66	70	57	59	66	45	44	48	67	89	
February	71			63			43			69		
March	79	87		74	83		52	55		81		
April	89			85			56			91		
May	94	83	86	90	89	88	58	61	59	95		
June	88			95			61			97		
July	82	75		87	76		61	56		90		
August	80			85			61			90		
September	81	75		84	76		61	56		90		
October	77			75			56			90		
November	68	75		69	76		51	56		90		
December	64			69			45			90		
Difference between Hottest and Coldest Months. Hottest and Coldest Seasons.												
	30	21	16	38	30	22	18	17	11	..	..	..
Mean for Year	78			77			54			A		
Hottest in	May.			June.			June, July, August, and September.			—		
Coldest in	January and December.			January.			June, July, August, and September. February.			—		

(continued.)

Place	SURROWLI.			MEERUT			NYNNE TAL			LOHOGAR.		
Latitude	28° 50' N.			28° 59' N.			29° 20' N.			29° 23' N.		
Longitude	77° 20' E.			77° 46' E.			79° 30' E.			82° 16' E.		
Height				900 feet.			6,400 feet.			....	
MONTH.	5 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	1 Year.	Winter, Spring, Summer, Autumn.	October to March. April to September.	9 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	6 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.
	1837 to 1841.			1859.			1846 to 1854.			1830 to 1835.		
January	51	53	62	61	63	67	46	48	52	45	46	51
February	57			65			48			46		
March	66	74		70	81		55	52		52	60	
April	76			83			62			61		
May	81	85	81	90	88	86	68	68	66	66	71	68
June	86			92			69			71		
July	85	74		88	75		67	60		71	61	
August	83			84			68			71		
September	78	74		82	75		65	60		69	61	
October	71			76			61			63		
November	74	74		68	75		55	60		52	61	
December	51			62			51			47		
Difference between Hottest and Coldest Months. Hottest and Coldest Seasons.												
	35	32	19	31	25	19	23	20	14	26	25	17
Mean for Year	73			77			60			60		
Hottest in	June.			June.			June.			June, July, and August.		
Coldest in	January and December.			January.			January.			January.		

BENGAL PRESIDENCY.—4. Temperature of the Air—continued.

Place	ROORKEE			KULSEA			UMBALLA			
	Latitude 29° 53' N.			30° 0' N.			30° 23' N.			
Longitude 77° 57' E.			77° 30' E.			76° 44' E.				
Height			1,100 feet			1,050 feet				
MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	
	1860.		April to September.	1837 and 1838.		April to September.	1851 and 1852.		April to September.	
January - - -	—	} 88	—	58	} 60	—	60	} 64	—	
February - - -	—		61	62						
March - - -	—		63	} 74	77*	} 80	83	} 80	68	
April - - -	84		78							
May - - -	88		81	} 82	89	} 80	97	} 93	90	
June - - -	89		86							
July - - -	90		84	} 70	91	} 81	91			
August - - -	86		75							
September - - -	86		77	84	92	81				
October - - -	76		71	84	84	81				
November - - -	—		63	67	67	81				
December - - -	—		60	62	62	81				
Difference between Hottest and Coldest Months.		Hottest and Coldest Seasons.		28	22	18	37	28	22	
Mean for Year -		...			71			79		
Hottest in -		...			June.			June.		
Coldest in -		...			January.			January.		

(continued.)

Place	MEAN MEER			FEROZEPORE			THE PUNJAB			
	Latitude 30° 34' N.			30° 55' N.			31° 40' N.			
Longitude 74° 4' E.			74° 35' E.			74° 45' E.				
Height 1,128 feet			720 feet			800 to 900 feet				
MONTH.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.	
	1855 to 1859.		April to September.	1855 to 1859.		April to September.	1857 to 1859.		April to September.	
January - - -	55	} 79	—	59	} 62	—	54	} 56	—	
February - - -	60		65	68		68	62		60	62
March - - -	71		} 84	} 84	76	} 88	68	} 87	84	
April - - -	79									
May - - -	86		94	} 90	86	} 78	86	} 73	84	
June - - -	86		95							
July - - -	87		86	} 78	90	} 73	87			
August - - -	86		86							
September - - -	82		75	86	86	73				
October - - -	75		75	79	76	73				
November - - -	69		68	68	61	73				
December - - -	60		58	58	55	73				
Difference between Hottest and Coldest Months.		Hottest and Coldest Seasons.		32	28	19	37	28	20	
Mean for Year -		75			78			73		
Hottest in -		July.			June.			June.		
Coldest in -		January.			December.			January.		

* Reading in March altered conjecturally from 67° to 77°.

Bengal Presidency.—Temperature of the Air—continued.

Place	JHELUM			PESHAWUR			BENARES.			
Latitude	32° 56' N.			34° 20' N.			25° 17' N.			
Longitude	73° 47' E.			71° 29' E.			83° 4' E.			
Height	1,000 feet			1,056 feet.			270 feet.			
MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	6 Years. 1855 to 1860.	Winter, Spring, Summer, Autumn.	October to March.	3 Years. 1824 to 1826.	Winter, Spring, Summer, Autumn.	October to March.	
	1859.		April to September.			April to September.			April to September.	April to September.
January - - -	—	} 89	—	52	} 54	—	—	} 65	—	
February - - -	—		55	61		63				
March - - -	—		65	} 76		69	} 88		71	
April - - -	—		75			86			79	} 89
May - - -	86		88	} 90		90	} 87		} 80	
June - - -	91		91			86				
July - - -	89		88	} 74		86	} 80			
August - - -	88		84			86				
September - - -	84		73	85						
October - - -	81		64	82						
November - - -	—		56	72						
December - - -	—		—	63						
Difference between Hottest and Coldest Months.		...	...	39	36	25	32	23	18
Hottest and Coldest Seasons.		...	...	74			80		
Mean for Year -		...			74			80		
Hottest - - -		...			June and July.			May.		
Coldest - - -		...			January.			January and December.		

(continued.)

Place	KHATMANDU			BAREILLY			KOTGURH.			
Latitude	27° 42' N.			28° 0' N.			31° 0' N.			
Longitude	87° 40' E.			79° 0' E.			77° 0' E.			
Height	4,650 feet.			. . . . .			6,634 feet.		
MONTH.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	2 Years. 1829 and 1830.	Winter, Spring, Summer, Autumn.	October to March.	3 Years. 1819 to 1821.	Winter, Spring, Summer, Autumn.	October to March.	
	1802 to 1835.		April to September.			April to September.			April to September.	April to September.
January - - -	48	} 49	—	57	} 60	—	—	} 70	—	
February - - -	52		54	60		40				
March - - -	58		} 66	} 72		64	} 85		45	} 70
April - - -	67					72			80	
May - - -	72		} 75	} 72		86	} 87		68	} 57
June - - -	74					83			85	
July - - -	76		} 64	} 75		91	} 75		72	} 57
August - - -	74					87			87	
September - - -	72		84	87		68				
October - - -	65		81	75		72				
November - - -	55		77	75		67				
December - - -	46		67	75		51				
December - - -	46	58	75	—						
Difference between Hottest and Coldest Months.		30	26	18	34	27	19			
Hottest and Coldest Seasons.		63			76					
Mean for Year -		63			76					
Hottest - - -		July.			June.					
Coldest - - -		December.			January.					

BENGAL PRESIDENCY.—5. Readings of Dry and Wet Bulb Thermometers.

TABLE CXXXIII., showing the AVERAGE READINGS of the DRY and WET BULB THERMOMETERS for every MONTH and QUARTER as well as for the periods October to March and April to September, with the Difference between the Highest and Lowest Months and Seasons, and Mean for the Year between the Latitudes 20° 18' N. and 34° 20' N., and between Longitudes 71° 29' E. and 92° 46' E., arranged in the order of Latitude and for the most part in the Presidency of Bengal.

Place	THYET MYO						CALCUTTA						FORT WILLIAM.					
	Latitude 20° 18' N.						22° 34' N.						22° 34' N.					
	Longitude 92° 46' E.						88° 25' E.						88° 25' E.					
	Height 240 feet																	
MONTH.	1 Year.		Winter, Spring, Summer, Autumn.		October to March.		2 Years.		Winter, Spring, Summer, Autumn.		October to March.		5 Years.		Winter, Spring, Summer, Autumn.		October to March.	
	1859.				April to September.		1843 and 1844.				April to September.		1855 to 1859.				April to September.	
	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.
January - - -	71	57	} 74	61	77	65	75	69	} 77	70	80	75	68	62	} 70	63	74	68
February - - -	79	60					80	72					87	80					73	66
March - - -	82	60	} 85	66			87	80	} 89	83			80	73	} 83	77		
April - - -	89	64					91	84					81	84					84	77
May - - -	85	75	} 81	76	84	72	90	85	} 87	84	88	84	86	80	} 84	80		79
June - - -	80	72					89	85					86	83					83	80
July - - -	82	78	} 80	75			86	83	} 84	81			83	80	} 79	75		
August - - -	82	77					85	83					85	80					80
September - - -	83	78	} 81	75			86	84	} 84	81			83	80	} 79	75		
October - - -	81	77					85	81					81	77					77	80
November - - -	75	69	} 73	66			81	77	} 74	68			74	68	} 69	62		
December - - -	73	66					75	70					74	69					62
Difference between Highest and Lowest																		
Monthly Readings of the Dry.	18	21	11	15	7	7	16	16	12	14	8	9	18	19	14	17	10	11
Seasonal Readings of the Dry.																		
Wet.																		
Mean for the Year -	80	69	80	69	80	69	84	79	84	79	84	79	79	74	79	74	79	74
Highest in -	Dry. April.		Wet. July and September.		April.		May and June.		May.		June.							
Lowest in -	January.		January.		January and December.		January.		January.		January and December.							

(continued.)

Place	HAZAREEBAUGH						BENARES						KHERWARAH.					
	Latitude 24° 0' N.						25° 17' N.						26° 42' N.					
	Longitude 85° 24' E.						83° 4' E.						79° 12' E.					
	Height 1,900 feet						270 feet.						1,200 feet.					
MONTH.	3 Years.		Winter, Spring, Summer, Autumn.		October to March.		2 Years.		Winter, Spring, Summer, Autumn.		October to March.		5 Years.		Winter, Spring, Summer, Autumn.		October to March.	
	1858 to 1860.				April to September.		1858 and 1859.				April to September.		1854 to 1858.				April to September.	
	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.
January - - -	68	57	} 68	59	70	61	66	56	} 66	58	72	64	64	58	} 66	59	72	62
February - - -	71	61					69	60					84	68					79	67
March - - -	73	62	} 78	68			91	72	} 88	73			89	71	} 87	71		
April - - -	80	68					90	79					94	74					89	74
May - - -	81	76	} 84	75	82	74	91	83	} 87	83	88	80	88	75	} 83	76		74
June - - -	86	74					86	85					82	74					82	74
July - - -	87	76	} 75	67			85	82	} 79	75			81	75	} 75	69		
August - - -	80	76					79	77					77	70					70
September - - -	80	75	} 65	60			73	66	} 68	62			68	62	} 64	57		
October - - -	75	67					63	58					64	57				
November - - -	69	58	} 22	19	16	16	28	29	} 23	25	16	16	30	21	} 21	17	14	12
December - - -	65	60					63	58					64	57				
Difference between Highest and Lowest																		
Monthly Readings of the Dry.	22	19	16	16	12	13	28	29	23	25	16	16	30	21	21	17	14	12
Seasonal Readings of the Dry.																		
Wet.																		
Mean for the Year -	71	67	71	67	71	67	80	72	80	72	80	72	78	69	78	69	78	69
Highest in -	July.		May, July, and August.		April and June.		July.		May.		August.							
Lowest in -	December.		January.		December.		January.		January and December.		December.							

BENGAL PRESIDENCY.—5. Readings of Dry and Wet Thermometers—continued.

Place	DARJEELING						AGRA						MEERUT.					
	Latitude 27° 2' N.						27° 11' N.						28° 59' N.					
	Longitude 88° 10' E.						77° 53' E.						77° 46' E.					
	Height 7,000 feet						800 feet						900 feet.					
MONTH.	3 Years.		Winter, Spring, Summer, Autumn.		October to March.		1 Year.		Winter, Spring, Summer, Autumn.		October to March.		1 Year.		Winter, Spring, Summer, Autumn.		October to March.	
	1857 to 1859.				April to September.		1860.				April to September.		1859.				April to September.	
	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.
January	44	41	44	42	48	46	66	54	92	64	61	57	62	57	67	62	62	
February	45	43	44	42	48	46	72	60			65	60	62	57	67	62		
March	51	48	54	52			85	61			70	64	81	70				
April	54	51	54	52			94	64			83	67	81	70				
May	58	56	62	61	59	58	97	68			90	78	88	80	86	79		
June	61	60	62	61			96	71			92	82	88	80				
July	62	61	62	61			89	77			88	83	88	80				
August	62	61									84	76						
September	60	59									82	78						
October	57	53	56	53							76	73	75	72				
November	51	47									68	64						
December	44	42									61	54						
Difference between Highest and Lowest																		
Monthly Readings of the Dry. | Wet. | Seasonal Readings of the Dry. | Wet.																		
	18	20	18	19	11	12	31	29	26	23	19	17
Mean for the Year	54	52	54	52	54	52	76	69	76	69	76	69
Highest in	July and August.		July and August.			June.		July.		..	
Lowest in	January and December.		January.			January and December.		December.		..	

(continued.)

Place	LANDOUR						PESHAWUR.					
	Latitude 30° 27' N.						34° 20' N.					
	Longitude 78° 10' E.						71° 29' E.					
	Height 7,000 feet						1,056 feet.					
MONTH.	4 Years.		Winter, Spring, Summer, Autumn.		October to March.		3 Years.		Winter, Spring, Summer, Autumn.		October to March.	
	—				April to September.		1858 to 1860.				April to September.	
	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.
January	44	36	44	37	49	41	49	44	50	45	58	51
February	43	38	44	37	49	41	53	48	50	45	58	51
March	57	46	64	53			63	59	74	67		
April	65	52	64	53			75	70	74	67		
May	71	61	70	65	69	61	84	71	91	80	85	74
June	73	64	70	65			91	79	91	80		
July	70	66	70	65			92	81	91	80		
August	68	66	57	52			89	80	73	63		
September	66	62					86	73	73	63		
October	57	51					72	63				
November	49	42					60	52				
December	44	37					49	44				
Difference between Highest and Lowest												
Monthly Readings of the Dry. | Wet. | Seasonal Readings of the Dry. | Wet.												
	30	30	26	28	20	20	43	37	41	35	27	23
Mean for the Year	59	52	59	52	59	52	72	64	72	64	72	64
Highest in	June.		July and August.		..		..		July.		..	
Lowest in	February.		January.		..		..		January and December.		January and December.	

BENGAL PRESIDENCY.—6. *Temperature of the Dew Point.*

TABLE CXXXIV., showing the AVERAGE TEMPERATURE of the DEW POINT, for every MONTH and QUARTER, as well as for the Periods October to March, and April to September, with the Difference between the Highest and Lowest Months and Seasons, and the Mean for the Year between the Latitudes 20° 18' N. and 34° 20' N., and between the Longitudes 71° 29' E., and 92° 46' E., arranged in the order of Latitude at Stations for the most part in the Presidency of Bengal.

Place . . . . .	. . . THYET MYO . . .			. . . CALCUTTA . . .			. . . FORT WILLIAM . . .			. . . HAZAREEBAUGH.		
	. . . 20° 18' N. . .			. . . 22° 34' N. . .			. . . 22° 34' N. . .			. . . 24° 0' N.		
Latitude . . . . .	. . . 92° 46' E. . .			. . . 88° 25' E. . .			. . . 88° 25' E. . .			. . . 85° 24' E.		
Longitude . . . . .	. . . 240 feet . . .			. . . . .			. . . . .			. . . 1,900 feet.		
Height	MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	5 Years.	Winter, Spring, Summer, Autumn.	October, to March.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.
		1859.	April to September.	1843 and 1844.	April to September.	1855 to 1859.	April to September.	1858 to 1860.	April to September.				
January - - -	46	51	56	65	66	71	57	58	60	48	52	55	
February - - -	47	54	68	67	79	82	61	72	76	53	62	69	
March - - -	45			68			76			80			76	68	72	66	54
April - - -	48	72	78	82	82	82	72	78	76	60	61	61	
May - - -	69			78			83			76			78	73	66	69	73
June - - -	67	71	78	83	78	78	78	72	76	72	61	61	
July - - -	75			78			82			78			78	69	73	72	61
August - - -	74	71	78	83	78	78	78	72	76	72	61	61	
September - - -	75			78			83			78			78	72	61	61
October - - -	74	71	78	78	78	78	74	72	76	61	61	61	
November - - -	65			74			74			64			64	49	56	56
December - - -	61	71	78	66	78	78	57	72	76	56	61	61	
				66			66			57			57	56	56
Difference between Highest and Lowest Monthly Readings.	30	21	12	28	16	11	21	20	16	25	17	14	
Seasonal Readings.													
Mean for Year -	62			76			70			61			
Highest in -	July and September.			June and September.			June, July, Aug., and Sept.			May and August.			
Lowest in -	March.			January.			January and December.			January.			

(continued.)

Place . . . . .	. . . BENARES . . .			. . . KHERWARAH . . .			. . . DARJEELING . . .			. . . AGRA.		
	. . . 25° 17' N. . .			. . . 26° 42' N. . .			. . . 27° 2' N. . .			. . . 27° 11' N.		
Latitude . . . . .	. . . 83° 4' E. . .			. . . 79° 12' E. . .			. . . 88° 10' E. . .			. . . 77° 53' E.		
Longitude . . . . .	. . . 270 feet . . .			. . . 1,200 feet . . .			. . . 7,000 feet . . .			. . . 800 feet.		
Height	MONTH.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.
		1858 and 1859.	April to September.	1854 to 1858.	April to September.	1857 to 1859.	April to September.	1860.	April to September.				
January - - -	48	52	58	53	53	57	38	40	43	44			
February - - -	53	63	76	55	60	68	41	49	55	51	69	69	
March - - -	57			63			59			60			45	48	55	69
April - - -	60	81	76	60	71	68	48	60	55	..	69	69	
May - - -	72			76			62			67			54	59	60	60
June - - -	78	72	78	67	64	68	59	50	55	..	69	69	
July - - -	84			78			69			71			60	60	58	58
August - - -	80	72	78	77	64	68	60	50	55	..	69	69	
September - - -	80			78			71			71			58
October - - -	76	72	78	65	64	68	49	50	55	..	69	69	
November - - -	61			78			57			64			43	43	50	50
December - - -	54	72	78	51	64	68	40	50	55	..	69	69	
				54			51			40			40	50	50
Difference between Highest and Lowest Monthly Readings.	36	29	18	26	18	11	22	20	12	..	..	..
Seasonal Readings.													
Mean for Year -	67			62			49			..			
Highest in -	July.			August.			July and August.			..			
Lowest in -	January.			December.			January.			..			

BENGAL PRESIDENCY.—6. Temperature of the Dew Point—continued.

Place	MEERUT			LANDOUR			PESHAWUR.			
	Latitude 28° 59' N.			30° 20' N.			34° 20' N.			
Longitude 77° 56' E.			78° 10' E.			71° 29' E.				
Height 900 feet.			7,000 feet.			1,056 feet.				
MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	4 Years.	Winter, Spring, Summer, Autumn.	October to March.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.	
	1859.		April to September.			April to September.	1858 to 1860.		April to September.	
January	54	53	58	27	29	34	39	40	46	
February	56									
March	59	62	71	36	43	54	56	61	69	
April	56									
May	71									
June	76	76		57	61		72	73		
July	80									
August	71	69		64	46		74	55		
September	75									
October	71	61		59			65			
November	61									
December	48			29			39			
Difference between Highest and Lowest		32	23	13	37	32	20	35	33	23
Monthly Readings.	Seasonal Readings.									
Mean for Year	65			44			57			
Highest in	July.			August.			July and August.			
Lowest in	December.			January.			January and December.			

BENGAL PRESIDENCY.—7. Amount of Vapour in a Cubic Foot of Air.

TABLE CXXXV., showing the AVERAGE AMOUNT OF VAPOUR in a CUBIC FOOT of AIR, for every MONTH and QUARTER, as well as for the Periods from October to March, and April to September, with the Difference between the Greatest and Least Months and Seasons, and Mean for the Year, between the Latitudes 20° 18' N. and 34° 30' N., and between the Longitudes 71° 29' E. and 92° 46' E., arranged in the order of Latitude, at Stations for the most part in the Presidency of Bengal.

Place	THYET MYO			CALCUTTA			FORT WILLIAM			HAZAREEBAUGH.			
	Latitude 20° 18' N.			22° 34' N.			22° 34' N.			24° 0' N.			
Longitude 92° 46' E.			88° 25' E.			88° 25' E.			85° 24' E.				
Height 240 feet.									1,900 feet.				
MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	6 Years.	Winter, Spring, Summer, Autumn.	October to March.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.	
	1859.		April to September.	1843 and 1844.		April to September.	1854 to 1859.		April to September.	1858 to 1860.		April to September.	
January	3.4	4.2	5.3	6.6	6.9	8.2	5.2	5.3	6.5	3.7	4.3	4.5	
February	3.5												
March	3.2	5.3	7.5	9.3	10.4	11.4	7.4	8.5	9.8	4.5	6.2	7.5	
April	3.5												
May	7.4												
June	7.0	8.4		11.7	11.5		10.3	10.2	9.8	6.8	7.7		
July	9.4												
August	8.9	8.3		11.5	10.4		10.2	8.6		8.8	6.0		
September	9.1												
October	9.1	6.6		10.3	9.1		9.1	8.6		5.8			
November	6.6												
December	5.8			7.0			5.0			4.9			
Difference between Highest and Lowest		7.2	4.2	3.2	5.2	4.6	3.2	5.3	4.9	3.3	5.1	3.4	3.0
Monthly Amount.	Seasonal Amount.												
Mean for Year	6.5			9.8			8.1			6.0			
Greatest in	July.			September.			June.			August.			
Least in	March.			January.			December.			January.			

BENGAL PRESIDENCY.—7. Amount of Vapour in a Cubic Foot of Air—*continued.*

Place . . . . .	. . . . . BENARES . . . . .			. . . . . KHERWARAH . . . . .			. . . . . DABJEEING . . . . .			. . . . . AGRA.		
Latitude . . . . .	. . . . . 25° 17' N. . . . .			. . . . . 26° 42' N. . . . .			. . . . . 27° 2' N. . . . .			. . . . . 27° 11' N.		
Longitude . . . . .	. . . . . 83° 4' E. . . . .			. . . . . 79° 12' E. . . . .			. . . . . 88° 10' E. . . . .			. . . . . 77° 53' E.		
Height . . . . .	. . . . . 270 feet . . . . .			. . . . . 1,200 feet . . . . .			. . . . . 7,000 feet . . . . .			. . . . . 800 feet.		
MONTH.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.
	1858 and 1859.		April to September.	1854 to 1858.		April to September.	1857 to 1859.		April to September.	1860.		April to September.
January - - -	grs. 3·7	} 4·2	grs. 5·5	grs. 4·5	} 4·5	grs. 5·1	grs. 2·6	} 2·8	grs. 3·1	grs. 3·2	} ..	grs. ..
February - - -	4·4			grs. 4·7			grs. 2·9			grs. 4·1		
March - - -	5·0	} 6·3	grs. 9·7	grs. 5·3	} 5·5	grs. 7·2	grs. 3·4	} 4·0	grs. 5·2	grs. ..	} ..	grs. ..
April - - -	5·5			grs. 5·4			grs. 3·8			grs. ..		
May - - -	8·3	} 11·2	grs. 8·1	grs. 5·7	} 8·1	grs. 5·7	grs. 4·7	} 5·7	grs. 7·5	grs. ..	} ..	grs. ..
June - - -	10·1			grs. 6·9			grs. 5·6			grs. ..		
July - - -	12·5	} 8·7	grs. 6·7	grs. 7·5	} 6·7	grs. 4·1	grs. 5·8	} 4·1	grs. ..	grs. ..	} ..	grs. ..
August - - -	10·9			grs. 9·8			grs. 5·8			grs. ..		
September - - -	10·9	} ..	grs. 4·2	grs. 8·1	} ..	grs. 2·8	grs. 5·4	} ..	grs. ..	grs. ..	} ..	grs. ..
October - - -	9·5			grs. 6·7			grs. 3·9			grs. ..		
November - - -	5·8	} ..	grs. ..	grs. 5·2	} ..	grs. ..	grs. 3·1	} ..	grs. ..	grs. ..	} ..	grs. ..
December - - -	4·6			grs. 4·2			grs. 2·8			grs. ..		
Difference between Highest and Lowest												
Monthly Amount.	8·8	7·0	4·2	5·6	3·6	2·1	3·2	2·9	2·1	..	..	..
Seasonal Amount.	7·6			5·9			4·1			..		
Mean for Year -	7·6			5·9			4·1			..		
Greatest in -	July.			August.			July and August.			..		
Least in -	January.			December.			January.			..		

(continued)

Place . . . . .	. . . . . MEERUT . . . . .			. . . . . LANDOUR . . . . .			. . . . . PESHAWUR.		
Latitude . . . . .	. . . . . 28° 59' N. . . . .			. . . . . 30° 27' N. . . . .			. . . . . 34° 20' N.		
Longitude . . . . .	. . . . . 77° 46' E. . . . .			. . . . . 78° 10' E. . . . .			. . . . . 71° 29' E.		
Height . . . . .	. . . . . 900 feet . . . . .			. . . . . 7,000 feet . . . . .			. . . . . 1,056 feet.		
MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	4 Years.	Winter, Spring, Summer, Autumn.	October to March.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.
	1859.		April to September.			April to September.	1858 to 1860.		April to September.
January - - -	grs. 4·6	} 4·4	grs. 5·4	grs. 1·7	} 1·9	grs. 2·3	grs. 2·7	} 3·8	grs. 3·6
February - - -	4·9			grs. 2·1			grs. 3·1		
March - - -	5·5	} 6·0	grs. 8·2	grs. 2·4	} 3·2	grs. 5·1	grs. 4·9	} 6·0	grs. 7·5
April - - -	4·8			grs. 2·9			grs. 6·0		
May - - -	7·8	} 9·4	grs. 6·3	grs. 4·4	} 6·0	grs. 3·7	grs. 6·0	} 8·6	grs. 4·9
June - - -	9·3			grs. 5·1			grs. 8·8		
July - - -	10·8	} 7·8	grs. 1·8	grs. 6·3	} 3·7	grs. ..	grs. 8·8	} 4·9	grs. ..
August - - -	8·0			grs. 6·6			grs. 8·9		
September - - -	9·4	} ..	grs. ..	grs. 5·5	} ..	grs. ..	grs. 6·4	} ..	grs. ..
October - - -	8·2			grs. 3·4			grs. 5·0		
November - - -	5·8	} ..	grs. ..	grs. 2·3	} ..	grs. ..	grs. 3·3	} ..	grs. ..
December - - -	3·7			grs. 1·8			grs. 2·7		
Difference between Highest and Lowest									
Monthly Amount.	7·1	5·0	2·8	4·9	4·1	2·8	6·2	5·8	3·9
Seasonal Amount.	6·9			3·7			5·6		
Mean for Year -	6·9			3·7			5·6		
Greatest in -	July.			August.			August.		
Least in -	December.			January.			January and December.		

BENGAL PRESIDENCY.—8. Additional Weight of Vapour required for Saturation—*continued.*

Place	MEERUT			LANDOUR			PESHAWUR			
	28° 59' N.			30° 27' N.			34° 20' N.			
Latitude	77° 46' E.			78° 10' E.			71° 29' E.			
Longitude	900 feet			7,000 feet			1,056 feet			
Height	MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	4 Years.	Winter, Spring, Summer, Autumn.	October to March.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.
		1859.		April to September.			April to September.	1858 to 1860.		April to September.
January - - -	grs. 1.4	} 1.9	} 1.9	grs. 1.6	} 1.4	} 1.7	grs. 1.3	} 1.3	} 1.9	
February - - -	1.9			grs. 1.1			grs. 1.4			grs. 1.4
March - - -	2.5	} 5.6	} 6.1	2.8	} 3.5	} 2.6	1.5	} 3.4	} 5.8	
April - - -	7.2			grs. 3.9			grs. 3.9			grs. 2.4
May - - -	7.0	} 4.7	} 1.7	3.7	} 2.1	} 6.5	6.4	} 4.3	} 4.3	
June - - -	6.4			grs. 1.7			grs. 0.9			grs. 7.2
July - - -	3.2	} 1.8	} 1.5	1.7	} 1.7	} 6.8	5.5	} 2.5	} 1.3	
August - - -	4.4			grs. 1.8			grs. 1.7			grs. 6.8
September - - -	2.3	} 1.7	} 1.5	1.5	} 1.7	} 3.5	2.5	} 1.3	} 1.3	
October - - -	1.5			grs. 1.7			grs. 1.5			grs. 1.3
November - - -	1.7	} 5.6	} 3.7	} 4.2	} 3.0	} 2.1	} 0.9	} 5.9	} 5.2	} 3.9
December - - -	2.3										grs. 5.6	grs. 3.7	grs. 4.2	grs. 3.0	grs. 2.1	grs. 0.9	grs. 5.9	grs. 5.2	grs. 3.9
Difference between Highest and Lowest	Monthly Means.	Seasonal Means.								
Mean for Year -	3.5			2.2			3.9			
Greatest in	April.			April and May.			June.			
Least in	January.			August.			January and December.			

BENGAL PRESIDENCY.—9. Degree of Humidity.

TABLE CXXXVII., showing the AVERAGE DEGREE OF HUMIDITY for every MONTH and QUARTER, as well as for the Periods from October to March, and April to September, with Difference between the Driest and most Humid Months and Seasons, and Mean for the Year, between the Latitudes 20° 18' and 34° 30' N., and between the Longitudes 71° 29' and 92° 46' E., arranged in the order of Latitude, at Stations for the most part in the Presidency of Bengal.

Place	THYET MYO			CALCUTTA			FORT WILLIAM			HAZAREEBAUGH			
	20° 18' N.			22° 34' N.			22° 34' N.			24° 0' N.			
Latitude	92° 46' E.			88° 25' E.			88° 25' E.			85° 24' E.			
Longitude	240 feet									1,900 feet			
Height	MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.
		1859.		April to September.	1843 and 1844.		April to September.	1855 to 1859.		April to September.	1858 to 1860.		April to September.
January - - -	41	} 46	} 52	70	} 69	} 72	68	} 66	} 69	49	} 58	} 56	
February - - -	32			grs. 63			grs. 69			grs. 66			grs. 53
March - - -	27	} 37	} 63	69	} 72	} 82	67	} 69	} 79	51	} 59	} 64	
April - - -	25			grs. 77			grs. 81			grs. 72			grs. 76
May - - -	58	} 73	} 85	81	} 85	} 88	80	} 83	} 83	52	} 62	} 62	
June - - -	63			grs. 90			grs. 85			grs. 85			grs. 80
July - - -	80	} 75	} 83	90	} 83	} 83	85	} 78	} 78	55	} 62	} 62	
August - - -	76			grs. 90			grs. 80			grs. 85			grs. 80
September - - -	76	} 70	} 74	80	} 74	} 74	80	} 74	} 74	62	} 73	} 73	
October - - -	80			grs. 80			grs. 74			grs. 70			grs. 64
November - - -	70	} 55	} 38	} 11	} 27	} 14	} 10	} 21	} 17	} 10	} 27	} 4	} 8
December - - -	66													grs. 55	grs. 38	grs. 11	grs. 27	grs. 14	grs. 10	grs. 21	grs. 17	grs. 10	grs. 27	grs. 4	grs. 8
Difference between Most Humid and Least Humid	Months.	Seasons.											
Mean for Year -	58			77			74			60			
Most Humid in	July and October.			August and September.			July, August, and September.			May.			
Least Humid in	April.			February.			December.			January.			

BENGAL PRESIDENCY.—9. Degree of Humidity—*continued.*

Place	BENARES			KHERWARAH			DARJEELING			AGRA		
Latitude . . . . .	.25° 17' N. . . . .			.26° 42' N. . . . .			.27° 2' N. . . . .			.27° 11' N.		
Longitude . . . . .	.83° 4' E. . . . .			.79° 12' E. . . . .			.88° 10' E. . . . .			.77° 53' E.		
Height . . . . .	.270 feet . . . . .			.1,200 feet . . . . .			.7,000 feet . . . . .			.800 feet		
MONTH.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.
	1858 and 1859.		April to September.	1854 to 1858.		April to September.	1857 to 1859.		April to September.	1860.		April to September.
January - - -	52	} 60	63	67	} 62	62	77	} 82	79	45		
February - - -	56			57			85					
March - - -	41	} 44		50	} 41		80	} 82		..		
April - - -	36			37			80					
May - - -	56			35			87					
June - - -	66	} 82	70	49	} 68	58	94	} 94	90	52		
July - - -	95			64			94					
August - - -	85	} 80		90	} 69		94	} 81		..		
September - - -	85			72			94					
October - - -	90	} 80		67	} 69		75	} 81		..		
November - - -	66			68			74					
December - - -	72			63			84			..		
Difference between Most Humid and Least Humid	} 59	38	7	45	28	4	20	13	11	..	..	..
Months. | Seasons.												
Mean for Year -	67			60			84			..		
Most Humid in	July.			August.			June, July, August, Sept.			..		
Least Humid in	April.			May.			November.			..		

(continued.)

Place	MEERUT			LANDOUR			PESHAWUR		
Latitude	28° 59' N.			30° 27' N.			34° 20' N.		
Longitude	77° 46' E.			78° 10' E.			71° 29' E.		
Height	900 feet			7,000 feet			1,056 feet		
MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	4 Years.	Winter, Spring, Summer, Autumn.	October to March.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.
	1859.		April to September.			April to September.	1858 to 1860.		April to September.
January - - -	77	} 71	74	49	} 56	56	67	} 68	66
February - - -	73			65			69		
March - - -	69	} 54		45	} 47		77	} 66	
April - - -	40			42			74		
May - - -	53			53			48		
June - - -	59	} 67	62	58	} 75	63	53	} 57	57
July - - -	77			78			56		
August - - -	64	} 81		88	} 67		61	} 55	
September - - -	80			78			49		
October - - -	84	} 81		65	} 67		57	} 55	
November - - -	78			57			58		
December - - -	62			54			67		
Difference between Most Humid and Least Humid	} 44	27	12	46	28	7	29	13	9
Months. | Seasons.									
Mean for Year -	68			61			61		
Most Humid in	October.			August.			March.		
Least Humid in	May.			April.			May.		

BENGAL PRESIDENCY.—10. *Sun Temperature.*

TABLE CXXXVIII., showing the Average Sun Temperature for every Month and Season, as well as for the Periods from October to March and April to September, with the Difference between the Hottest and Coldest Months and Seasons, and Mean for the Year, between the Latitudes 22° 34' N. and 34° 20' N., and between the Longitudes 71° 29' E. and 91° 45' E., arranged in the order of Latitude, and for the most part in the Presidency of Bengal.

Place	FORT WILLIAM (CALCUTTA)			CHUNAR			CHIRRAPOONGEE			BENARES.			
	. . . . . 22° 34' N. . . . .			. . . . . 25° 5' N. . . . .			. . . . . 25° 14' N. . . . .			. . . . . 25° 17' N.		
Latitude . . . . .	. . . . . 88° 25' E. . . . .			. . . . . 83° 0' E. . . . .			. . . . . 91° 45' E. . . . .			. . . . . 83° 4' E.		
Longitude . . . . .	. . . . .			. . . . . 250 feet . . . . .			. . . . . 4,118 feet. . . . .			. . . . . 270 feet.		
Height	MONTH.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	10 Years.	Winter, Spring, Summer, Autumn.	October to March.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.
		1855 to 1859.		April to September.	1850 to 1859.		April to September.	1859 and 1860.		April to September.	1858 and 1859.		April to September.
January - - -	130	} 129	131	84	} 86	91	70	} 74	75	90	} 93	101	
February - - -	132			90			74			97			
March - - -	135	} 135	133	100	} 106	109	77	} 84	87	102	} 116	115	
April - - -	135			106			87			118			
May - - -	134	} 131	133	113	} 112	109	88	} 88	87	128	} 113	115	
June - - -	133			120			88			114			
July - - -	133	} 134	133	110	} 95	95	91	} 79	79	116	} 113	113	
August - - -	126			107			85			110			
September - - -	136	} 134	133	100	} 95	95	82	} 79	79	114	} 113	113	
October - - -	136			95			78			116			
November - - -	129	} 124	133	90	} 85	85	77	} 77	77	109	} 92	92	
December - - -	124			85			77			92			
Difference between Hottest and Coldest Month.	12	6	2	36	26	18	21	14	12	38	23	14	
Mean for Year -	132			100			81			109			
Highest in	September and October.			June.			July.			May.			
Lowest in	December.			January.			January.			January.			

(continued.)

Place	GHAZEPORE			KHERWARAH			DARJEELING			MEERUT.			
	. . . . . 25° 49' N. . . . .			. . . . . 26° 42' N. . . . .			. . . . . 27° 2' N. . . . .			. . . . . 28° 59' N.		
Latitude . . . . .	. . . . . 80° 48' E. . . . .			. . . . . 79° 12' E. . . . .			. . . . . 88° 18' E. . . . .			. . . . . 77° 46' E.		
Longitude . . . . .	. . . . .			. . . . . 1,200 feet . . . . .			. . . . . 7,000 feet . . . . .			. . . . . 900 feet.		
Height	MONTH.	4 Years.	Winter, Spring, Summer, Autumn.	October to March.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.
		1856 to 1859.		April to September.	1854 to 1858.		April to September.	1857 to 1859.		April to September.	1859.		April to September.
January - - -	90	} 93	100	8.	} 91	94	91	} 91	94	87	} 85	93	
February - - -	99			94			91			85			
March - - -	111	} 119	116	101	} 108	104	101	} 101	102	100	} 109	110	
April - - -	121			111			108			109			
May - - -	125	} 113	116	111	} 100	104	102	} 102	102	119	} 110	110	
June - - -	119			110			100			113			
July - - -	112	} 107	116	97	} 97	97	104	} 98	98	117	} 100	100	
August - - -	108			94			97			99			
September - - -	111	} 107	116	99	} 97	97	102	} 98	98	101	} 100	100	
October - - -	109			99			97			103			
November - - -	102	} 90	116	93	} 90	90	96	} 96	96	96	} 84	84	
December - - -	90			90			96			84			
Difference between Hottest and Coldest Month.	35	26	16	23	17	10	14	11	8	35	25	17	
Mean for Year -	108			99			98			101			
Highest in	May.			April and May.			July.			May.			
Lowest in	January and December.			January.			December.			December.			

BENGAL PRESIDENCY.—Sun Temperature—continued.

Place	DUDOOPORE			UMBALLA			FEROZEPORE.			
Latitude	30° 12' N.			30° 23' N.			30° 55' N.			
Longitude				76° 44' E.			74° 35' E.			
Height				1,050 feet			720 feet.			
MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	2 Years. 1851 and 1852.	Winter, Spring, Summer, Autumn.	October to March.	1 Year. 1859.	Winter, Spring, Summer, Autumn.	October to March.	
	1848.		April to September.			April to September.			April to September.	
January - - -	113	118	127	89	91	99	95	91	98	
February - - -	130			95			103			103
March - - -	132			91			116			115
April - - -	151	142	138	130						
May - - -	143			135	120	125				
June - - -	138	136	116			130				
July - - -	134			122	108	108				
August - - -	134	128	107			118				
September - - -	130			100	79	96				
October - - -	139	89				79				
November - - -	138									
December - - -	111									
Difference between Hottest and Coldest Months.		40	24	11	39	29	17	51	32	23
Hottest and Coldest Seasons.										
Mean for Year -	133			108			109			
Highest in -	April.			October.			May and July.			
Lowest in -	December.			January and December.			December.			

(continued.)

Place	PUNJAB			SEALKOTE			PESHAWUR.			
Latitude	31° 40' N.			32° 29' N.			34° 20' N.			
Longitude	74° 45' E.			74° 33' E.			71° 29' E.			
Height	800 to 900 feet			900 feet			1,056 feet.			
MONTH.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.	1 Year. 1859.	Winter, Spring, Summer, Autumn.	October to March.	2 Years. 1859 and 1860.	Winter, Spring, Summer, Autumn.	October to March.	
	1857 to 1859.		April to September.			April to September.			April to September.	
January - - -	76	77	86	73	79	90	69	73	78	
February - - -	78			78			79			74
March - - -	94			98			111			79
April - - -	98	100	105	115	121	118	121	101	101	
May - - -	109			120			102			
June - - -	106	106	108	124	108	108	112	..	..
July - - -	102			125			114			
August - - -	109	100	111	114	108	108	114	94	94	
September - - -	108			113			98			
October - - -	101	90	86	111	86	86	97	87	75	
November - - -	90			99			87			
December - - -	77			86			75			
Difference between Hottest and Coldest Months.		33	29	19	53	42	28
Hottest and Coldest Seasons.										
Mean for Year -	96			106			....		
Highest in -	May and August.			July.			....		
Lowest in -	January.			January.			....		

TABLES showing the MONTHLY, QUARTERLY, HALF-YEARLY and YEARLY FALLS of RAIN at STATIONS in the MADRAS PRESIDENCY, arranged in the order of Latitude.

TABLE CXXXIX., showing the Monthly, Quarterly, Half-yearly, and Yearly Falls of Rain at Stations situated in the Presidency of Madras and the Strait Settlements, between the Latitudes 1° 16' N. and 26° 48' N., and Longitudes 75° 30' E. and 103° 53' E.

Place	SINGAPORE			PENANG			PENANG			COLOMBQ.		
	Latitude 1° 16' N.			5° 21' N.			5° 21' N.			6° 57' N.		
Longitude 103° 53' E.			100° 25' E.			100° 25' E.			80° 0' E.			
Height About 30 feet			A few feet			A few feet			
MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	4 Years.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.
	1859.		April to September.	1833 to 1836.		April to September.	1859.		April to September.	1853 and 1854.		April to September.
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
January - - -	0·0	} 0·1	4·1	3·3	} 10·1	36·5	1·8	} 9·8	45·1	5·4	} 10·5	28·1
February - - -	0·0			2·6			2·4			2·5		
March - - -	0·0	} 5·1	20·9	5·2	} 16·7	46·2	5·7	} 22·8	37·3	2·2	} 38·3	43·6
April - - -	1·3			7·0			6·6			10·6		
May - - -	3·8	} 12·6	20·9	4·5	} 25·0	46·2	10·5	} 8·3	37·3	25·5	} 6·7	43·6
June - - -	1·6			6·9			2·3			2·0		
July - - -	5·6	} 7·2	20·9	6·9	} 30·9	46·2	4·4	} 41·5	37·3	4·2	} 16·2	43·6
August - - -	5·4			10·2			1·6			0·5		
September - - -	3·2	} 7·2	20·9	9·7	} 30·9	46·2	11·9	} 41·5	37·3	0·8	} 16·2	43·6
October - - -	1·1			12·4			22·6			6·4		
November - - -	2·9	} 7·2	20·9	8·8	} 30·9	46·2	7·0	} 41·5	37·3	9·0	} 16·2	43·6
December - - -	0·1			4·2			5·6			2·6		
Year - - -	25·0	—	—	82·7	—	—	82·4	—	—	71·7	—	—

(continued.)

Place	ALLEPY			CAPE COMORIN			VAURIOUR			TREVANDRUM.		
	Latitude			8° 4' N. . . . .			. . . . .			8° 28' N.		
Longitude			77° 34' E. . . . .			. . . . .			77° 2' E.			
Height 30 feet			50 feet			60 feet			130 feet.			
MONTH.	6 Years.	Winter, Spring, Summer, Autumn.	October to March.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	6 Years.	Winter, Spring, Summer, Autumn.	October to March.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.
	1841 to 1846.		April to September.	1843 to 1847.		April to September.	1841 to 1846.		April to September.	1842 to 1846.		April to September.
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
January - - -	2·4	} 6·5	29·6	0·2	} 3·0	16·6	0·9	} 4·2	16·2	1·8	} 6·5	24·7
February - - -	1·2			0·0			0·4			0·2		
March - - -	4·3	} 33·8	89·9	0·9	} 6·3	11·5	1·1	} 5·5	8·5	1·8	} 15·5	40·0
April - - -	3·4			0·8			0·4			3·5		
May - - -	26·1	} 53·4	89·9	4·6	} 5·7	11·5	4·0	} 3·2	8·5	10·2	} 22·8	40·0
June - - -	26·0			4·6			2·0			13·1		
July - - -	18·2	} 25·8	89·9	0·7	} 13·1	11·5	1·1	} 11·8	8·5	6·4	} 19·9	40·0
August - - -	9·2			0·4			0·1			3·3		
September - - -	7·0	} 25·8	89·9	0·4	} 13·1	11·5	0·9	} 11·8	8·5	3·5	} 19·9	40·0
October - - -	12·8			8·8			7·3			12·3		
November - - -	6·0	} 25·8	89·9	3·9	} 13·1	11·5	3·6	} 11·8	8·5	4·1	} 19·9	40·0
December - - -	2·9			2·8			2·9			4·5		
Year - - -	119·5	—	—	28·1	—	—	24·7	—	—	64·7	—	—

MADRAS PRESIDENCY.—Monthly, Quarterly, Half-yearly, and Yearly Falls of Rain—*continued.*

Place	PALAMCOTTAR			PALAMCOTTAR			QUILON			COCHIN.		
	Latitude	Longitude	Height	Latitude	Longitude	Height	Latitude	Longitude	Height	Latitude	Longitude	Height
	8° 43' N.			8° 43' N.			8° 53' N.			9° 11' N.		
	77° 48' E.			77° 48' E.			76° 39' E.			76° 0' E.		
	120 feet			120 feet			40 feet			4 feet.		
MONTH.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	6 Years.	Winter, Spring, Summer, Autumn.	October to March.	6 Years.	Winter, Spring, Summer, Autumn.	October to March.
	1842 to 1846.	April to September.	1855 to 1859.	1841 to 1846.	April to September.	1841 to 1846.	April to September.	1841 to 1846.	April to September.			
January - - -	in. 1.3	in. 6.0	in. 17.0	in. 4.1	in. 13.5	in. 58.3	in. 0.9	in. 2.9	in. 18.6	in. 0.7	in. 4.2	in. 18.2
February - - -	1.3	5.6	5.0	1.2	34.5	32.7	0.3	21.9	67.2	0.0	23.0	86.8
March - - -	1.9			5.2			1.9			2.0		
April - - -	1.3	20.1	2.2	3.5	17.8	3.2	17.9	30.7	17.3	61.0	16.3	
May - - -	2.4	9.2	0.0	6.1	13.0	4.8	19.9	43.9	18.0	9.7	2.3	
June - - -	0.3	1.1	0.1	3.3	4.8	9.7	17.9	67.2	30.7	17.3	61.0	
July - - -	0.0	0.3	0.0	6.1	13.0	4.8	19.9	43.9	18.0	9.7	2.3	
August - - -	0.0	0.1	0.1	3.3	4.8	9.7	17.9	67.2	30.7	17.3	61.0	
September - - -	1.0	2.2	2.2	6.1	13.0	4.8	19.9	43.9	18.0	9.7	2.3	
October - - -	4.9	10.1	14.3	9.9	17.1	9.7	17.9	67.2	30.7	17.3	61.0	
November - - -	4.2	25.3	25.3	3.9	3.9	2.3	17.9	67.2	30.7	17.3	61.0	
December - - -	3.4	8.2	8.2	1.7	1.7	3.5	17.9	67.2	30.7	17.3	61.0	
Year - - -	22.0	—	—	91.0	—	—	85.8	—	—	105.0	—	—

(continued.)

Place	SHENKOTTAR			TRICHINOPOLY			COIMBATORE			DODABETTA.		
	Latitude	Longitude	Height	Latitude	Longitude	Height	Latitude	Longitude	Height	Latitude	Longitude	Height
	9° 17' N.			10° 20' N.			11° 0' N.			11° 25' N.		
	78° 10' E.			77° 10' E.			77° 1' E.			77° 25' E.		
	250 feet			250 feet			250 feet			8,640 feet.		
MONTH.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	7 Years.	Winter, Spring, Summer, Autumn.	October to March.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.
	1842 to 1846.	April to September.	1842 to 1848.	1844 to 1846.	April to September.	1844 to 1846.	April to September.	1847 and 1848.	April to September.			
January - - -	in. 1.3	in. 4.6	in. 20.3	in. 2.0	in. 6.7	in. 15.4	in. 0.7	in. 3.9	in. 9.7	in. 0.1	in. 19.8	in. 47.8
February - - -	0.3	7.4	16.9	0.2	4.6	15.2	0.2	3.1	10.9	7.4	28.3	53.5
March - - -	1.6			0.5			0.8			3.6		
April - - -	2.2	1.4	2.7	1.4	4.6	15.2	0.5	3.1	19.8	4.9	28.3	
May - - -	3.6	2.7	1.3	2.6	5.8	15.2	1.8	3.1	4.9	4.6	21.3	
June - - -	4.3	9.3	1.3	1.9	5.8	15.2	1.5	3.3	7.4	7.4	21.3	
July - - -	3.9	1.1	1.9	5.3	13.5	15.2	1.6	3.3	7.4	9.3	31.9	
August - - -	1.1	1.8	5.3	5.3	13.5	15.2	0.2	3.3	9.3	7.5	31.9	
September - - -	1.8	15.9	5.6	4.5	10.3	15.2	5.3	10.3	7.5	12.5	31.9	
October - - -	8.2	5.9	2.6	2.6	10.3	15.2	4.5	10.3	11.9	11.9	31.9	
November - - -	5.9	3.0	4.5	3.0	3.0	15.2	0.5	10.3	11.9	12.3	31.9	
December - - -	3.0	3.0	4.5	3.0	3.0	15.2	3.0	10.3	12.3	12.3	31.9	
Year - - -	37.2	—	—	30.6	—	—	20.6	—	—	101.3	—	—

MADRAS PRESIDENCY.—Monthly, Quarterly, Half-yearly, and Yearly Falls of Rain—*continued.*

Place	ANJARAKANDY			CANNANORE			CANNANORE			MERCARA		
	Latitude 11° 40' N.			Latitude 11° 52' N.			Latitude 11° 52' N.			Latitude 12° 24' N.		
Longitude 75° 40' E.			Longitude 75° 30' E.			Longitude 75° 30' E.			Longitude 75° 48' E.			
Height			Height 15 feet			Height 15 feet			Height 4,500 feet			
MONTH.	14 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	7 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	10 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	3 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.
	1810 to 1823.			1842 to 1848.			1850 to 1859.			1838 to 1840.		
January - - -	in. 0·0	in. 1·3	in. 10·3	in. 0·5	in. 2·2	in. 12·0	in. 0·1	in. 2·0	in. 15·2	in. 0·0	in. 0·6	in. 8·1
February - - -	0·1	} 8·4	} 112·9	0·1	} 18·2	} 108·3	0·2	} 17·5	} 107·3	0·4	} 11·5	} 135·2
March - - -	0·3			0·8			0·6			0·3			0·3	1·5
April - - -	1·2	} 92·5	} 84·1	5·1	} 15·8	} 84·9	2·8	} 18·1	} 11·9	2·6	} 16·9	} 113·3
May - - -	6·9			12·5			14·4			7·4			11·9
June - - -	31·1	} 21·0	} 15·8	38·0	} 10·3	} 10·3	34·7	} 10·3	} 11·9	30·4	} 16·9	} 113·3
July - - -	38·9			29·0			34·9			55·9		
August - - -	22·5	} 48·0	} 7·2	17·1	} 7·2	} 8·4	15·3	} 22·3	} 4·5	27·0	} 34·7	} 84·7
September - - -	12·3			6·6			5·2			11·9		
October - - -	6·2	} 2·0	} 1·6	7·5	} 1·7	} 1·7	10·3	} 1·7	} 0·2	4·6	} 0·2	} 0·2
November - - -	2·5			1·7			2·6			1·4		
December - - -	1·2			1·6			1·7			0·2		
Year - - -	123·2	—	—	120·3	—	—	122·5	—	—	143·3	—	—

(continued.)

Place	MERGUT			BANGALORE			ST. THOMAS'S MOUNT			POONAMALLEE		
	Latitude 12° 27' N.			Latitude 12° 57' N.			Latitude 13° 0' N.			Latitude 13° 2' N.		
Longitude 98° 42' E.			Longitude 77° 38' E.			Longitude 80° 15' E.			Longitude 80° 10' E.			
Height 200 feet			Height 3,000 feet			Height 60 feet			Height			
MONTH.	7 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	1 Year.	Winter, Spring, Summer, Autumn.	October to March. April to September.	7 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	2 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.
	1853 to 1859.			1859.			1842 to 1848.			1847 and 1848.		
January - - -	in. 4·0	in. 7·0	in. 37·0	in. 0·0	in. 0·1	in. 4·1	in. 1·9	in. 10·6	in. 29·6	in. 0·0	in. 10·7	in. 35·9
February - - -	1·0	} 20·0	} 128·0	0·0	} 5·1	} 20·9	0·3	} 3·2	} 12·1	0·1	} 1·8	} 16·1
March - - -	2·0			0·0			0·4			0·0		
April - - -	3·0	} 90·0	} 12·6	1·3	} 7·2	} 8·4	0·3	} 22·3	} 4·5	1·3	} 34·7	} 84·7
May - - -	15·0			3·8			2·5			0·5		
June - - -	24·0	} 48·0	} 7·2	1·6	} 10·3	} 15·9	0·9	} 22·3	} 9·8	1·9	} 34·7	} 84·7
July - - -	36·0			5·6			2·3			2·2		
August - - -	30·0	} 2·0	} 0·1	5·4	} 0·1	} 0·1	2·4	} 0·1	} 0·1	5·7	} 0·1	} 0·1
September - - -	20·0			3·2			3·7			4·5		
October - - -	24·0	} 2·0	} 0·1	1·1	} 2·9	} 0·1	8·4	} 8·4	} 9·6	10·3	} 9·6	} 9·6
November - - -	4·0			2·9			10·2			15·9		
December - - -	2·0			0·1			8·4			9·6		
Year - - -	165·0	—	—	25·0	—	—	41·7	—	—	52·0	—	—

MADRAS PRESIDENCY.—Monthly, Quarterly, Half-yearly, and Yearly Falls of Rain—continued.

Place	POONAMALLEE			FORT ST. GEORGE			MADRAS			MADRAS.		
	Latitude 13° 2' N.			Latitude 13° 4' N.			Latitude 13° 6' N.			Latitude 13° 6' N.		
Longitude 80° 10' E.			Longitude 80° 14' E.			Longitude 80° 21' E.			Longitude 80° 21' E.			
Height			Height			Height			Height			
MONTH.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	31 Years.	Winter, Spring, Summer, Autumn.	October to March.	23 Years.	Winter, Spring, Summer, Autumn.	October to March.	6 Years.	Winter, Spring, Summer, Autumn.	October to March.
	1855 to 1859.		April to September.	1811 to 1841.		April to September.	1822 to 1844.		April to September.	1845 to 1850.		April to September.
January - - -	in. 0.1	in. 4.9	in. 30.2	in. 1.2	in. 5.9	in. 21.8	in. 1.3	in. 4.8	in. 27.7	in. 1.1	in. 11.9	in. 37.3
February - - -	0.1	3.7	18.4	0.1	2.2	15.8	0.2	2.0	16.8	0.8	2.6	17.7
March - - -	0.0			0.7			0.4			0.6			0.0
April - - -	1.2	10.2	18.4	0.4	10.0	15.8	0.6	10.4	16.8	1.5	12.1	17.7
May - - -	2.5			1.1			1.5			2.0			1.1
June - - -	2.1	29.8	18.4	1.5	29.5	15.8	2.0	27.3	16.8	3.1	28.4	17.7
July - - -	5.1			3.7			4.8			5.2			4.0
August - - -	3.0	29.8	18.4	4.8	29.5	15.8	5.2	27.3	16.8	5.0	28.4	17.7
September - - -	4.5			4.3			4.8			4.8			3.0
October - - -	11.7	29.8	18.4	11.1	29.5	15.8	10.1	27.3	16.8	13.0	28.4	17.7
November - - -	13.6			14.1			12.4			12.4			12.4
December - - -	4.7			4.6			3.3			10.0		
Year - - -	48.6	—	—	47.6	—	—	44.5	—	—	55.0	—	—

(continued.)

Place	TAVOY			TAVOY			NELLORE			HURRYHUR.		
	Latitude 14° 7' N.			Latitude 14° 7' N.			Latitude 14° 20' N.			Latitude 14° 31' N.		
Longitude 98° 18' E.			Longitude 98° 18' E.			Longitude 80° 0' E.			Longitude 75° 51' E.			
Height 12 feet			Height 12 feet			Height 50 feet			Height 1,831 feet.			
MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	11 Years.	Winter, Spring, Summer, Autumn.	October to March.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.
	1831.		April to September.	1849 to 1859.		April to September.	1859 and 1860.		April to September.	1857 to 1859.		April to September.
January - - -	in. 0.0	in. 0.0	in. 24.5	in. 0.3	in. 2.8	in. 15.6	in. 0.6	in. 2.6	in. 39.0	in. 0.0	in. 0.0	in. 0.7
February - - -	0.0	23.3	185.0	1.8	32.6	15.6	0.0	2.4	21.1	0.0	1.1	3.1
March - - -	0.0			1.2			0.0			0.1		
April - - -	0.0	133.0	185.0	3.2	122.9	15.6	1.5	15.3	21.1	0.6	2.0	3.1
May - - -	23.3			28.2			0.9			0.4		
June - - -	36.4	53.2	185.0	41.3	42.3	15.6	1.5	39.8	21.1	0.8	0.7	3.1
July - - -	57.4			43.0			8.7			0.3		
August - - -	39.2	53.2	185.0	38.6	42.3	15.6	5.1	39.8	21.1	0.9	0.7	3.1
September - - -	28.7			30.7			3.4			0.1		
October - - -	24.5	53.2	185.0	10.2	42.3	15.6	4.3	39.8	21.1	0.1	0.7	3.1
November - - -	0.0			1.4			4.3			0.5		
December - - -	0.0			0.7			2.0			0.0		
Year - - -	209.5	—	—	200.6	—	—	60.1	—	—	3.8	—	—

MADRAS PRESIDENCY.—Monthly, Quarterly, Half-yearly, and Yearly Falls of Rain—*continued.*

Place . . . . .	. . . KURNOOL . . . . .			. . . MASULIPATAM . . . . .			. . . GUNTOOR . . . . .			. . . BELLARY.		
	Latitude 15° 50' N.			Latitude 16° 10' N.			Latitude 16° 20' N.			Latitude 17° 0' N.		
Longitude 78° 5' E.			Longitude 81° 13' E.			Longitude 80° 30' E.			Longitude 77° 0' E.			
Height 800 feet . . . . .			. . . . .			. . . . . 100 feet . . . . .			. . . . . 1,500 feet.			
MONTH.	3 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	7 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	5 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	19 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.
	1857 to 1859.			1842 to 1848.			1855 to 1859.			1841 to 1859.		
January - - -	0·0	in. } 0·0	in. } 13·1	0·2	in. } 3·7	in. } 11·8	0·0	in. } 1·0	in. } 11·0	0·2	in. } 0·6	in. } 8·3
February - - -	0·0			1·6			0·0			0·0		
March - - -	0·0			0·3			0·9			1·0		
April - - -	2·7			0·2			2·5			1·0		
May - - -	8·1			1·9			4·6			2·1		
June - - -	14·4			4·5		22·0	4·1		30·5	1·8		13·4
July - - -	17·2		58·8	4·6			5·9			1·7		
August - - -	8·4			4·9			7·7			3·0		
September - - -	8·0			5·9			5·7			3·8		
October - - -	8·7			6·7			7·0			5·6		
November - - -	4·4			1·1			2·1			1·1		
December - - -	0·0			1·9			1·0			0·4		
Year - - -	71·9	—	—	33·8	—	—	41·5	—	—	21·7	—	—

(continued.)

Place . . . . .	. . . SAMULCOTTAH . . . . .			. . . SECUNDERABAD . . . . .			. . . SECUNDERABAD . . . . .			. . . VIZAGAPATAM.		
	Latitude 17° 4' N.			Latitude 17° 28' N.			Latitude 17° 28' N.			Latitude 17° 41' N.		
Longitude 82° 14' E.			Longitude 78° 32' E.			Longitude 78° 32' E.			Longitude 83° 21' E.			
Height 50 feet . . . . .			. . . . . 1,800 feet . . . . .			. . . . . 1,800 feet			
MONTH.	3 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	2 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	10 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	2 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.
	1857 to 1859.			1843 and 1844.			1850 to 1859.			1847 and 1848.		
January - - -	0·0	in. } 0·5	in. } 11·2	2·3	in. } 2·4	in. } 10·5	0·4	in. } 1·8	in. } 8·4	0·0	in. } 0·7	in. } 21·0
February - - -	0·0			0·0			0·6			0·0		
March - - -	1·0			3·8			0·5			0·0		
April - - -	2·5			0·1			0·7			3·1		
May - - -	1·0			5·8			1·7			1·9		
June - - -	6·1		31·7	0·4		32·1	3·3		18·9	3·8		20·9
July - - -	10·0			13·7			4·8			2·1		
August - - -	6·5			6·0			4·8			3·5		
September - - -	5·6			6·1			3·6			6·5		
October - - -	9·7			4·3			4·6			15·8		
November - - -	0·0			0·0			1·5			4·5		
December - - -	0·5			0·1			0·8			0·7		
Year - - -	42·9	—	—	42·6	—	—	27·3	—	—	41·9	—	—

MADRAS PRESIDENCY.—Monthly, Quarterly, Half-yearly, and Yearly Falls of Rain—*continued.*

Place	VIZAGAPATAM			DAPPOLEE			TONGHOO.		
	Latitude 17° 41' N.			Latitude 18° 33' N.			Latitude 18° 57' N.		
Longitude	83° 21' E.			72° 2' E.			96° 30' E.		
Height . . . . .	. . . . .			900 feet			300 feet.		
MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	4 Years.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.
	1859.		April to September.	1844 to 1847.		April to September.	1859.		April to September.
January - - -	in. 0·6	} 1·7	in. 16·4	in. 0·0	} 0·0	in. 2·4	in. 0·0	} 0·1	in. 7·8
February - - -	1·0		} 3·5	12·6		0·0	} 4·2		117·1	0·0	} 10·7	61·8
March - - -	0·7	} 13·6			34·3	0·0		} 98·7		16·8			1·9	} 43·7	—
April - - -	0·7		} 20·2	46·4		2·9	} 16·6		14·9		2·4	} 15·1	—
May - - -	2·1	} 1·5			18·0	1·3		} 0·9		9·3	6·4			} 4·7	—
June - - -	3·3		} 0·9	14·2		34·3	} 0·0		4·7		16·8	} 0·1	—
July - - -	5·3	} 0·0			1·5	46·4		} 0·0		0·1	12·0			} 0·1	—
August - - -	5·0		} 0·0	0·9		18·0	} 0·0		0·1		14·9	} 0·1	—
September - - -	6·2	} 0·0			0·0	14·2		} 0·0		0·1	9·3			} 0·1	—
October - - -	11·0		} 0·0	0·0		1·5	} 0·0		0·1		4·7	} 0·1	—
November - - -	3·0	} 0·0			0·0	0·9		} 0·0		0·1	1·1			} 0·1	—
December - - -	0·1		} 0·0	0·0		0·0	} 0·0		0·1		0·1	} 0·1	—
Year - - -	39·0	—			—	119·5		—	

(continued.)

Place	TANNA			BERHAMPORE			RANGOON (British Burmah).		
	Latitude 19° 11' N.			Latitude 19° 20' N.			Latitude 26° 48' N.		
Longitude	73° 6' E.			84° 50' E.			96° 10' E.		
Height . . . . .	. . . . .			112 feet . . . . .			. . . . .
MONTH.	4 Years.	Winter, Spring, Summer, Autumn.	October to March.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.
	1844 to 1847.		April to September.	1859 and 1860.		April to September.	1852 and 1853.		April to September.
January - - -	in. 0·0	} 0·0	in. 0·0	in. 0·0	} 6·0	in. 8·5	in. 0·0	} 0·2	in. 0·4
February - - -	0·0		} 0·0	0·0		0·1	} 0·0		24·5	0·0	} 9·1	23·9
March - - -	0·0	} 90·1		105·4	0·0	} 17·4		15·0		0·2			} 15·0	—
April - - -	0·0		} 15·3		7·1		0·0		} 9·6	0·0	0·9	} 0·0			—
May - - -	0·0	} 2·4		7·1		0·0	} 0·1	0·0	
June - - -	34·3		} 5·9		2·4	0·0			} 0·0	0·2	15·0	} 0·0			—
July - - -	38·4	} 0·0		0·1		10·3	} 0·0	0·2			0·0		} 0·0	—
August - - -	17·4		} 0·0		0·0	7·1			} 0·0	0·2	0·0	} 0·0			—
September - - -	15·3	} 0·0		0·0		7·1	} 0·0	0·2			0·0		} 0·0	—
October - - -	0·0		} 0·0		0·0	2·4			} 0·0	0·2	0·0	} 0·0			—
November - - -	0·0	} 0·0		0·0		0·1	} 0·0	0·2			0·0		} 0·0	—
December - - -	0·0		} 0·0		0·0	5·9			} 0·0	0·2	0·2	} 0·0			—
Year - - -	105·4	—		—		33·0	—	—	

BOMBAY PRESIDENCY.—Monthly, Quarterly, Half-yearly, and Yearly Falls of Rain—*continued.*

Place	SOORAPORE			KOLAPORE			KOLAPORE			RUTNAGHERRY.		
	Latitude			Latitude			Latitude			Latitude		
Longitude			Longitude			Longitude			Longitude			
Height			Height			Height			Height			
MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	10 Years.	Winter, Spring, Summer, Autumn.	October to March.	4 Years.	Winter, Spring, Summer, Autumn.	October to March.
	1847.	April to September.	1847.	April to September.	1850 to 1859.	1844 to 1847.	1844 to 1847.	April to September.	1844 to 1847.	April to September.		
January - - -	in. 0.0	in. 0.0	in. 0.0	in. 0.0	in. 0.0	in. 8.1	in. 0.4	in. 0.5	in. 6.3	in. 0.0	in. 0.0	in. 47.9
February - - -	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	6.3	0.0	0.0	0.0
March - - -	0.0	0.0	0.0	0.0	0.0	0.0	0.6	5.6	6.3	0.0	0.0	0.0
April - - -	0.0	0.0	0.0	0.0	0.0	0.0	1.4	5.6	6.3	0.0	0.0	1.4
May - - -	0.0	0.0	0.0	0.0	0.0	0.0	3.6	5.6	6.3	1.4	1.4	1.4
June - - -	8.1	25.4	34.2	1.6	11.8	12.6	6.6	23.6	33.2	41.6	36.0	106.0
July - - -	9.0	25.4	34.2	6.4	11.8	12.6	11.9	23.6	33.2	36.0	36.0	93.4
August - - -	8.3	25.4	34.2	3.8	11.8	12.6	5.1	23.6	33.2	15.8	15.8	15.8
September - - -	8.8	25.4	34.2	0.8	11.8	12.6	4.6	23.6	33.2	11.2	11.2	11.2
October - - -	0.0	8.8	34.2	4.7	8.9	12.6	4.5	9.8	33.2	45.4	45.4	59.1
November - - -	0.0	8.8	34.2	3.4	8.9	12.6	0.7	9.8	33.2	2.5	2.5	2.5
December - - -	0.0	8.8	34.2	0.0	8.9	12.6	0.1	9.8	33.2	0.0	0.0	0.0
Year - - -	34.2	..	..	20.7	..	..	39.5	..	..	153.9	..	..

(continued.)

Place	RUTNAGHERRY			JHUTT			SHOLAPORE			PUNDAPORE.		
	Latitude			Latitude			Latitude			Latitude		
Longitude			Longitude			Longitude			Longitude			
Height			Height			Height			Height			
MONTH.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	11 Years.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.
	1855 to 1859.	April to September.	1848.	April to September.	1850 to 1860.	1848.	April to September.					
January - - -	in. 0.0	in. 0.0	in. 4.3	in. 0.0	in. 0.0	in. 4.4	in. 0.1	in. 1.1	in. 7.5	in. 0.0	in. 0.0	in. 10.9
February - - -	0.0	0.0	4.3	0.0	0.0	4.4	0.5	1.1	7.5	0.0	0.0	0.0
March - - -	0.0	0.0	4.3	0.0	0.0	4.4	0.3	1.1	7.5	0.0	0.0	0.0
April - - -	0.0	2.2	4.3	0.0	1.6	4.4	1.9	4.5	7.5	0.0	0.0	0.8
May - - -	6.8	2.2	4.3	1.6	1.6	4.4	2.3	4.5	7.5	0.8	0.8	0.8
June - - -	28.2	78.7	94.6	3.1	10.5	16.0	3.7	14.2	25.2	2.0	2.0	17.7
July - - -	32.7	78.7	94.6	4.8	10.5	16.0	4.3	14.2	25.2	4.4	4.4	14.6
August - - -	17.8	78.7	94.6	2.6	10.5	16.0	6.2	14.2	25.2	6.2	6.2	6.2
September - - -	9.1	78.7	94.6	3.9	10.5	16.0	6.8	14.2	25.2	4.3	4.3	4.3
October - - -	3.8	13.4	94.6	2.2	8.3	16.0	4.7	12.9	25.2	8.4	8.4	15.2
November - - -	0.5	13.4	94.6	2.2	8.3	16.0	1.4	12.9	25.2	2.5	2.5	2.5
December - - -	0.0	13.4	94.6	0.0	8.3	16.0	0.5	12.9	25.2	0.0	0.0	0.0
Year - - -	98.9	..	..	20.4	..	..	32.7	..	..	28.6	..	..

BOMBAY PRESIDENCY.—Monthly, Quarterly, Half-yearly, and Yearly Falls of Rain—*continued.*

Place	SATTARA			SATTARA			DAPPOLEE			MALCOLM PAIT.		
	Latitude			Latitude			Latitude			Latitude		
Longitude			Longitude			Longitude			Longitude			
Height			Height			Height			Height			
MONTH.	4 Years.	Winter, Spring, Summer, Autumn.	October to March.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.
	1844 to 1847.		April to September.	1855 to 1859.		April to September.	1858 and 1859.		April to September.	1820.		April to September.
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
January - - -	0·9	0·8	7·3	0·6	1·2	6·6	0·0	0·0	4·3	0·0	0·0	0·0
February - - -	0·1			0·0						0·0		
March - - -	0·1	4·4	30·0	0·1	4·4	32·6	0·0	3·8	118·0	0·0	0·0	196·4
April - - -	3·0						1·0					
May - - -	1·3	21·2	5·0	3·3	25·2	32·6	3·7	97·1	118·0	0·0	0·0	158·8
June - - -	7·5						5·0					
July - - -	10·4	10·9	3·1	13·1	8·4	32·6	41·5	21·4	118·0	43·6	37·6	37·6
August - - -	3·3						7·1					
September - - -	4·5	37·9	4·7	3·1	38·0	32·6	17·1	9·3	118·0	37·6	0·0	0·0
October - - -	3·7						4·7					
November - - -	2·7	0·7	0·6	0·6	0·6	32·6	0·3	0·0	118·0	0·0	0·0	0·0
December - - -	0·7						0·6					
Year - - -	37·3	..	..	39·2	..	..	122·3	..	..	196·4	..	..

(continued.)

Place	MALCOLM PAIT			MAHALESHWUR			PHULTUN			POORUNDHUR.		
	Latitude			Latitude			Latitude			Latitude		
Longitude			Longitude			Longitude			Longitude			
Height			Height			Height			Height			
MONTH.	6 Years.	Winter, Spring, Summer, Autumn.	October to March.	15 Years.	Winter, Spring, Summer, Autumn.	October to March.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.	6 Years.	Winter, Spring, Summer, Autumn.	October to March.
	1842 to 1847.		April to September.	1829 to 1843.		April to September.	1846 to 1848.		April to September.			April to September.
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
January - - -	0·4	0·5	6·3	0·0	0·2	7·0	0·0	0·8	8·1	0·1	1·8	9·2
February - - -	0·0			0·2						0·0				0·0		0·3
March - - -	1·7	6·2	255·4	0·1	4·7	246·8	0·2	5·4	13·9	0·2	6·4	63·1
April - - -	2·3						1·3					
May - - -	2·2	117·1	46·5	3·3	210·9	246·8	3·4	5·5	13·9	5·7	49·5	49·5
June - - -	48·6						46·5					
July - - -	100·2	37·9	31·3	92·1	38·0	246·8	1·8	9·3	13·9	23·0	14·6	14·6
August - - -	68·3						72·3					
September - - -	33·8	0·1	4·6	31·3	0·0	246·8	2·2	0·8	13·9	7·4	0·7	0·7
October - - -	2·4						4·6					
November - - -	1·7	0·1	0·0	2·1	0·0	246·8	4·4	0·0	13·9	0·7	1·4	1·4
December - - -	0·1						0·0					
Year - - -	261·7	..	..	253·8	..	..	21·0	..	..	72·3	..	..

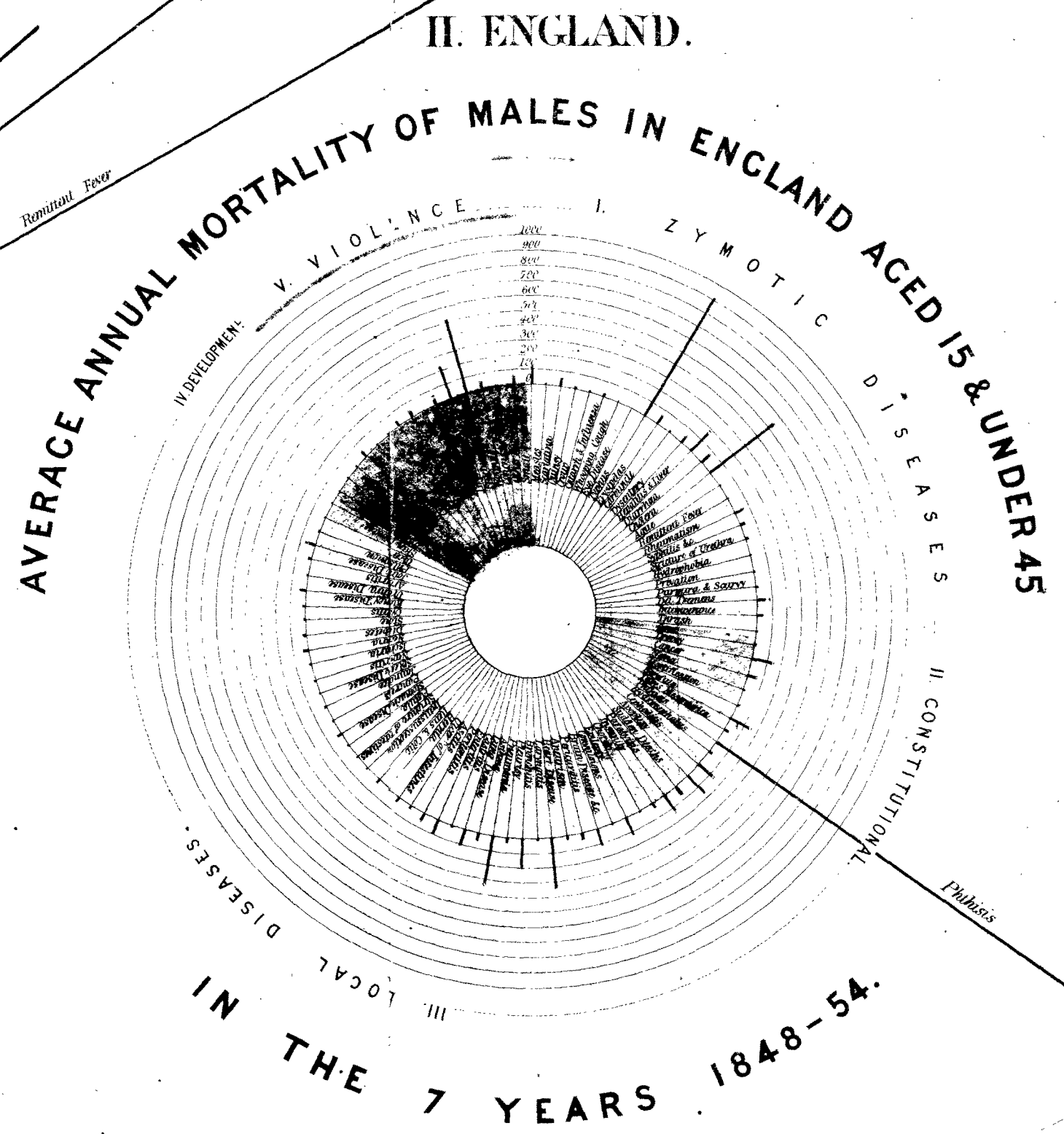
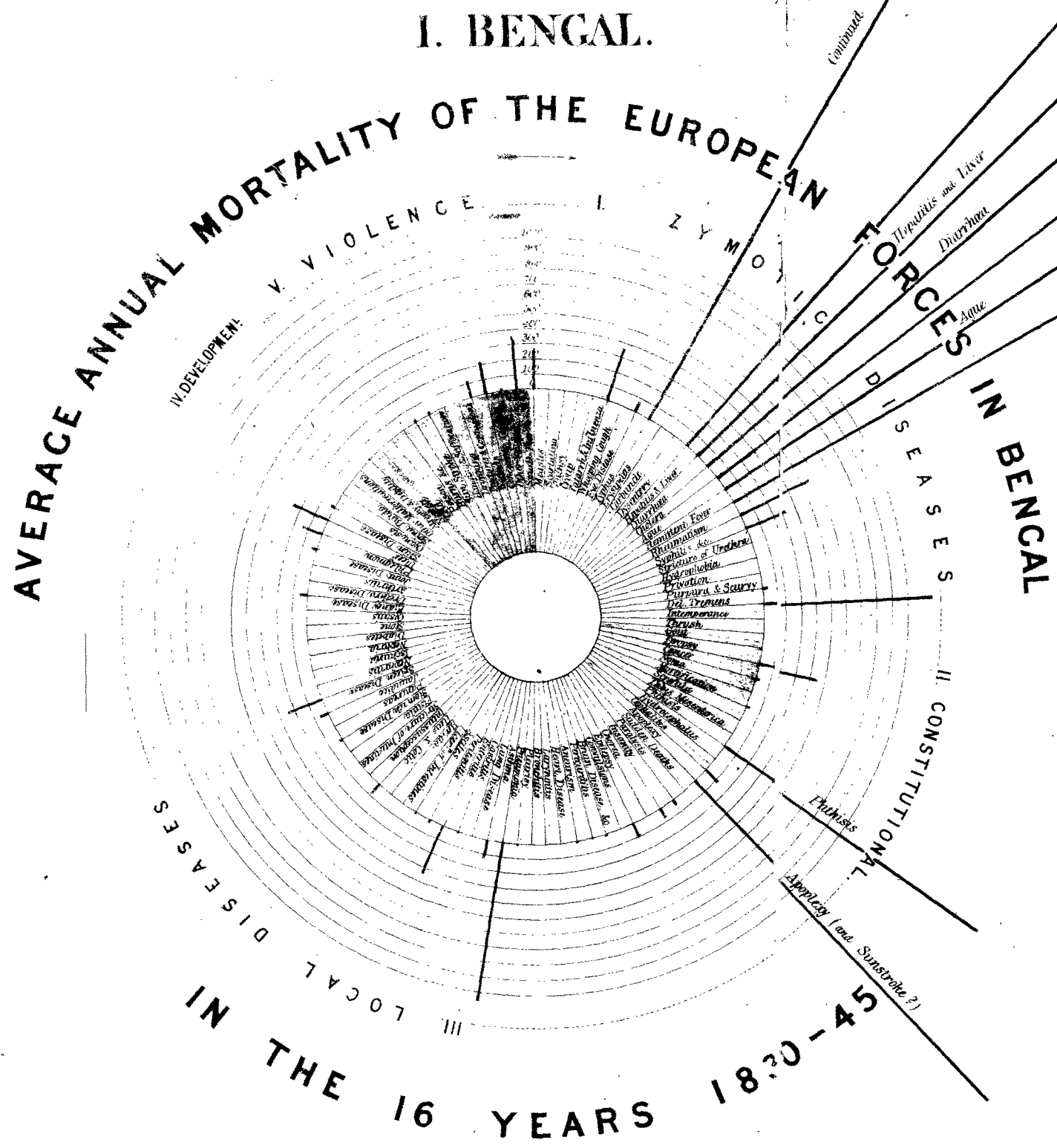
FATAL DISEASES OF INDIA AND ENGLAND COMPARED.

EXPLANATION.

Diagrams representing the Average Annual Mortality by each of 95 Causes (I) to 1,000,000 of the European Forces in Bengal in the 16 years 1830-45, (II) to 1,000,000 Males in England of the Military Age 15-45.

The radiating Black lines in Diagrams I and II, external to the circumference of the colored circle represent the relative number of Deaths by each cause: thus in Diagram I, to every 1,000,000 European Troops in Bengal living, on an average 280 died annually by Small Pox, 362 by Catarrh & Influenza, 6253 by Continued Fever, 15,453 by Dysentery and so on. In Diagram II to every 1,000,000 Males of the Military Age 15-45 living, on an average 112 died annually by Small Pox, 27 by Catarrh & Influenza, 904 by Typhus & other Fevers, 51 by Dysentery & so on for other diseases.

The Scale of Deaths reckons from the external circumference of the Colored Circle to the last of the 10 thin black Circles & represents 1000 deaths; the space between each of the Thin black Circles represents 100 deaths.



BOMBAY PRESIDENCY.—Monthly, Quarterly, Half-yearly, and Yearly Falls of Rain—*continued.*

Place	POONA			POONA			POONA			ALIBAUGH.		
	18° 30' N.			18° 30' N.			18° 30' N.			18° 40' N.		
Latitude	74° 0' E.			74° 0' E.			74° 0' E.			72° 58' E.		
Longitude	1,800 feet			1,800 feet			1,800 feet . . . . .			. . . . .
Height	5 Years. 1826 to 1830.	Winter, Spring, Summer, Autumn.	October to March. April to Sep- tember.	8 Years. 1842 to 1849.	Winter, Spring, Summer, Autumn.	October to March. April to Sep- tember.	5 Years. 1856 to 1860.	Winter, Spring, Summer, Autumn.	October to March. April to Sep- tember.	1 Year. 1845.	Winter, Spring, Summer, Autumn.	October to March. April to Sep- tember.
MONTH.												
January - - -	0.5	0.8	5.1	0.0	0.0	2.1	0.3	0.3	10.8	0.0	0.0	0.0
February - - -	0.0			0.0			0.0			0.0		
March - - -	0.0	2.0	17.7	0.0	2.4	19.9	1.3	5.7	27.6	0.0	0.0	0.0
April - - -	0.2			0.0			0.0			0.0		
May - - -	1.8	13.4	17.7	1.6	15.1	19.9	3.8	18.7	27.6	0.0	0.0	0.0
June - - -	5.7			5.0			7.3			2.8			8.6	7.3	4.5
July - - -	5.5	6.6	17.7	2.8	4.5	19.9	7.3	13.7	27.6	19.1	58.8	67.2
August - - -	2.2			2.4			2.4			4.5		
September - - -	2.3	6.6	17.7	2.4	4.5	19.9	4.5	13.7	27.6	8.4	8.4	67.2
October - - -	3.4			1.2			1.2			3.7		
November - - -	0.9	6.6	17.7	0.9	4.5	19.9	5.5	13.7	27.6	0.0	8.4	67.2
December - - -	0.3			0.0			0.0			0.0		
Year - - -	22.8	..	..	22.0	..	..	38.4	..	..	67.2	..	..

(continued.)

Place	SEEROO			BOMBAY			BOMBAY			NASSIK.		
	18° 50' N.			18° 53' N.			18° 53' N.			20° 0' N.		
Latitude	77° 25' E.			72° 52' E.			72° 52' E.			73° 47' E.		
Longitude	1,752 feet . . . . .			. . . . .			. . . . .			. . . . .
Height	5 Years. 1854 to 1858.	Winter, Spring, Summer, Autumn.	October to March. April to Sep- tember.	34 Years. 1817 to 1850.	Winter, Spring, Summer, Autumn.	October to March. April to Sep- tember.	12 Years. 1847 to 1858.	Winter, Spring, Summer, Autumn.	October to March. April to Sep- tember.	4 Years. 1844 to 1847.	Winter, Spring, Summer, Autumn.	October to March. April to Sep- tember.
MONTH.												
January - - -	0.1	0.4	5.2	0.0	0.0	1.3	0.1	0.2	3.9	0.0	0.0	4.8
February - - -	0.3			0.0			0.0			0.0		
March - - -	0.4	4.2	15.9	0.0	0.0	75.9	0.1	1.1	65.7	0.0	0.0	0.0
April - - -	0.9			0.0			0.0			0.0		
May - - -	2.9	8.2	15.9	0.0	63.8	75.9	1.0	56.5	65.7	0.0	0.0	0.0
June - - -	3.7			22.1			24.9			23.4			24.0	24.0	6.8
July - - -	3.0	8.3	15.9	24.9	12.4	75.9	24.0	12.9	65.7	6.7	16.9	23.8
August - - -	1.5			16.8			16.8			9.1		
September - - -	3.9	8.3	15.9	11.1	12.4	75.9	10.1	12.9	65.7	2.9	7.7	23.8
October - - -	3.7			1.3			1.3			2.1		
November - - -	0.7	8.3	15.9	0.0	12.4	75.9	0.7	12.9	65.7	1.5	7.7	23.8
December - - -	0.0			0.0			0.0			0.1		
Year - - -	21.1	..	..	76.2	..	..	68.7	..	..	28.6	..	..

BOMBAY PRESIDENCY.—Monthly, Quarterly, Half-yearly, and Yearly Falls of Rain—*continued.*

Place	AURUNGABAD			MULLIGAUM			DHOOLIA			KAMPTEE.		
	Latitude	19° 30' N.		Latitude	20° 32' N.		Latitude	20° 54' N.		Latitude	21° 16' N.	
Longitude	75° 30' E.		Longitude	74° 30' E.		Longitude	74° 45' E.		Longitude	79° 14' E.		
Height			Height	1,300 feet		Height	1,000 feet		Height . . . . .	.....	
MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March. April to September.	1 Year.	Winter, Spring, Summer, Autumn.	October to March. April to September.	6 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	1 Year.	Winter, Spring, Summer, Autumn.	October to March. April to September.
	1848.			1860 ?			1853 to 1858.			1843.		
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
January	0·0	} 0·0	} 2·9	0·0	} ..	} ..	0·0	} 0·5	} 14·4	4·3	} 4·3	} 9·9
February	0·0			0·0			0·0			0·2			0·0	0·0
March	0·0	} 5·8	} 41·2	0·0	} ..	} ..	0·6	} 3·4	} 69·9	2·2	} 2·5	} 31·9
April	0·1			0·1			0·0			0·5			0·0	0·3
May	5·7	} 17·1	} 41·2	0·6	} ..	} ..	2·3	} 46·2	} 69·9	0·8	} 24·2	} 31·9
June	7·9			4·9			15·3			0·8			0·8
July	6·8	} 21·2	} 41·2	2·6	} ..	} ..	21·4	} 34·2	} 69·9	18·8	} 10·8	} 31·9
August	2·4			0·9			9·5			4·6			4·6
September	18·3	} 21·2	} 41·2	0·0	} ..	} ..	20·9	} 34·2	} 69·9	7·4	} 10·8	} 31·9
October	1·0			0·0			13·3			3·4			3·4
November	1·9	} 21·2	} 41·2	0·0	} ..	} ..	0·0	} 34·2	} 69·9	0·0	} 10·8	} 31·9
December	0·0			0·0			0·3			0·0			0·0
Year	44·1	..	..	9·1	..	..	84·3	..	..	41·8	..	..

(continued.)

Place	BARODA			BARODA			RAJCOTE			AHMEDABAD.		
	Latitude	22° 16' N.		Latitude	22° 16' N.		Latitude	22° 18' N.		Latitude	23° 0' N.	
Longitude	73° 14' E.		Longitude	73° 14' E.		Longitude	70° 50' E.		Longitude	72° 0' E.		
Height	90 feet		Height	90 feet		Height	450 feet		Height	320 feet.		
MONTH.	7 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	11 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	4 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	1 Year.	Winter, Spring, Summer, Autumn.	October to March. April to September.
	1847 to 1853.			1837 to 1847.			1857 to 1860.			1843.		
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
January	0·0	} 0·2	} 0·7	0·0	} 0·0	} 1·0	0·0	} 0·0	} 0·0	0·0	} 0·0	} 0·0
February	0·1			0·0			0·0			0·0		
March	0·1	} 0·7	} 35·2	0·0	} 1·0	} 33·1	0·0	} 0·0	} 26·6	0·0	} 2·0	} 16·0
April	0·0			0·0			0·0			0·0			0·0
May	0·6	} 30·3	} 35·2	1·0	} 26·3	} 33·1	0·0	} 21·4	} 26·6	2·0	} 14·0	} 16·0
June	6·3			6·2			4·2			7·6			7·6
July	15·9	} 4·7	} 35·2	13·2	} 6·8	} 33·1	8·3	} 5·2	} 26·6	2·2	} 0·0	} 16·0
August	8·1			6·9			8·9			2·2			2·2
September	4·3	} 4·7	} 35·2	5·8	} 6·8	} 33·1	5·2	} 5·2	} 26·6	0·0	} 0·0	} 16·0
October	0·4			1·0			0·0			0·0			0·0
November	0·0	} 4·7	} 35·2	0·0	} 6·8	} 33·1	0·0	} 5·2	} 26·6	0·0	} 0·0	} 16·0
December	0·1			0·0			0·0			0·0		
Year	35·9	..	..	34·1	..	..	26·6	..	..	16·0	..	..

BOMBAY PRESIDENCY.—Monthly, Quarterly, Half-yearly, and Yearly Falls of Rain—continued.

Place	AHMEDABAD			AHMEDNUGGUR			AHMEDNUGGUR			KOTRI near HYDERABAD.			
	23° 0' N.			23° 34' N.			23° 34' N.			23° 54' N.			
Latitude	72° 0' E.			73° 1' E.			73° 1' E.			68° 46' E.			
Longitude	320 feet			1,900 feet			1,900 feet			
Height	MONTH.	2 Years.	Winter,	October	4 Years.	Winter,	October	6 Years.	Winter,	October	5 Years.	Winter,	October
		1858 and	Spring,	to	1844 to	Spring,	to	1854 to	Spring,	to	1845 to	Spring,	to
	1859.	Summer,	March.	1847.	Summer,	March.	1859.	Summer,	March.	1849.	Summer,	March.	1849.
		Autumn.	April	Autumn.	Autumn.	April	Autumn.	Autumn.	April	Autumn.	Autumn.	April	Autumn.
		to	to	to	to	to	to	to	to	to	to	to	to
		September.	September.	September.	September.	September.	September.	September.	September.	September.	September.	September.	September.
January - - -	0.0	in.	in.	0.0	in.	in.	0.1	in.	in.	0.0	in.	in.	0.0
February - - -	0.0	0.0	0.0	0.2	0.3	3.0	0.0	0.7	6.7	0.0	0.0	0.1	0.1
March - - -	0.0	0.0	31.3	0.6	5.5	21.9	0.2	2.7	19.4	0.1	0.4	1.7	1.7
April - - -	0.0			0.8			4.1			2.3			
May - - -	0.0	25.3	31.3	5.1	10.3	21.9	4.3	10.5	19.4	1.3	1.3	1.3	1.3
June - - -	1.8			3.1			2.1			2.1				0.0	0.0
July - - -	15.9	6.0	31.3	2.1	3.8	21.9	4.1	12.2	19.4	0.0	0.0	0.0	0.0
August - - -	7.6			6.7			0.2			5.2				0.0	0.0
September - - -	6.0	6.0	31.3	0.2	3.8	21.9	6.4	12.2	19.4	0.0	0.0	0.0	0.0
October - - -	0.0			1.9			0.6			0.6				0.0	0.0
November - - -	0.0	6.0	31.3	0.1	3.8	21.9	0.6	12.2	19.4	0.0	0.0	0.0	0.0
December - - -	0.0			0.1			0.6			0.6				0.0	0.0
Year - - -	31.3	..	..	24.9	..	..	26.1	..	..	1.8	..	..	..

(continued.)

Place	NEEMUCH			MOUNT ABOO			KURRACHEE			DEESA.			
	24° 27' N.			24° 45' N.			24° 51' N.			25° 14' N.			
Latitude	74° 54' E.			72° 49' E.			67° 2' E.			72° 5' E.			
Longitude	1,476 feet			4,000 feet			27 feet			400 feet.			
Height	MONTH.	1 Year.	Winter,	October	5 Years.	Winter,	October	5 Years.	Winter,	October	3 Years.	Winter,	October
		1860.	Spring,	to	1855 to	Spring,	to	1856 to	Spring,	to	1857 to	Spring,	to
		Summer,	March.	1859.	Summer,	March.	1860.	Summer,	March.	1859.	Summer,	March.	1859.
		Autumn.	April	Autumn.	Autumn.	April	Autumn.	Autumn.	April	Autumn.	Autumn.	April	Autumn.
		to	to	to	to	to	to	to	to	to	to	to	to
		September.	September.	September.	September.	September.	September.	September.	September.	September.	September.	September.	September.
January - - -	0.0	in.	in.	0.8	in.	in.	0.4	in.	in.	0.6	in.	in.	0.6
February - - -	0.3	0.6	0.8	0.2	1.0	1.0	0.3	0.9	0.9	0.2	0.8	0.8	0.8
March - - -	0.0	0.3	33.3	0.0	0.6	63.7	0.0	0.0	3.7	0.0	0.0	23.8	23.8
April - - -	0.0			0.3			0.3			0.0			
May - - -	0.3	29.2	33.3	0.3	52.2	63.7	0.0	3.3	3.7	3.8	18.6	18.6	18.6
June - - -	1.7			10.3			25.9			1.8				8.6
July - - -	11.8	4.0	33.3	17.0	9.9	63.7	1.5	0.4	3.7	6.2	5.2	5.2	5.2
August - - -	15.7			9.9			17.0			0.4				5.2
September - - -	3.8	4.0	33.3	9.9	9.9	63.7	0.4	0.4	3.7	5.2	0.0	5.2	5.2
October - - -	0.2			0.0			0.0			0.0				0.0
November - - -	0.0	4.0	33.3	0.0	9.9	63.7	0.0	0.4	3.7	0.0	0.0	0.0	0.0
December - - -	0.3			0.0			0.0			0.2				0.0
Year - - -	34.1	..	..	64.7	..	..	4.6	..	..	24.6	..	..	..

BOMBAY PRESIDENCY.—Monthly, Quarterly, Half-yearly, and Yearly Falls of Rain—*continued.*

Place	HYDERABAD			BIJAPORE			NUSSEERABAD.								
	25° 30' N.			26° 2' N.			26° 20' N.								
Latitude	69° 5' E.			77° 28' E.			74° 50' E.								
Longitude	99 feet						1,500 feet.								
Height	MONTH.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.					
		1856 and 1857.		April to September.	1848.		April to September.	1859 and 1860.		April to September.					
January - - -	in.	0·6	} 1·1	1·1	0·0	} 0·0	8·4	0·0	} 0·9	0·9					
February - - -	0·5				0·0					0·9		0·9			
March - - -	0·0				0·0					0·0					
April - - -	0·6	} 0·6	} 19·4	0·0	} 0·0	} 17·0	0·0	} 0·4	} 0·4						
May - - -	0·0									0·0			0·4		
June - - -	0·0									0·8			0·3		14·9
July - - -	1·9	} 16·7	} 19·4	3·7	} 13·0	} 17·0	6·1	} 14·2	} 14·2						
August - - -	14·8									8·5			7·8		
September - - -	2·1									4·0			0·3		
October - - -	0·0	} 2·1	} 19·4	4·6	} 12·4	} 17·0	0·0	} 0·3	} 0·3						
November - - -	0·0									3·8			0·0		
December - - -	0·0									0·0			0·0		
Year - - -	20·5	..	..	25·4	..	..	15·8	..	..	..		

TABLES showing the MONTHLY, QUARTERLY, HALF-YEARLY, and YEARLY FALLS OF RAIN at Stations in the BENGAL PRESIDENCY, arranged in the order of Latitude.

TABLE CXLI., showing the Monthly, Quarterly, Half-yearly, and Yearly FALLS OF RAIN at Stations situated between the Latitudes 19° 48' N. and 34° 20' N., and Longitudes 71° 29' E. and 92° 56' E., for the most part in the PRESIDENCY of BENGAL.

Place	POREE, or JUGGERNAUT.			ANKBAR			THYET MYO			CUTTACK.										
	19° 48' N.			20° 8' N.			20° 18' N.			20° 29' N.										
Latitude	85° 49' E.			92° 56' E.			92° 46' E.			85° 54' E.										
Longitude							240 feet . . . . .			.....							
Height	MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.							
		1851.		April to September.	1851.		April to September.	1859.		April to September.	1851.		April to September.							
January - - -	in.	0·0	..	..	0·0	} 2·5	16·6	0·0	} 0·4	7·5	0·1	} 0·1	12·1					
February - - -	0·4			0·0				0·0					7·5	0·0		12·1				
March - - -	0·0			0·0				0·3					0·3	0·3						
April - - -	1·0	} 0·6	} 11·0	0·0	} 11·0	} 138·4	0·5	} 3·1	} 31·1	1·6	} 2·7	} 2·7								
May - - -	0·5									11·3					2·3			0·8		
June - - -	4·5									59·5					16·5			7·3		38·1
July - - -	14·3	} 109·5	} 138·4	22·4	} 109·5	} 138·4	6·9	} 33·2	} 33·2	10·2	} 29·6	} 29·6								
August - - -	7·4									27·6					9·8			12·1		
September - - -	4·4									17·6					4·8			6·1		
October - - -	{ blown down.	} 31·7	} 138·4	14·1	} 31·7	} 138·4	6·8	} 11·6	} 11·6	11·7	} 17·8	} 17·8								
November - - -	..									0·0					0·0			0·0		
December - - -	..									2·5					0·4			0·0		
Year - - -	..	..	..	155·0	..	..	48·3	..	..	50·2	..	..	..				

BENGAL PRESIDENCY.—Monthly, Quarterly, Half-yearly, and Yearly Falls of Rain—*continued.*

Place	BHORE			SEETABULDEE			NAGPORE			BALASORE.		
	Latitude 20° 56' N.			21° 10' N.			21° 10' N.			21° 31' N.		
Longitude 79° 3' E.			79° 9' E.			79° 10' E.			86° 58' E.			
Height 2,350 feet			939 feet . . . . .			. . . . .			. . . . .
MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.	7 Years.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.
	1843.		April to September.	1858 to 1860.		April to September.	1826 to 1832.		April to September.	1851.		April to September.
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
January - - -	0.0	0.0	5.7	0.0	2.0	3.1	0.4	2.4	7.9	0.5	0.8	11.3
February - - -	0.0			0.9			0.8			0.3		
March - - -	0.0			0.2			1.2			1.2		
April - - -	0.0	2.1		2.2	3.2		0.1	1.9		3.4	4.7	
May - - -	2.1			0.8			0.6			0.1		
June - - -	2.4		23.8	3.8		43.4	10.7		40.7	3.2		19.6
July - - -	13.2	20.8		13.1	29.3		11.5	31.9		5.9	12.7	
August - - -	5.2			12.4			9.7			3.6		
September - - -	0.9			11.1			8.1			3.4		
October - - -	1.5	6.6		0.9	12.0		3.4	4.1		9.1	13.7	
November - - -	4.2			0.0			0.9			0.2		
December - - -	0.0			1.1			1.2			0.0		
Year - - -	29.5	..	..	46.5	..	..	48.6	..	..	30.9	..	..

(continued.)

Place	BAITOUL			CHITTAGONG			MIDNAPORE			CALCUTTA.		
	Latitude 21° 51' N.			22° 20' N.			22° 25' N.			22° 34' N.		
Longitude 77° 58' E.			91° 47' E.			87° 19' E.			88° 25' E.			
Height . . . . .			. . . . .			. . . . .			80 feet.			
MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	15 Years.	Winter, Spring, Summer, Autumn.	October to March.
	1859.		April to September.	1851.		April to September.	1851.		April to September.	1836 to 1850.		April to September.
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
January - - -	0.0	0.0	0.2	0.0	2.3	13.1	0.3	0.5	9.4	0.4	1.3	7.1
February - - -	0.0			1.9			0.2			0.6		
March - - -	0.0			0.0			1.5			0.8		
April - - -	0.0	1.2		2.5	10.0		1.7	3.2		1.9	6.8	
May - - -	1.2			7.5			0.0			4.1		
June - - -	3.5		31.8	25.9		73.3	3.1		13.3	10.6		49.7
July - - -	14.5	26.9		13.1	47.0		4.4	11.6		10.6	34.7	
August - - -	8.9			8.0			4.1			13.5		
September - - -	3.7			16.3			0.0			9.0		
October - - -	0.0	3.9		10.8	27.1		7.4	7.4		4.0	4.6	
November - - -	0.2			0.0			0.0			1.0		
December - - -	0.0			0.4			0.0			0.3		
Year - - -	32.0	..	..	86.4	..	..	22.7	..	..	56.8	..	..

BENGAL PRESIDENCY.—Monthly, Quarterly, Half-yearly, and Yearly Falls of Rain—*continued.*

Place	FORT WILLIAM			BURISAU			HOSINGABAD			HOOGLY		
	Latitude 22° 34' N.			Latitude 22° 35' N.			Latitude 22° 44' N.			Latitude 22° 58' N.		
Longitude 88° 25' E.			Longitude 90° 17' E.			Longitude 77° 44' E.			Longitude 88° 26' E.			
Height 18 feet . . . . .			. . . . .			. . . . .			. . . . .
MONTH.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.
	1855 to 1859.		April to September.	1851.		April to September.	1849.		April to September.	1851.		April to September.
January - - -	0.3	in. } 0.7	in. } 7.7	in. } 0.0	in. } 2.5	in. } 23.7	in. } 1.5	in. } 1.5	in. } 1.5	in. } 1.0	in. } 1.6	in. } 11.6
February - - -	0.4	} 9.2	} 57.4	} 20.7	} 59.6	} 70.8	} 0.0	} 0.8	} 9.9	} 0.6	} 2.1	} 24.4
March - - -	1.6											
April - - -	1.6	} 40.2	} 17.9	} 21.0	} 28.1	} 0.0	} 0.0	} 9.1	} 9.9	} 2.1	} 19.6	} 24.4
May - - -	6.0											
June - - -	10.9	} 15.0	} 6.9	} 21.2	} 0.0	} 0.0	} 0.0	} 0.0	} 0.0	} 5.8	} 12.7	} 24.4
July - - -	14.1											
August - - -	15.2	} 15.0	} 21.2	} 0.0	} 0.0	} 0.0	} 0.0	} 0.0	} 0.0	} 4.2	} 12.7	} 24.4
September - - -	9.6											
October - - -	5.4	} 15.0	} 21.2	} 0.0	} 0.0	} 0.0	} 0.0	} 0.0	} 0.0	} 2.7	} 12.7	} 24.4
November - - -	0.0											
December - - -	0.0	} 15.0	} 21.2	} 0.0	} 0.0	} 0.0	} 0.0	} 0.0	} 0.0	} 10.0	} 12.7	} 24.4
Year - - -	65.1											
Year - - -	65.1	..	..	94.5	..	..	11.4	..	..	36.0	..	..

(continued.)

Place	JESSORE			JUBBLEPORE			BURDWAN			BANCOORAH		
	Latitude 23° 9' N.			Latitude 23° 9' N.			Latitude 23° 13' N.			Latitude 23° 13' N.		
Longitude 89° 10' E.			Longitude 79° 59' E.			Longitude 87° 52' E.			Longitude 87° 6' E.			
Height . . . . .			. . . . .			. . . . .			. . . . .
MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.
	1851.		April to September.	1851.		April to September.	1851.		April to September.	1851.		April to September.
January - - -	0.4	in. } 0.4	in. } 7.5	in. } 0.5	in. } 1.4	in. } 3.1	in. } 0.3	in. } 1.4	in. } 7.9	in. } 0.9	in. } 1.8	in. } 5.8
February - - -	0.0	} 4.4	} 32.7	} 6.0	} 27.1	} 35.8	} 0.3	} 0.7	} 20.3	} 0.9	} 6.3	} 25.2
March - - -	0.0											
April - - -	3.9	} 22.9	} 17.2	} 3.9	} 9.9	} 8.8	} 5.2	} 17.3	} 20.3	} 4.2	} 15.9	} 25.2
May - - -	0.5											
June - - -	8.6	} 12.5	} 8.2	} 1.3	} 9.9	} 2.6	} 5.6	} 7.8	} 7.8	} 4.4	} 7.0	} 25.2
July - - -	9.9											
August - - -	4.4	} 12.5	} 8.2	} 1.3	} 9.9	} 2.6	} 5.6	} 7.8	} 7.8	} 2.7	} 7.0	} 25.2
September - - -	5.4											
October - - -	7.1	} 12.5	} 8.2	} 1.3	} 9.9	} 2.6	} 5.6	} 7.8	} 7.8	} 4.1	} 7.0	} 25.2
November - - -	0.0											
December - - -	0.0	} 12.5	} 8.2	} 1.3	} 9.9	} 2.6	} 5.6	} 7.8	} 7.8	} 0.0	} 7.0	} 25.2
Year - - -	40.2											
Year - - -	40.2	..	..	38.9	..	..	28.2	..	..	31.0	..	..

BENGAL PRESIDENCY.—Monthly, Quarterly, Half-yearly, and Yearly Falls of Rain—*continued.*

Place	KISHNUGHUR			TIPPERAGH			DACCA			BEERBHOOM.		
	Latitude 23° 24' N.			Latitude 23° 27' N.			Latitude 23° 43' N.			Latitude 23° 44' N.		
Longitude 88° 22' E.			Longitude 91° 5' E.			Longitude 90° 23' E.			Longitude 87° 34' E.			
Height			Height			Height 22 feet			Height			
MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March. April to September.	1 Year.	Winter, Spring, Summer, Autumn.	October to March. April to September.	1 Year.	Winter, Spring, Summer, Autumn.	October to March. April to September.	1 Year.	Winter, Spring, Summer, Autumn.	October to March. April to September.
	1851.			1851.			1851.			1851.		
January - - -	2.5	} 3.7	in. 6.2	0.8	} 2.0	in. 15.5	0.7	} 1.7	in. 14.4	0.0	} 1.8	in. 6.7
February - - -	1.2		0.0	1.2		0.0	15.5		1.0	14.4		0.6	6.7
March - - -	0.0	} 2.6	51.5	0.0	} 8.6	80.5	0.0	} 7.0	54.6	1.2	} 3.7	25.4
April - - -	2.6			5.5			8.6			4.3			7.0	2.5	3.7
May - - -	0.0	} 37.9	19.5	3.1	} 60.9	80.5	2.7	} 42.9	54.6	0.0	} 30.2	25.4
June - - -	4.1			19.5			60.9			18.8			42.9	3.5	30.2
July - - -	23.0	} 13.5	11.0	16.1	} 24.5	11.0	13.8	} 17.4	11.3	11.3	} 7.6	30.2
August - - -	10.8			11.0			24.5			10.3			17.4	5.4	7.6
September - - -	11.0	} 7.4	13.5	11.0	} 19.0	11.0	4.7	} 10.8	2.7	2.7	} 10.7	30.2
October - - -	2.5			13.5			19.0			12.7			10.8	4.9	10.7
November - - -	0.0	} 1.6	0.0	0.0	} 1.6	0.0	0.0	} 1.6	0.0	0.0	} 1.6	30.2
December - - -	0.0			0.0			1.6			0.0			1.6	0.0	1.6
Year - - -	57.7	..	..	96.0	..	..	69.0	..	..	82.1	..	..

(continued.)

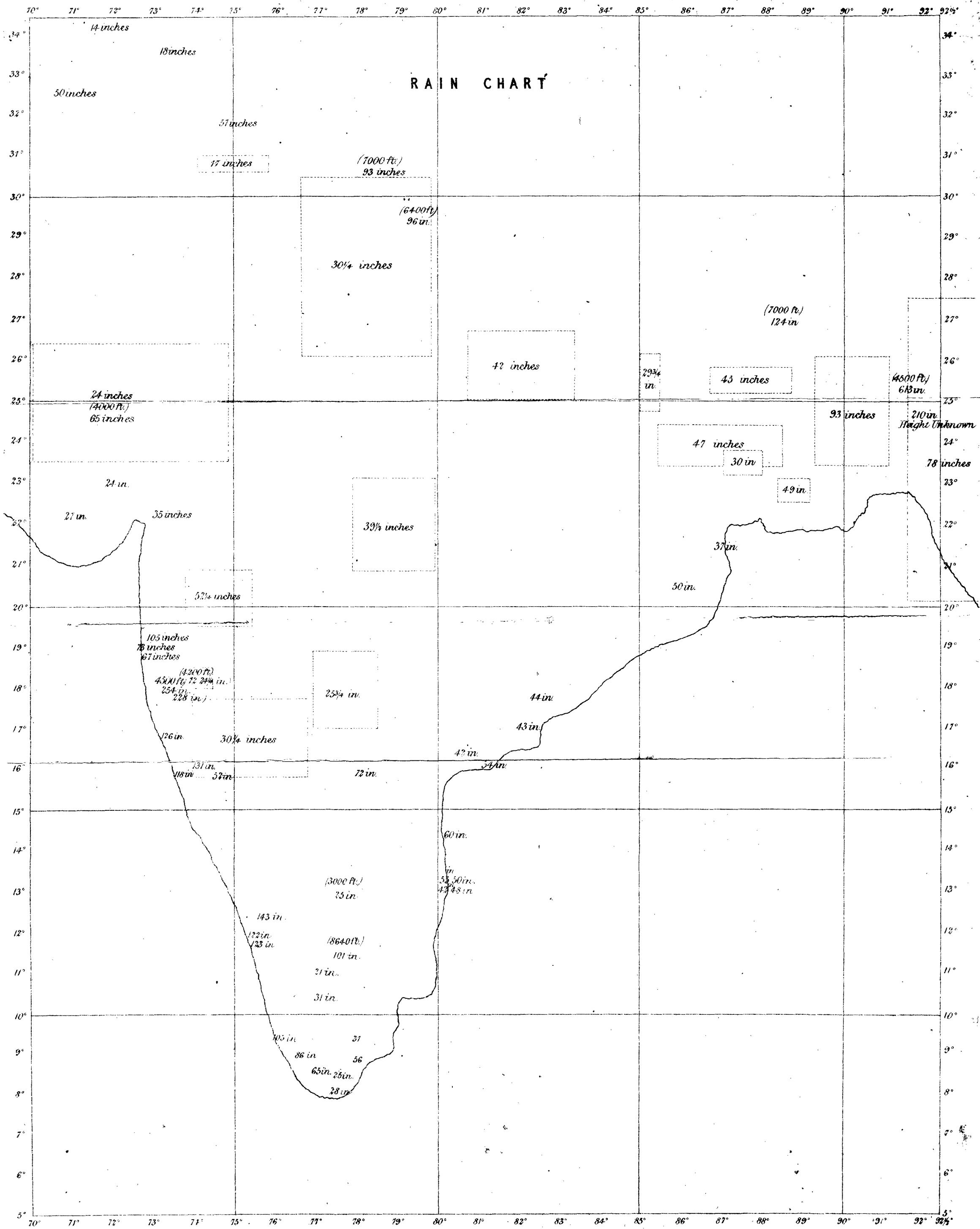
Place	HAZAREEBAUGH			HAZAREEBAUGH			BERHAMPORE			MOORSHEDABAD.		
	Latitude 24° 0' N.			Latitude 24° 0' N.			Latitude 24° 5' N.			Latitude 24° 11' N.		
Longitude 85° 24' E.			Longitude 85° 24' E.			Longitude 88° 17' E.			Longitude 88° 13' E.			
Height 1,900 feet			Height 1,900 feet			Height 76 feet			Height 76 feet.			
MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March. April to September.	3 Years. 1858 to 1860.	Winter, Spring, Summer, Autumn.	October to March. April to September.	3 Years. 1857 to 1859.	Winter, Spring, Summer, Autumn.	October to March. April to September.	1 Year. 1851.	Winter, Spring, Summer, Autumn.	October to March. April to September.
	1851.			1858 to 1860.			1857 to 1859.			1851.		
January - - -	0.0	} 1.0	in. 3.1	0.0	} 2.9	in. 11.4	0.1	} 0.8	in. 6.2	0.2	} 1.9	in. 9.0
February - - -	1.0		0.0	3.1		1.3	2.9		11.4	0.5		0.8	6.2	1.7	1.9	9.0
March - - -	0.4	} 1.3	29.0	2.0	} 6.8	61.5	0.5	} 8.0	43.6	0.0	} 4.9	31.5
April - - -	0.4			0.7			6.8			1.4			8.0	2.3	4.9
May - - -	0.5	} 22.4	12.1	4.1	} 44.2	61.5	6.1	} 30.2	43.6	2.6	} 23.0	31.5
June - - -	8.8			12.1			44.2			6.9			30.2	4.6	23.0
July - - -	7.9	} 7.4	12.5	15.5	} 19.0	12.5	13.6	} 10.8	10.7	10.7	} 10.7	31.5
August - - -	5.7			12.5			19.0			9.7			10.8	7.7	10.7
September - - -	5.7	} 1.6	6.5	12.5	} 19.0	12.5	5.9	} 10.8	3.6	3.6	} 10.7	31.5
October - - -	0.9			6.5			19.0			4.9			10.8	7.1	10.7
November - - -	0.8	} 1.6	0.0	0.0	} 1.6	0.0	0.0	} 1.6	0.0	0.0	} 1.6	31.5
December - - -	0.0			0.0			1.6			0.2			1.6	0.0	1.6
Year - - -	32.1	..	..	72.9	..	..	49.8	..	..	40.5	..	..

BENGAL PRESIDENCY.—Monthly, Quarterly, Half-yearly, and Yearly Falls of Rain—*continued.*

Place	BAULIAH			MYMENSING			CACHAR			SYLHET		
	Latitude 24° 23' N.			Latitude 24° 49' N.			Latitude 24° 48' N.			Latitude 24° 53' N.		
Longitude 88° 33' E.			Longitude 90° 24' E.			Longitude 92° 47' E.			Longitude 91° 50' E.			
Height . . . . .			. . . . .			. . . . .			. . . . .
MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.
	1851.		April to September.	1851.		April to September.	1851.		April to September.	1851.		April to September.
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
January - - -	0·0	0·6	4·3	0·8	4·0	15·2	0·0	0·5	13·8	0·3	5·2	27·8
February - - -	0·6	0·7	27·3	3·2	13·1	94·8	0·0	39·9	89·1	4·5	64·9	182·1
March - - -	0·2			0·5			0·0			2·2		
April - - -	0·2	23·4	35·3	5·3	75·7	15·4	12·1	39·9	39·1	19·3	101·5	38·3
May - - -	0·3			7·3			27·8			43·4		
June - - -	6·9	6·9	20·0	35·3	17·2	8·9	15·6	22·6	17·9	39·7	38·3	0·4
July - - -	11·6			20·4			8·9			33·5		
August - - -	4·9	0·2	6·5	20·4	0·0	9·3	8·9	0·0	17·9	28·3	0·0	0·4
September - - -	3·4			6·5			9·3			17·9		
October - - -	3·3	0·0	10·7	10·7	0·0	11·3	11·3	0·5	20·4	20·4	0·0	0·4
November - - -	0·2			0·0			2·0			0·0		
December - - -	0·0	0·0	0·0	0·0	0·0	0·5	0·5	0·4	0·4	0·4	0·4	0·4
Year - - -	31·6	..	..	110·0	..	..	102·9	..	..	209·9	..	..

(continued.)

Place	GYAH			UTTRA MULLAY			CHUNAR			BEAUGULPORE		
	Latitude 24° 48' N.			Latitude 24° 55' N.			Latitude 25° 5' N.			Latitude 25° 14' N.		
Longitude 85° 3' E.			Longitude 85° 20' E.			Longitude 83° 0' E.			Longitude 87° 0' E.			
Height . . . . .			. . . . .			4,600 feet			250 feet			
MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.	10 Years.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.
	1851.		April to September.	1844 to 1846.		April to September.	1850 to 1852.		April to September.	1851.		April to September.
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
January - - -	0·3	1·6	4·6	4·3	22·5	102·3	0·5	3·3	7·1	0·8	2·3	10·2
February - - -	1·3	0·0	20·1	0·2	28·2	127·6	1·5	1·8	43·0	1·5	1·6	32·4
March - - -	0·0			4·9			0·8			0·0		
April - - -	0·0	15·9	37·0	3·6	97·2	14·0	0·5	36·0	36·0	0·8	28·4	10·3
May - - -	0·0			19·7			0·5			0·8		
June - - -	3·3	7·2	36·7	37·0	82·0	12·0	10·0	9·0	43·0	10·5	10·3	0·0
July - - -	9·3			36·7			14·0			36·0			14·4
August - - -	3·3	0·5	7·1	23·5	0·0	6·0	12·0	0·0	2·4	3·5	0·0	0·0
September - - -	4·2			7·1			6·0			2·4		
October - - -	2·5	0·0	50·2	7·1	18·0	2·5	2·5	9·0	7·9	7·9	0·0	0·0
November - - -	0·5			50·2			2·5			7·9		
December - - -	0·0	0·0	18·0	18·0	1·3	1·3	1·3	0·0	0·0	0·0	0·0	0·0
Year - - -	24·7	..	..	229·9	..	..	50·1	..	..	42·6	..	..



TO INQUIRE INTO THE SANITARY STATE OF THE ARMY IN INDIA.

BENGAL PRESIDENCY.—Monthly, Quarterly, Half-yearly, and Yearly Falls of Rain—continued.

Place	CHIRRAPOONGEE			CHIRRAPOONGEE			BENARES			BENARES			
	25° 16' N.			25° 16' N.			25° 18' N.			25° 18' N.			
Latitude	91° 44' E.			91° 44' E.			83° 3' E.			83° 3' E.			
Longitude	4,500 feet			4,500 feet			270 feet			270 feet			
Height	MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.
		1851.	1851.	April to September.	1859 and 1860.	1851.	1851.	1851.	1851.	1851.	1851.	1858 and 1859.	1851.	1851.
		in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
January		0.8	3.8	45.4	0.0	1.8	22.3	2.3	3.9	8.4	1.2	1.4	4.5
February		3.0			1.8			1.6			0.1		
March		1.8			3.0			0.7			0.1		
April		27.6	143.1		15.9	28.4		0.0	0.7		0.3	0.4	
May		115.2			9.5			0.0			0.0		
June		147.2		565.0	243.3		593.0	6.3		28.7	8.9		33.0
July		99.4	850.5		143.3	489.7		7.1	19.0		6.7	21.5	
August		103.9			103.1			5.6			5.9		
September		71.7			77.9			9.7			11.2		
October		40.3	112.0		17.5	95.4		3.8	18.5		2.0	14.2	
November		0.0			0.0			0.0			0.0		
December		0.0			0.0			0.0			0.1		
Years		610.4	..	..	615.3	..	..	37.1	..	..	37.5	..	..

(continued.)

Place	MOWBATH			DINAJPORE			DINAJPORE			RUNKPORE			
	25° 27' N.			25° 37' N.			25° 37' N.			25° 43' N.			
Latitude	86° 43' E.			86° 41' E.			86° 5' E.			89° 15' E.			
Longitude			
Height	MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.
		1851.	1851.	April to September.	1851.	1851.	1851.	1851.	1851.	1851.	1851.	1851.	1851.	1851.
		in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
January		0.9	2.1	8.9	0.8	1.6	8.4	1.8	2.8	6.6	1.1	1.2	4.9
February		1.2			0.8			1.0			0.1		
March		0.2			0.3			2.0			0.5		
April		0.0	1.6		0.7	3.5		0.0	2.0		3.7	13.9	
May		1.4			2.5			0.0			9.7		
June		8.2		27.3	12.5		38.3	4.5		24.5	23.9		69.7
July		6.7	18.3		12.7	31.9		3.7	15.0		11.7	50.0	
August		3.4			6.7			6.8			14.4		
September		8.1			3.2			7.5			6.3		
October		6.6	14.7		6.5	9.7		3.8	11.3		3.2	9.3	
November		0.0			0.0			0.0			0.0		
December		0.0			0.0			0.0			0.0		
Years		38.7	..	..	46.7	..	..	31.1	..	..	74.6	..	..

BENGAL PRESIDENCY.—Monthly, Quarterly, Half-yearly, and Yearly Falls of Rain—*continued.*

Place	PURNEAH			GHAZEEPORE			GHAZEEPORE			AZIMGHUR.		
	Latitude 25° 48' N.			Latitude 25° 49' N.			Latitude 25° 49' N.			Latitude 26° 3' N.		
Longitude 87° 33' E.			Longitude 80° 48' E.			Longitude 80° 48' E.			Longitude 83° 13' E.			
Height			Height			Height			Height			
MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	4 Years.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.
	1851.	April to September.	1851.	1851.	1851.	1851.	1856 to 1859.	1856 to 1859.	1856 to 1859.	1851.	1851.	1851.
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
January - - -	2.1	} 5.4	10.7	1.7	} 3.1	9.7	0.8	} 2.9	7.8	3.8	} 4.9	12.7
February - - -	3.3			1.4			0.6			1.7			0.4	1.1
March - - -	1.5	} 4.2	42.7	0.6	} 0.6	26.0	0.4	} 1.3	39.5	0.6	} 1.4	27.3
April - - -	2.0			0.0			0.0			0.4			0.0	0.8
May - - -	0.7	} 36.7	8.4	0.0	} 20.3	26.0	0.5	} 30.4	39.5	0.0	} 17.0	27.3
June - - -	9.8			8.4			6.2			7.4			4.5	8.7
July - - -	15.1	} 7.1	6.0	6.2	} 11.7	4.2	8.6	} 12.7	7.2	8.7	} 16.7	17.0
August - - -	11.8			5.7			5.7			14.4			9.5	8.8
September - - -	3.3	} 7.1	6.0	5.7	} 11.7	4.2	8.2	} 12.7	7.2	9.5	} 16.7	17.0
October - - -	3.8			6.0			6.0			4.2			7.2	7.2
November - - -	0.0	} 7.1	6.0	0.0	} 11.7	4.2	0.3	} 12.7	7.2	0.0	} 16.7	17.0
December - - -	0.0			0.0			0.0			0.3			0.0	0.0
Year - - -	53.4	...	...	35.7	...	...	47.3	...	...	40.0	...	...

(continued.)

Place	TIRHOOT			HUMEERPORE			GWALPOORAH			GOWAHUTTEE.		
	Latitude 26° 7' N.			Latitude 26° 7' N.			Latitude 26° 11' N.			Latitude 26° 11' N.		
Longitude 85° 26' E.			Longitude 79° 47' E.			Longitude 90° 40' E.			Longitude 91° 47' E.			
Height			Height			Height			Height			
MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.
	1851.	April to September.	1851.	1851.	1851.	1851.	1851.	1851.	1851.	1851.	1851.	1851.
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
January - - -	3.8	} 5.2	10.6	1.5	} 2.3	3.0	0.7	} 1.4	11.2	0.5	} 1.5	7.0
February - - -	1.4			0.8			0.0			0.7			0.5
March - - -	0.9	} 0.9	22.8	0.0	} 0.3	34.9	1.0	} 26.3	104.9	1.4	} 13.6	45.8
April - - -	0.0			0.3			0.0			10.2			5.6
May - - -	0.0	} 19.3	6.7	0.0	} 29.8	34.9	15.1	} 72.2	104.9	6.6	} 30.5	45.8
June - - -	3.5			6.7			12.6			17.9			9.4
July - - -	8.5	} 8.0	0.7	10.5	} 5.8	7.4	11.7	} 16.2	7.2	4.5	} 7.2	30.5
August - - -	7.3			4.8			4.8			7.4			3.1
September - - -	3.5	} 8.0	0.7	4.8	} 5.8	7.4	7.4	} 16.2	7.2	3.1	} 7.2	30.5
October - - -	4.5			0.7			0.7			8.8			3.7
November - - -	0.0	} 8.0	0.7	0.0	} 5.8	7.4	8.8	} 16.2	7.2	0.4	} 7.2	30.5
December - - -	0.0			0.0			0.0			0.0			0.5
Year - - -	33.4	...	...	37.9	...	...	116.1	...	...	52.8	...	...

BENGAL PRESIDENCY.—Monthly, Quarterly, Half-yearly, and Yearly Falls of Rain—continued.

Place	TEZPORE			BATICOTTE			KHERWARAH			ITAWAH			
	26° 36' N.			26° 40' N.			26° 42' N.			26° 45' N.			
Latitude	92° 50' E.			91° 59' E.			79° 12' E.			79° 3' E.			
Longitude . . . . .	. . . . .			. . . . .			1,200 feet			
Height	MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.
		1851.		April to September.	1847 and 1848.		April to September.	1854 to 1858.		April to September.	1851.		April to September.
January - - -	in.	0.0	2.2	7.3	1.5	11.0	0.0	0.0	0.8	2.8	3.5	3.8	
February - - -	in.	1.9			1.2		0.0	0.0		0.6			
March - - -	in.	2.1			1.1		0.0	0.0		0.0			
April - - -	in.	4.3	16.0		6.5	9.1	0.0	0.0		0.1	0.4		
May - - -	in.	9.6			1.5		0.0	0.0		0.3			
June - - -	in.	16.8		56.3	0.9		4.0	26.7		0.9		28.1	
July - - -	in.	4.5	37.9		1.3	3.9	12.3	20.2		11.4	21.5		
August - - -	in.	16.6			1.7		3.9			9.2			
September - - -	in.	4.5			2.6		6.5			6.2			
October - - -	in.	3.0	7.5		15.2	32.9	0.8	7.3		0.3	6.5		
November - - -	in.	0.0			15.1		0.0			0.0			
December - - -	in.	0.3			8.3		0.0			0.1			
Year - - -	in.	63.6	..	..	56.9	..	27.5	..	..	31.9	..	..

(continued.)

Place	GORUCKPORE			ENTESHWUR			DARJEELING			DARJEELING			
	26° 46' N.			26° 46' N.			27° 3' N.			27° 3' N.			
Latitude	83° 22' E.			79° 5' E.			88° 18' E.			88° 18' E.			
Longitude . . . . .	. . . . .			. . . . .			7,000 feet			7,000 feet		
Height	MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.
		1851.		April to September.	1848.		April to September.	1851.		April to September.	1857 to 1859.		April to September.
January - - -	in.	3.6	3.8	15.6	0.0	0.0	3.5	6.0	19.5	0.0	3.0	12.9	
February - - -	in.	0.2			0.0		2.4			2.5			
March - - -	in.	0.2			0.0		4.0			1.8			
April - - -	in.	0.1	1.7		0.0	2.6	4.6	14.3		4.1	14.4		
May - - -	in.	1.4			2.6		6.7			8.5			
June - - -	in.	15.6		46.1	6.0		31.0	105.8		20.9		109.6	
July - - -	in.	14.1	34.7		19.8	30.8	27.2	74.9		30.1	82.8		
August - - -	in.	5.0			5.0		16.7			31.8			
September - - -	in.	9.9			1.8		19.6			14.2			
October - - -	in.	11.6	21.5		2.3	4.3	9.4	29.1		7.7	22.3		
November - - -	in.	0.0			0.2		0.1			0.4			
December - - -	in.	0.0			0.0		0.1			0.5			
Year - - -	in.	61.7	..	..	37.7	..	125.3	..	..	122.5	..	..

BENGAL PRESIDENCY.—Monthly, Quarterly, Half-yearly, and Yearly Falls of Rain—*continued.*

Place . . . . .	. . . . . FUTTIGHUR . . . . .			. . . . . FUTTIGHUR . . . . .			. . . . . AGRA . . . . .			. . . . . DEBROGHUR.		
	Latitude 27° 23' N.			Latitude 27° 23' N.			Latitude 27° 10' N.			Latitude 27° 31' N.		
Longitude 79° 30' E.			Longitude 71° 30' E.			Longitude 78° 5' E.			Longitude 95° 1' E.			
Height 600 feet			Height 600 feet			Height 800 feet			Height			
MONTH.	2 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	1 Year. 1851.	Winter, Spring, Summer, Autumn.	October to March. April to September.	1 Year. 1851.	Winter, Spring, Summer, Autumn.	October to March. April to September.	1 Year. 1851.	Winter, Spring, Summer, Autumn.	October to March. April to September.
	1848 and 1849.											
January - - -	0.9	} 1.2	in. 4.1	4.9	} 5.6	in. 6.7	1.2	} 2.3	in. 2.9	0.6	} 6.1	in. 26.1
February - - -	0.0			0.0			0.7			0.0			0.2	5.5
March - - -	0.0	} 0.0	in. 21.3	0.6	} 1.0	in. 30.6	0.0	} 0.9	in. 25.0	2.3	} 26.2	in. 80.8
April - - -	0.0			0.1			0.3			0.2			9.4
May - - -	0.0	} 10.6	in. 3.2	0.3	} 24.0	in. 0.3	0.7	} 20.1	in. 12.8	14.5	} 44.9	in. 29.7
June - - -	2.7			15.4			3.2			9.8			13.7
July - - -	2.5	} 13.6	in. 6.3	5.4	} 6.7	in. 4.0	10.0	} 4.6	in. 12.0	18.4	} 29.7	in. 0.0
August - - -	5.4			0.4			0.0			0.6			17.7
September - - -	10.7	} 0.0	in. 0.0	6.3	} 0.0	in. 0.0	4.0	} 0.0	in. 0.0	12.0	} 0.0	in. 0.0
October - - -	2.9			0.0			0.0			0.0			0.0
November - - -	0.0	} 0.3	in. 0.0	0.0	} 0.0	in. 0.0	0.0	} 0.0	in. 0.0	0.0	} 0.0	in. 0.0
December - - -	0.3			0.0			0.0			0.0		
Year - - -	25.4	..	..	37.3	..	..	27.9	..	..	106.9	..	..

(continued.)

Place . . . . .	. . . . . DELHI . . . . .			. . . . . MEERUT . . . . .			. . . . . NYNER TAL . . . . .			. . . . . ROORKEE.		
	Latitude 28° 31' N.			Latitude 28° 59' N.			Latitude 29° 20' N.			Latitude 29° 53' N.		
Longitude 77° 13' E.			Longitude 77° 46' E.			Longitude 79° 30' E.			Longitude 77° 57' E.			
Height			Height 900 feet			Height 6,400 feet			Height			
MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March. April to September.	1 Year. 1859.	Winter, Spring, Summer, Autumn.	October to March. April to September.	9 Years. 1846 to 1854.	Winter, Spring, Summer, Autumn.	October to March. April to September.	1 Year. 1860.	Winter, Spring, Summer, Autumn.	October to March. April to September.
	1851.											
January - - -	2.6	} 2.9	in. 5.5	0.2	} 1.2	in. 3.0	4.6	} 7.2	in. 12.4	0.0	} 0.0	in. 0.3
February - - -	0.3			0.2			0.2			2.4			0.0
March - - -	2.6	} 3.7	in. 19.6	1.8	} 4.4	in. 15.0	1.7	} 5.5	in. 83.2	0.0	} 0.5	in. 10.0
April - - -	1.0			2.6			0.0			0.9			0.5
May - - -	0.1	} 18.5	in. 3.6	0.0	} 11.0	in. 14.7	2.8	} 66.9	in. 4.0	1.5	} 8.5	in. 1.0
June - - -	0.4			11.6			3.6			23.4			4.0
July - - -	11.6	} 0.0	in. 1.4	1.5	} 1.4	in. 12.6	28.8	} 16.1	in. 1.0	3.0	} 1.3	in. 0.3
August - - -	6.5			0.0			0.0			2.7			0.3
September - - -	0.0	} 0.0	in. 0.0	1.4	} 0.0	in. 0.8	12.6	} 0.0	in. 0.0	0.3	} 0.0	in. 0.0
October - - -	0.0			0.0			0.0			0.8			0.0
November - - -	0.0	} 0.0	in. 0.8	0.0	} 0.0	in. 0.2	0.8	} 0.0	in. 0.0	0.0	} 0.0	in. 0.0
December - - -	0.0			0.0			0.8			0.2			0.0
Year - - -	25.1	..	..	18.0	..	..	95.6	..	..	10.3	..	..

BENGAL PRESIDENCY.—Monthly, Quarterly, Half-yearly, and Yearly Falls of Rain—*continued.*

Place	DUDOOFORE			UMBALLA			LANDOUR			MEAN MEER.			
	30° 12' N.			30° 23' N.			30° 27' N.			30° 34' N.			
Latitude	76° 44' E.			76° 44' E.			78° 10' E.			74° 4' E.			
Longitude	1,050 feet			1,050 feet			7,000 feet			1,128 feet.			
Height	MONTH.	15 Years.	Winter, Spring, Summer, Autumn.	October to March.	2 Years.	Winter, Spring, Summer, Autumn.	October to March.	10 Years.	Winter, Spring, Summer, Autumn.	October to March.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.
		1834 to 1848.	April to September.	1851 and 1852.	April to September.	1850 to 1859.	April to September.	1857 to 1859.	April to September.				
January - - -	in.	0.9	} 3.0	in.	0.7	} 0.8	in.	0.6	} 1.5	in.	1.2	} 2.6	in.
February - - -	1.8	5.2		0.0	7.9		0.6	3.3		1.4	3.0		
March - - -	1.0	} 2.2	} 34.9	7.1	} 10.8	} 18.2	0.3	} 3.7	} 89.4	0.4	} 1.3	} 13.3	
April - - -	0.4			0.9			11.9			0.5			
May - - -	0.8	} 28.8	} 12.2	2.8	} 2.3	} 11.8	1.5	} 11.8	} 11.8	0.4	} 1.9	} 1.9	
June - - -	6.2			1.3			31.5			0.4			
July - - -	13.6	3.1	7.8	31.5	3.6	10.5	32.3	3.6	10.5	5.5	10.5	13.3	
August - - -	9.0	} 6.1	} 2.3	3.1	} 2.3	} 2.3	32.3	} 2.3	} 2.3	3.6	} 2.3	} 2.3	
September - - -	4.9			0.0			10.3			1.9			
October - - -	1.0	0.0	0.0	0.0	0.9	0.0	0.9	0.0	0.0	0.0	0.0	0.0	
November - - -	0.2	0.2	2.3	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	
December - - -	0.3	0.3	0.1	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	
Year - - -	40.1	26.1	92.7	16.3

(continued.)

Place	FEROZEPORE			FEROZEPORE			LOODIANA			PUNJAB.			
	30° 57' N.			30° 57' N.			30° 55' N.			31° 40' N.			
Latitude	74° 41' E.			74° 41' E.			75° 54' E.			74° 45' E.			
Longitude	720 feet			720 feet			900 feet			800 to 900 feet.			
Height	MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	5 Years.	Winter, Spring, Summer, Autumn.	October to March.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.	3 Years.	Winter, Spring, Summer, Autumn.	October to March.
		1851.	April to September.	1855 to 1859.	April to September.	1857 to 1859.	April to September.	1857 to 1859.	April to September.				
January - - -	in.	1.2	} 2.9	in.	1.0	} 1.2	in.	2.5	} 3.8	in.	1.1	} 3.7	in.
February - - -	1.7	3.3		0.2	1.8		1.1	4.1		2.0	4.4		
March - - -	0.4	} 0.6	} 19.9	0.6	} 1.6	} 11.8	0.1	} 1.4	} 12.4	0.7	} 7.1	} 52.2	
April - - -	0.1			0.9			0.1			0.8			0.5	1.2
May - - -	0.1	} 19.7	} 8.9	0.1	} 8.9	} 8.9	1.6	} 8.8	} 8.8	8.4	} 41.6	} 41.6	
June - - -	0.7			1.1			2.9			8.8			
July - - -	18.8	1.3	6.5	4.3	8.8	8.8	22.7	41.6	41.6	22.7	41.6	52.2	
August - - -	0.2	} 0.0	} 1.9	1.3	} 1.9	} 1.9	4.3	} 1.9	} 1.9	4.2	} 4.2	} 4.2	
September - - -	0.0			1.9			2.3			4.2			
October - - -	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
November - - -	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
December - - -	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
Year - - -	23.2	13.6	16.5	56.6

BENGAL PRESIDENCY.—Monthly, Quarterly, Half-yearly, and Yearly Falls of Rain—*continued.*

Place	MEERA			RAWUL PINDI			PESHAWUR			PUNNA		
	Latitude 32° 37' N.			Latitude 33° 34' N.			Latitude 34° 20' N.			Latitude		
Longitude 70° 30' E.			Longitude 73° 5' E.			Longitude 71° 29' E.			Longitude			
Height			Height 1,500 feet.			Height 1,056 feet.			Height			
MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	6 Years.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.
	1848.		April to September.	1859.		April to September.	1855 to 1860.		April to September.	1851.		April to September.
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
January - - -	0·0	} 0·0	4·7	0·0	} 0·0	0·0	1·2	} 3·6	5·1	0·6	} 1·2	7·9
February - - -	0·0			0·0			0·0			1·8			1·6
March - - -	0·0	} 2·8	45·1	0·0	} 0·0	17·6	1·1	} 2·3	8·6	0·0	} 2·3	31·2
April - - -	0·0			0·0			0·0			0·8			2·3
May - - -	2·8	} 40·0	14·0	0·0	} 3·6	3·6	0·4	} 5·7	8·6	0·0	} 22·8	11·8
June - - -	10·9			4·1			4·1			0·3			8·9
July - - -	22·9	} 7·0	3·6	4·8	} 3·6	0·1	2·1	} 2·1	0·1	7·7	} 11·8	0·0
August - - -	6·2			5·1			5·1			3·3			6·2
September - - -	2·3	} 7·0	0·0	3·6	} 0·0	0·3	1·7	} 0·6	0·0	6·1	} 0·0	0·0
October - - -	2·8			0·0			0·0			0·1			5·7
November - - -	1·9	} 0·0	0·0	0·0	} 0·0	0·6	0·3	} 0·0	0·0	0·0	} 0·0	0·0
December - - -	0·0			0·0			0·0			0·6			0·0
Year - - -	49·8	..	..	17·6	..	..	13·7	..	..	39·1	..	..

(continued.)

Place	BOGRAH			SANDWY			SEBSAGUR			NAGERCOIL		
	Latitude			Latitude			Latitude			Latitude		
Longitude			Longitude			Longitude			Longitude			
Height			Height			Height			Height			
MONTH.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	1 Year.	Winter, Spring, Summer, Autumn.	October to March.	6 Years.	Winter, Spring, Summer, Autumn.	October to March.
	1851.		April to September.	1851.		April to September.	1851.		April to September.	1841 to 1846.		April to September.
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
January - - -	0·7	} 2·4	9·6	0·0	} 0·6	12·8	0·8	} 5·7	13·3	1·0	} 6·0	23·8
February - - -	1·7			0·0			0·0			4·4			0·3
March - - -	1·2	} 5·8	41·8	0·0	} 15·7	165·7	1·1	} 22·4	71·9	1·2	} 9·3	17·9
April - - -	1·2			0·5			0·5			8·8			1·4
May - - -	3·4	} 31·0	120·3	15·2	} 43·2	7·4	12·5	} 13·9	11·6	6·7	} 7·4	18·0
June - - -	14·6			52·2			52·2			16·4			5·7
July - - -	8·0	} 12·2	41·9	30·6	} 41·9	6·4	10·4	} 13·9	11·6	1·4	} 18·0	0·0
August - - -	8·4			37·5			37·5			16·4			0·3
September - - -	6·2	} 0·0	0·6	29·7	} 0·0	0·1	7·4	} 0·5	4·7	1·4	} 0·0	0·0
October - - -	6·0			10·9			10·9			6·4			5·0
November - - -	0·0	} 0·0	0·6	1·3	} 0·0	0·5	0·1	} 0·0	0·0	5·0	} 0·0	0·0
December - - -	0·0			0·6			0·6			0·5			4·7
Year - - -	51·4	..	..	178·5	..	..	85·2	..	..	40·7	..	..

BENGAL PRESIDENCY.—Monthly, Quarterly, Half-yearly, and Yearly Falls of Rain—*continued.*

Place . . . . .	. CARAYATAVALUM			TRICHOOR			CHITTOOR			NOWGONG.		
		
Latitude . . . . .	. . . . .			. . . . .			. . . . .			. . . . .
Longitude . . . . .	. . . . .			. . . . .			. . . . .			. . . . .
Height . . . . .	. . . . 300 feet . . . .			. . . . 60 feet . . . .			. . . . 400 feet.				
MONTH.	5 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	5 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	5 Years.	Winter, Spring, Summer, Autumn.	October to March. April to September.	1 Year.	Winter, Spring, Summer, Autumn.	October to March. April to September.
	1842 to 1846.			1842 to 1846.			1842 to 1846.			1851.		
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
January - - -	2.5	} 7.1	38.3	0.3	} 2.8	17.6	0.6	} 2.0	12.5	0.0	} 4.9	14.4
February - - -	1.0			0.0			0.0					
March - - -	4.1	} 24.9	82.2	0.4	} 17.8	84.2	0.8	} 5.9	50.4	2.1	} 19.5	69.1
April - - -	3.6			0.6			0.6					
May - - -	17.2	} 55.8	31.8	16.8	} 59.9	12.1	4.2	} 41.2	17.5	8.9	} 47.1	69.1
June - - -	25.1			14.0			14.0					
July - - -	17.6	} 32.7	11.4	14.1	} 21.3	4.1	12.3	} 13.8	50.4	7.4	} 12.0	69.1
August - - -	13.1			6.9			6.9					
September - - -	5.6	} 32.7	11.4	6.9	} 21.3	4.1	4.1	} 13.8	50.4	4.6	} 12.0	69.1
October - - -	20.6			11.4			11.4					
November - - -	6.5	} 32.7	11.4	3.0	} 21.3	4.1	4.2	} 13.8	50.4	0.4	} 12.0	69.1
December - - -	3.6			2.5			2.5					
Year - - -	120.5	101.8	62.9	83.5

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