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MADRAS RECORD OFFICE.

Government of Madras.

Public **DEPARTMENT.**

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PB
1-2-37

No. 98. Read the following letter from Dr. E. BALFOUR, Deputy Inspector-General of Hospitals, dated Madras, 25th August 1869.

The North-West line of Railway now under construction between Madras and Bombay runs through districts which have long been scourged by cholera, and the resident population and travellers have equally suffered. On the completion of the through line, if the sanitary state of its stations be duly cared for, journeys will be made with great comparative safety; but hitherto cholera has so frequently invaded the Centre Division and Ceded Districts of the Madras Presidency, the Raichore Doab of the Hyderabad Dominions, and the Southern Mahratta country, that immunity can only be hoped for by the application of strict sanitary rules to all the lands adjacent to the Railway. To apply such rules is beyond the province of the Railway Medical Adviser, and a special Sanitary Commissioner should be appointed for the entire central tract, from Madras to Bombay.

2. It is occasionally suggested that cholera outbreaks are fewer and less severe than they used to be. But in those central districts of peninsular India there has not been any decrease.

3. In 1865, the northern part of Mysore, the Ceded Districts, and the western half of the Hyderabad territories, were scourged with the plague. In 1867 and 1869, the western road to Sholapore and the southern roads from Hyderabad were repeatedly closed, and in 1869 the usual telegram from Kurnool was, "cholera on all the roads of the district."

4. Cholera has always been the cause of many of the deaths amongst the Madras Native Soldiers. In the twenty-four years, 1821 to 1844, the aggregate strength of the Madras Native Army was 16,55,236, and 30,138 deaths occurred amongst them, 8836 of which were occasioned by cholera. But the number attacked and lost were greatest in the Southern Mahratta country, the Hyderabad territories, the Ceded Districts, and the Doab of the Kistna and Tumbudra, through which the North-West line of Railway runs.

Cholera	8,836
Fevers	5,946
Dysentery and Diarrhœa	4,098
All other diseases	11,258
Total...	30,188

Division or Force.	Ratio per 1000 of mean strength.	
	Ad.	Died.
Nagpore	3·59	1·8
Malabar and Canara	4·86	1·7
Travancore	7·51	1·6
Presidency	8·61	3·6
Northern Division	10·80	4.8
Mysore do.	11·81	4·9
Centre do.	12·82	5·3
Southern Mahratta country	17·18	6·7
Southern Division	17·91	7·6
Hyderabad and Jaulnah	20·00	7·4
Ceded Districts	23·38	9·0
Field Force, Doab	23·85	9·4

5. This will be seen by the statement in the margin, the data for which have been obtained from Dr. Lorimer's Cholera Map. (See Appendix A).

6. Again, that map gives 152 routes of regiments which suffered from cholera during their march, and 37, or one-fourth of all those 152 outbreaks of this disease, occurred in places immediately on the North-West Railway line, or in towns so near that contaminated persons

Curcumbaddy	1	Madaveram	1
Goomdypoondy	1	Peapully	1
Kurnool	1	Adoni	1
Gazeepot	3	Vyrag	1
Gooty	1	Pennatoor	1
Tadputri	5	Dewarsegoor	1
Coodoor	1	Paulnoor	4
Alloor	1	Culbargah	1
Hundee Anunthoor	1	Tuljepoor	1
Cuddapah	1	Sholapore	1
Guntacul	4	Bejapoor	3
Codamoor	1	Total	37

could carry sickness to the line. In those 37 cholera marches (see Appendix B) 1569 Soldiers were attacked, and 664 of them died. The strength of two regiments was seized with this ailment, and one whole regiment's strength was swept away.

Division.	No. of outbreaks.
Presidency	1
Nagpore	2
Northern	12
Southern Mahratta	12
Mysore	19
Hyderabad Subsidiary Force	24
Southern	24
Centre	26
Ceded Districts	32
Total...	152

7. The comparative frequency of the 152 outbreaks in the several divisions of the Madras Army is shown in the margin; and, as will be observed, the Ceded Districts, through which much of the North-West Railway line runs, had the largest number of outbreaks. Indeed, at one time, a regiment marching through that central tract was deemed particularly fortunate if it escaped an attack of this disease. (See Appendix C). Even individual travellers disliked to cross that central region, and certain towns had an extreme ill-fame.

8. In Volume II., page 603, of the Sanitary Commissioner's Report, Dr. George Pearse gave the mortality in Bellary from cholera and from all diseases, and, in the twenty-five years recorded of the total mortality, 38·82 per cent. of Europeans, and 50·39 per cent. of Native Soldiers died from cholera.

Dr. Pearse, Vol. II, page 603, Bellary.	European.		Native.		Percentage of cholera deaths to whole mortality.	
	Total deaths.	Cholera deaths.	Total deaths.	Cholera deaths.	European.	Native.
1829 to 1838	285	62	581	283	21·75	48·7
1842 to 1856	359	201	937	488	55·9	52·08
Total...	644	263	1,518	771	38·82	50·39

9. The information given by Dr. Pearse is the most recent, in a collected form, available for comment: at page 660 of the same volume is a statement showing the strength, sickness, and deaths in the Madras Army for the seventeen years, 1842—1857-58; and, from the abstract in the margin, it will be observed how large a portion of the deaths in the central tract under notice is occasioned by cholera. In the seventeen years, numbers nearly equal to half a regiment of Europeans and to three regiments of Native Soldiers were swept away by this fatal disease in these three Divisions of the Madras Army. (See Appendix E).

Division.	Europeans.			Natives.		
	Total died.	Deaths from cholera.	Deaths from other diseases.	Total died.	Deaths from cholera.	Deaths from other diseases.
Southern Mahratta country.	52	12	40	892	468	424
Hyderabad Subsidiary Force.	846	56	790	1,942	1,028	914
Ceded Districts.	417	208	209	987	498	489
Total...	1,315	276	1,039	3,821	1,994	1,827

10. Again, in the 152 cholera marches, 106 outbreaks occurred on the banks of rivers or within fifteen miles of them, (the average distance being 3½ mile); and, of the 106, forty-seven occurred on the banks of rivers. (See Appendix D). Of ten outbreaks near the Pennar river in the Centre Division and Ceded Districts, three occurred on its banks; of fifteen outbreaks near the Cauvery river, eleven were on its banks; of nine near the Palar, two were on its banks; of eight near the Tumbudra and its tributary the Toonga, six were on their banks; and, of seven near the Kistna, six were on the banks. The delay on the banks of the rivers and the labours in crossing them may render soldiers more liable to be attacked with cholera; but, near rivers, there may be some contaminating agent, and, as the North-West line of Railway skirts and crosses several rivers and their tributaries,* the towns near their banks should receive extra care.

Division.	Number of outbreaks.	Number within fifteen miles of a river.	Number on the banks of a river.
Presidency	1	...	...
Centre	26	20	6
Southern	24	21	13
Mysore	19	14	3
Ceded Districts	32	22	9
Northern	12	6	4
Hyderabad Subsidiary Force	24	16	9
Nagpore	2	2	1
Southern Mahratta country	12	5	2
Total...	152	106	47

Ponay	1	Paumdee	1
Goondlacama	3	Kistna	6
Palar	2	Conada	1
Tambrapanny	1	Roosbecoolia	2
Cauvery	11	Godavery	2
Vygah-aur	1	Condulga	1
Cubbany	1	Laindee	1
Toonga	1	Wurda	1
Tumbudra	5	Peru	1
Pennar	3	Gutpurbah	1
Goonjna	1	Total...	47

11. I am of opinion that a special Sanitary Commissioner is required for the Central Districts through which the Railway from Bombay to Madras is now under construction, and that his authority should extend for fifty miles on either side of the line.

12. In the "*Statistics of Cholera*" and in "*The Localities in India exempt from Cholera*," the names were given of numerous towns and villages in which cholera had never been known to occur, though it had been invading places in India for at least a hundred years. Certain districts and towns, on the other hand, are unusually liable to be scourged by this disease, and readily impart their contaminating influence to travellers.

For instance, of twenty-six outbreaks of cholera amongst troops marching in the Centre Division, two occurred at Ardinghee and four at Chittoor.

Of twenty-four outbreaks in the Southern Division, three occurred at Coilputty and nine at Trichinopoly.

Of nineteen outbreaks in the Mysore Division, two occurred at Baitmungalum and three at Nackenary.

Of thirty-two instances in the Ceded Districts, two occurred at Coodoor, three t Kurnool, four at Cuddapah, and five at Gooty.

Of twenty-four in the Hyderabad Dominions, four occurred at Dewarsegoor and one at Pennatoor, both on the banks of the Kistna.

Of twelve outbreaks in the Southern Mahratta country, three occurred at Beejapoor.

13. On the above grounds I suggest the appointment of a special Sanitary Commissioner for the districts on each side of the two Railways from Bombay to Madras. The Medical and Inspecting Officers of the Railway Companies are restricted to their lines and their stations. The Sanitary Commissioners of the Governments have, in their own duties, ample to occupy their time, and could not give the minute attention needed by the districts through which this line of Railway runs.

14. I think that, if once put in a good sanitary condition, the Commissioners of the Governments could keep them so, but there is, at least, three years' work before a special Sanitary Commissioner and his labours may advantageously be early entered on, in order that the resident inhabitants, the Railway Officers, and travellers, may be speedily benefitted. I think that it is highly desirable that the through line should be early placed in a favourable sanitary condition.

MADRAS,
25th August 1869.

(Signed) E. BALFOUR,
Depy. Inspector General.

APPENDIX A.

TABLE showing the admissions and deaths from Cholera amongst the Native Troops in each Division of the Army from 1821 to 1844 inclusive, the ratio of admissions and of deaths to strength per thousand, and the ratio of deaths to admissions.

Extract from DR. LORIMER'S *Map of Southern India, showing places of outbreak of cholera amongst Native Troops while marching, 23rd May* 1845.

Divisions.	Aggregate strength.	Admitted.	Died.	Ratio of admissions to strength per thousand.	Ratio of deaths to strength per thousand.	Ratio of deaths to admissions per thousand.
Presidency	1,48,779	1,281	540	8·6108	3·6295	421·5456
Centre Division	1,78,264	2,287	950	12·8292	5·3291	415·3913
Southern do.	1,63,690	2,932	1,254	17·9119	7·6608	427·6944
Malabar and Canara	75,581	368	130	4·8689	1·7198	353·2608
Travancore	19,823	149	33	7·5165	1·6749	221·4765
Mysore Division	1,94,170	2,294	962	11·8143	4·9544	414·9970
Ceded Districts	1,02,110	2,388	923	23·3865	9·0392	386·6541
Northern Division	2,05,387	2,220	890	10·8088	4·3332	400·9009
Hyderabad and Jaulnah	2,22,290	4,448	1,666	20·0098	7·4947	374·5503
Nagpore	1,19,255	429	211	3·5978	1·8188	491·8414
Southern Mahratta Country	42,527	731	286	17·1890	6·7251	391·2448
Field Force, Dooab	59,314	1,415	559	23·8560	9·4244	395·0530

APPENDIX B.

37 Marches of Native Soldiers attacked at the Towns on or adjoining the North-West Line of Railway.

Divisions.	From	To	Attacked.	Strength.	Number Admitted.	Number Died.	Days' duration.
Centre Division.	16th N. I. Palaveram	Cuddapah	7th Oct. 1838.	801	124	58	16
	33rd N. I. Madras	Do.	7th Jan. 1844.	737	3	1	3
Ceded Districts.	31st N. I. Nagpore	Trichinopoly	24th July 1820.	747	95	41	10
	12th N. I. Secunderabad	Madras	15th May	799	36	20	17
	23rd N. I. Jaulnah	Wallahjabad	29th Apl. 1821.	1,000	65	21	31
	6th N. I. Nagpore	Bangalore	7th Mar. 1822.	1,024	25	11	18
	10th N. I. Gooty	Madras	11th Apl. 1824.	750	44	19	55
	16th N. I. Cuddapah	Do.	23rd ,,	722	5	3	3
	25th N. I. Kurnool	Bellary	15th July ,,	800	11	7	4
	8th L. C. Bangalore	Kamptee	24th Oct. ,,	500	5	2	19
	2nd L. C. Do.	Secunderabad	15th Nov. 1825.	666	65	30	16
	31st N. I. Nagpore	Trichinopoly	24th July 1820.	747	95	41	10
	5th N. I. Bellary	Palaveram	8th Mar. 1831.	644	24	5	39
	Artillery Bangalore	Secunderabad	1st ,,	117	5	2	21
	47th N. I. Cuddapah	Dharwar	26th Oct. 1838.	760	126	40	16
	Treasure Party. Bellary	Madras	4th June ,,	93	6	4	4
	16th N. I. Cuddapah	Kurnool	3rd Sept. 1839.	766	10	4	4
	34th N. I. Kurnool	Bangalore	17th Nov. ,,	664	1	1	2
	Artillery Bangalore	Adoni and Bangalore.	28th Sept. ,,	125	4	1	3
	Sappers Chinapattam	Kurnool	2nd ,, ,,	300	1	1	3
	48th M.N.I. Cuddapah	Secunderabad	8th Dec. 1841.	622	46	18	15
	Artillery Saint Thomas' Mount.	Do.	8th Oct. ,,	143	3	2	4
	Do. Bangalore	Do.	13th Dec. ,,	143	30	15	9
	Sappers Bellary	Jubbulpore	25th Nov. 1843.	103	1	...	5
	4th ,, ,,	Madaveram	21st Dec. ,,	300	1	1	3
	22nd Dec. 1841.	Paungul	29th Nov. 1843	622	46	18	15
	11th Oct. ,,	Chagulmurry		143	3	2	4
	21st Dec. ,,	Kyatur		143	30	15	9
	29th Nov. 1843	Yerragherry		103	1	...	5

APPENDIX B.—*(Continued.)*

37 Marches of Native Soldiers attacked at the Towns on or adjoining the North-West Line of Railway—*(Continued.)*

Divisions.		From	To	Attacked.		Ceased.		Strength.	Number		Days' duration.
									Admitted.	Died.	
Hyderabad Subsidiary Force.	27th N. I...	Mundlaisir.....	Trichinopoly....	11th June 1820.	Vyrag.....	27th June 1820.	Resahgur	900	70	30	17
	19th N. I...	Cannanore..... ...	Secunderabad...	19th Jan. 1825.	Pennatoor.....	2nd Feb. 1825.	Secunderabad...	888	64	27	15
	3rd N. I...	Secunderabad...	Kurnool.....	3rd Sept. 1839.	Dewarsegoor...	15th Oct. 1839.	Kurnool..... ...	611	46	27	43
	51st N. I...	Do. ...	Do.	3rd ,, ,,	Do. ...	3rd ,, ,,	Do.	660	35	15	31
	3rd N. I...	Do. ...	Bellary.....	12th Jan. 1842.	Paulnoor.....	30th Jan. 1842.	Adoni.....	954	119	45	19
	35th N. I...	Do. ...	Hurryhur	17th ,, ,,	Dewarsegoor ...	31st ,, ,,	Kurgode.....	965	174	74	15
	48th N. I...	Cuddapah.....	Aurungabad....	2nd June ,,	Culbargah.....	21st June ,,	Callygaun.....	359	47	28	20
	1st L. C...	Secunderabad...	Sholapore.....	21st Jan. ,,	Tuljepoor..... ...	23rd Jan. ,,	Sholapore.....	520	2	1	2
	Artillery....	Do. ...	Bangalore.....	17th ,, ,,	Dewarsegoor...	28th ,, ,,	Adoni	97	10	6	12
Southern Mahratta Country.	18th N. I...	Ahmednuggur..	Secunderabad...	4th Dec. ,,	Sholapore	11th Dec. ,,	Culbargah.....	938	14	5	8
	52nd N. I...	Malligaum.....	Bangalore.....	21st Apl. ,,	Bejapoor.....	25th May ,,	Bangapully.....	356	13	6	35
	Do. ...	Asseerghur.....	Do. ...	26th Mar. ,,	Do.	14th ,, ,,	Nundidroog.....	509	95	32	50
	3rd L. C...	Sholapore	Do. ...	12th Feb. ,,	Do.	9th Mar. ,,	Do.	445	46	21	26

APPENDIX C.—1.

Of the 152 Cholera marches, there occurred 94 outbreaks as under in the Ceded Districts, Southern Mahratta Country, Hyderabad Subsidiary Force, and Centre Division.

Ceded Districts.

Kurnool.....	2	Secunderabad.....	1
Gazeepet.....	1	Keir.....	2
Gooty.....	5	Pennatoor.....	1
Coodoor.....	2	Juddacharlah.....	1
Purspull.....	1	Jaulnah.....	4
Rampoor.....	1	Dewarsegoor.....	1
Peroor.....	1	Sadoula Nugger.....	1
Tadputri.....	1	Paulnoor.....	1
Alloor.....	1	Samptapoor.....	1
Hundee Ananthoor.....	2	Culbargah.....	1
Humpsagur.....	1	Tuljepoor.....	1
Cuddapah.....	4	Lakenwarie.....	1
Turlapaudoo.....	1	Mulkapoor.....	1
Nundy Beypore.....	1	Nelgoondah.....	1
Guntacul.....	1	Ankree.....	1
Codamoor.....	1	Narkaipully.....	1
Madaveram.....	1		
Peapully.....	1	Total...	24
Gallah.....	1		
Chinna Cottapilly.....	1		
Lingapooram.....	1		
Adoni.....	1		
Total...	32		

Centre Division.

		Ramapatam.....	1
		Chittoor.....	4
		Vendaloor.....	1
		Kodumbaukum.....	1
		Codavellore.....	1
		Adamancottah.....	1
		Venceatagherry.....	1
		Allecollum.....	1
		Carangooly.....	1
		Goodoor.....	1
		Laulpet.....	1
		Curcumbaddy.....	1
		Ardinghee.....	1
		Pallicondah.....	2
		Streepermatoor.....	1
		Choddalavada.....	1
		Mawuldurroo.....	1
		Poodawy.....	1
		Ootatoor.....	1
		Goomdypoondy.....	1
		Arcot.....	1
		Timmeryfat.....	1
		Total ..	26

Southern Mahratta Country.

Colar.....	1
Rassin.....	1
Kolapoor.....	1
Gudduck.....	1
Kulladghee..	1
Seyanoor.....	1
Dharwar.....	1
Belgaum.....	1
Sholapore.....	1
Bejapoor.....	3
Total...	12

Hyderabad Subsidiary Force.

Hingolee.....	1
Manwut.....	1
Vyrag.....	1
Woonee.....	1

APPENDIX C.—2.

RETURN showing the Mortality from Cholera and other causes in the several Collectorates of the Madras Presidency for the years 1866-67.

Districts.	1866.				1867.			
	Population.	Cholera.	Other diseases.	All diseases.	Population.	Cholera.	Other diseases.	All diseases.
Ganjam	7,02,239	15,549	23,313	38,862	11,82,349	548	14,163	14,711
Do. Zemindary	3,14,026	9,380	8,587	17,967				
Vizagapatam	7,98,877	11,695	17,510	29,205	14,24,652	145	15,504	15,649
Godavery	7,79,902	7,560	14,198	21,758	14,01,762	575	24,399	24,974
Do. Zemindary	5,94,724	8,712	11,738	20,450				
Kistna	7,92,744	5,591	18,478	24,069	7,26,398	3,700	18,341	22,041
Nellore	6,13,899	1,884	12,927	14,811	10,60,932	1,090	15,082	16,172
Do. Zemindary	3,65,838	3,790	7,331	11,121				
Cuddapah	10,40,878	14,823	18,251	33,074	10,91,920	323	13,270	13,593
Bellary	12,00,316	22,883	27,452	50,285	13,12,705	10	17,710	17,720
Kurnool	7,18,865	7,685	13,716	21,401	7,40,614	368	12,164	12,532
Madras	6,64,836	9,294	13,575	22,869	6,64,836	2,283	12,404	14,687
North Arcot	10,69,685	10,475	20,472	31,947	11,47,896	2,511	19,328	21,839
South Arcot	11,00,266	8,932	18,262	27,194	11,72,902	4,547	14,885	19,432
Tanjore	15,72,703	8,978	28,599	35,577	15,80,602	8,394	25,155	33,549
Trichinopoly	8,35,887	7,168	15,501	22,669	8,90,673	1,639	12,868	14,507
Madura	17,37,495	8,229	13,284	21,513	8,27,554	2,056	16,933	18,989
Ramnad Zemindary, (Madura) ...	4,91,883	3,772	6,624	10,396				
Tinnevelly	13,63,051	3,186	18,163	21,349	13,63,051	2,254	16,123	18,377
Coimbatore	12,09,740	9,377	15,765	25,142	12,78,482	603	11,693	12,296
Salem	14,93,221	12,593	19,415	32,308	14,93,221	812	14,930	15,742
South Canara	7,81,767	2,429	14,388	16,817	8,09,150	462	22,246	22,708
Malabar	17,16,852	4,042	31,402	35,444	17,28,041	271	29,992	30,263
Total ...	2,19,59,694	1,97,977	3,88,951	5,86,928	2,18,97,740	32,591	3,27,190	3,59,781

It will be observed from the above that in 1866 one-third of all the deaths in the Madras Presidency were caused by cholera. The deaths from this ailment in that year were 1,97,977, of which 55,816 occurred in North Arcot and the Ceded Districts.

APPENDIX C.—3.

Extract from letter regarding cholera, dated Bellary, 19th May 1865, *No.* 173, *from* EDWARD BALFOUR, ESQ., *Deputy Inspector General of Hospitals, Ceded Districts, to the Secretary to the Inspector General, Madras Medical Department, Madras.*

Para. 7. This central part of peninsular India has all along had recurrences of outbreaks of this disease : the villagers and labourers often flee from infected places, causing interruptions to traffic and agricultural pursuits, and the loss to the country generally is very great, for the population in all the northern part of Mysore, and in all the Bellary, Kurnool, and Cuddapah Collectorates, is sparse, and, with this epidemic added to other causes of death, there is little prospect of population increasing. Two great engineering works are at present in progress, the N. W. peninsular line of railroad under formation to meet the line from Bombay, and the great irrigation canal which is to bring the waters of the Tumbudra from Kurnool to the south and east towards Cuddapah and Nellore. Both the canal and the North-West Railway run directly through the great cholera tract of the Ceded Districts, and it would be of great consequence to the through traffic if this scourge could be prevented or diminished.

8. My own view is that an officer be ordered to move through the Ceded Districts to report on the sanitary condition of the villages, and with powers to carry out at once such sanitary improvements as do not cost money, and to which the village communities assent, reporting to Government on such as require a money outlay, sending report on to Government through the Collector in order that the subject may be at once placed fully before Government.

9. From what I have seen it has seemed to me that the custom amongst many races of penning cattle under the same roofs as their owners is very unfavourable to health. Much, I think, might be done by straightening the streets of many villages and by levelling their broken walls and half-filled ditches, disposing under legislative enactment of the recovered grounds. The importance of inducing the community to resort to a distance is great, and to keep their cattle at a distance is equally so. Care over all the drinking water wells is needed, and over the bandy-stands, carriers' halting places, the encamping grounds for the troops, and choultries.

10. Some of these points will receive attention when the Act for the Municipalities of villages is passed ; but the care of the Ceded Districts is peculiar and more urgent, and the Principal Inspector General may perhaps consider the above as offering suggestions that may tend to lessen the extent of the cholera scourge.

(True Extract).

(Signed) E. BALFOUR,
Depy. Inspr. Genl. of Hospitals,
Hyd. Subsy. Force and Hyd. Con.

APPENDIX C.—4.

Extract from the Report on Bellary by Principal Inspector General GEORGE PEARSE, M.D., *in Volume II., Page* 603, *of Report by the Royal Commission on the Sanitary State of India.*

But for the occasional outbreak of epidemic cholera in Bellary, the station would stand very high in the sanitary list. It has, however, been visited from time to time very severely by that dreadful scourge of our Indian plains. From the Medical Board's report above referred to it is observed that the death-rate of Europeans stationed in the Ceded Districts from 1829 to 1838 was thirty-one per thousand, and of Native troops sixteen per thousand. For a later period of fourteen years, viz., from 1842 to 1856-57, it was thirty-four per thousand in European troops, and the Native mortality remained exactly the same, viz., sixteen per thousand. The diminished value of

European life in the later period has been due entirely to losses from epidemic cholera. This will be more easily seen from the following table:—

		Aggregate strength.	Total deaths.	Deaths from cholera.	Percentage of cholera deaths to whole mortality.
From 1829 to 1838.....	European	9,000	285	62	21·75
	Native	35,999	581	283	48·7
From 1842 to 1856-57.	European	10,400	359	201	55·9
	Native	56,437	937	488	52·08

Although the station of Bellary itself does not show the above high rate of cholera mortality, yet for the ten years to which these remarks and the foregoing tables refer, the cholera deaths were 26·6 per cent. of the whole, a very high rate for any cantonment or station. It is observed that troops passing through the Ceded Districts often suffer very severely from cholera epidemics. Thus, in 1854, a detachment of recruits for the 3rd Madras European Regiment was attacked when within one stage of Bellary, and in a few hours some thirty or forty men were prostrated, and the Medical Officer in charge (the late Dr. Cheyne) was seized with, and died of, the disease. On this occasion the recruits were panic-struck, and many of them hurried off to the cantonment, where fortunately very few cases occurred after the men had been comfortably settled in barracks. From 1854 until the beginning of 1859 the district remained comparatively free from cholera; in fact, no cases occurred at Bellary; but at the latter period the epidemic was general throughout, and the Civil and Military stations of Kurnool, Cuddapah, Gooty, and Bellary suffered severely. It is not easy to account for the greater mortality of troops from cholera in the Ceded Districts than in other divisions of the army. Various explanations have been attempted, but none of them are satisfactory.

A more minute acquaintance with the laws regulating the progress of this mysterious disease will probably lead at some further time to a satisfactory explanation of the facts noted. In the meantime it will be well to bear in mind the following remarkable statistics of two districts or provinces, differing widely in point of geological formation, elevation, temperature, moisture, rainfall, &c. The percentage of deaths from cholera to the total mortality for a period of fifteen years was—

	Europeans.	Natives.
In the Malabar and Canara Provinces.....	4·6	12·4
Do. Ceded Districts.....	55·9	52·8

* * * * * *

OFFICE OF PRINPL. INSPR. GENL., MEDL. DEPT.,
FORT SAINT GEORGE, 12*th April* 1861.

(Signed) G. PEARSE, M D.,
Prinpl. Inspr. Genl., Medl. Dept.

APPENDIX C.—5.

Extract from a Report on Bellary, by Inspector General D. MACPHERSON, M.D., *in Volume II., Page* 637 *if Report by the Royal Commission on the Sanitary State of India.*

EUROPEANS.

From 1842 to 1858, embracing a period of sixteen years, the sickness and mortality from the undermentioned diseases in an aggregate strength of 10,969 Europeans who served within this division of the army, was as follows:—

Cholera.		Fevers.		Liver.		Diarrhœa.		Dysentery.		Thoracic.		Rheumatism.		Venereal.	
A.	D.	A.	D.	A.	D.	A.	D.	A.	D.	A.	D.	A.	D.	A.	D.
467	201	3,816	21	776	26	969	14	698	38	551	17	1,565	3	4,249	2

* * * *

INSPECTOR GENERAL'S OFFICE,
MADRAS, 27*th December* 1860.

(Signed) D. MACPHERSON, M.D.,
Inspr. General of Hospitals,
Her Majesty's Madras Army.

APPENDIX C.—6.

Extract from the Report on Sholapore by the Royal Commission on the Sanitary State of the Army of India, Volume II., Page 785.

7. The principal zymotic diseases met with amongst the native population of Sholapore are—of endemics, intermittent fever, which generally assumes the quotidian type; of epidemics, cholera in its spasmodic form, and choleric diarrhœa; of contagious diseases, small-pox and measles are the most frequent.

APPENDIX D.

Showing total attacks within fifteen miles of a river, distinguishing the attacks on the banks of rivers.

	Total.	On banks.
Centre Division.		
Ponay	5	1
Sydapet	1	0
Pennar	1	0
Cauvery	1	0
Palar	6	2
Curcumbaddy Soornamooky ...	1	0
Goondlacama	3	3
Narnaveram	2	0
Total...	20	6
Southern Division.		
Tambrapanny	1	1
Cauvery	11	11
Oopoor-aur	1	0
Vypaur	3	0
Vygah-aur	2	1
Vellaur	1	0
Noyel	1	0
Negapatam	1	0
Total...	21	13
Mysore.		
Cubbany	2	1
Palar	2	0
Cauvery	3	0
Nugger	1	0
Toonga	1	1
Hemavutty	1	0
Yagachy	1	0
Pennaukeny	1	0
Tumbudra	2	1
Total...	14	3
Ceded Districts.		
Tumbudra	5	4
Pennar	9	3
Cooshavetty	1	0
Goonjna	1	1
Kugry (qn. Hugry)	2	0
Paumdee	1	1
Goondlacama	1	0
Hundry	1	0
Wooncaparoo	1	0
Total...	22	9

	Total.	On banks.
Northern Division.		
Kistna	1	1
Pallar: Kistna	1	0
Tumilair	1	0
Conada	1	1
Rooshecolia	2	2
Total...	6	4
Hyderabad Subsidiary Force.		
Keid, Pyen, Gunga, and Doodna.	1	0
Godavery: Doodna	1	0
Seenah	1	0
Wurda	1	0
Godavery	2	2
Kistna	5	5
Condulga	1	1
Manjera	2	0
Beemah	1	0
Laindee	1	1
Total...	16	9
Nagpore.		
Woonah	1	0
Wurda	1	1
Total...	2	1
Southern Mahratta Country.		
Peru	1	1
Beemah	1	0
Gutpurbah	1	1
Wurda	1	0
Seena	1	0
Total...	5	2

APPENDIX E.

GENERAL TABLE exhibiting the Strength, Sickness, and Mortality in each Division of the Madras Army for sixteen years, from 1842 to 1857-58, contrasted with the results of the year 1858-59, being an Appendix to the Report on the Madras Army by the Royal Commission on the Sanitary State of India.

by Inspector General D. MACPHERSON, M.D., in Volume II., Page 660 of the Report by the Royal Commission.

Division.		From 1842 to 1857-58. Average annual strength.	Treated.	Died.	Deaths from cholera.	Percentage of: Treated to strength.	Deaths to strength.	Deaths to strength, excluding cholera.	Deaths to treated.
Presidency	NATIVES.	16,065	24,782	439	77	154·2	2·7	2·2	1·7
Centre		21,458½	32,668	920	191	152·2	4·2	3·3	2·8
Southern		14,712½	26,453	435	110	179·8	2·9	2·2	1·6
Malabar		26,317½	36,933	589	157	139·2	2·2	1·6	1·5
Canara		15,103½	23,119	335	15	153·4	2·2	2·1	1·4
Ceded Districts		10,969½	18,585	309	201	169·4	3·2	1·5	1·9
Hyderabad Subsidiary Force ...		20,952½	37,224	698	56	181·3	3·4	3·1	1·8
Seringapore Force		8,758½	17,544	326	37	199·6	3·7	3·1	1·8
Southern (Europeans, to 1851, and Northern (Europeans, from 1857-58)		1,214½	1,095	65	2	90·1	5·3	5·1	5·9
Northern Mahratta Division (Europeans to 1846)		1,132	2,600	52	12	230·4	4·5	3·5	1·9
Mysore (from 1846)		4,481	7,859	111	15	175·3	2·4	2·1	1·4
Provinces, from 1858-59,	Amalgamated in Asserim	16,612½	26,470	745	175	159·5	4·7	3·6	1·8
Europeans (from 1844 to 1854-55)		855	1,062	22	...	119·5	2·4	2·4	2·07
Europeans, from 1842 to 1845.		2,248	3,530	86	19	157·02	3·8	2·9	2·4
Natives, from 1842 to 1847 and 1857-58		533	1,546	27	1	342·4	5·009	4·8	1·4
Europeans from 1852-53 to 1855-56.									
Natives, from 1848.		172	123	5	...	261·7	10·6	10·6	4·06
Presidency.	Europeans, for 1857-58.								
	Natives, from 1848 to 1850-51 and 1857-58.		1,757	174	91	223·2	22·1	10·5	9·9
(for 1842)		.....	.....	...	...	...	...	...	...
General Hospital		.....	.....	80	11	...	...	...	...
Total...		1,61,147	2,63,659	5,478	1,170	163·6	3·3	2·6	2·07
Presidency	EUROPEANS.	852	1,542	30	8	161·9	3·1	2·3	1·9
Centre		1,089	3,009	68	21	280·5	6·3	4·5	2·2
Southern		958	1,682	20	6	165·1	2·08	1·4	1·2
Malabar		1,906	2,512	23	2	131·7	1·4	1·3	1·1
Canara		982	1,599	11	2	162·8	1·1	0·9	0·6
Ceded Districts		1,304	2,107	48	7	166·1	3·6	3·1	2·2
Hyderabad Subsidiary Force ...		2,047	4,547	143	...	229·1	7·2	7·3	3·2
Seringapore Force		629	733	8	...	117·3	1·2	1·2	1·08
Southern (Europeans, to 1851, and Northern (Europeans, from 1857-58)		150	395	10	...	263·3	6·6	6·6	2·5
Northern Mahratta Division (Europeans to 1846)		.....	.....	...	...	...	...	...	...
Mysore (from 1846)		2,857	7,098	197	...	274·3	7·6	7·6	2·7
Provinces, from 1858-59,	Amalgamated in Asserim	2,204	3,419	44	1	155·1	1·9	1·9	1·2
Europeans (from 1844 to 1854-55)		66	127	3	...	192·4	4·5	4·5	2·3
Europeans, from 1842 to 1845.		.....	.....	...	...	...	...	...	...
Natives, from 1842 to 1847 and 1857-58		.....	.....	...	...	...	...	...	...
Europeans from 1852-53 to 1855-56.									
Natives, from 1848.		.....	.....	...	...	...	...	...	...
Presidency.	Europeans, for 1857-58.								
	Natives, from 1848 to 1850-51 and 1857-58.	658	1,266	32	...	196·9	4·8	4·8	2·4
(for 1842)		.....	.....	...	...	...	...	...	...
General Hospital		.....	.....	8	...	...	...	...	...
Total...		15,482	30,031	655	47	193·9	4·2	3·9	2·1

Division.		From 1842 to 1857-58. Percentage of: Deaths to treated.	Average annual strength.	Treated.	Died.	Deaths from cholera.	Percentage of: Treated to strength.	Deaths to strength.	Deaths to strength, excluding cholera.	Deaths to treated.
Presidency	NATIVES.	1·7	2,217	2,370	17	4	101·02	0·7	0·5	0·7
Centre		2·8	3,291	3,058	106	81	120·2	3·2	2·2	2·6
Southern		1·6	5,835	4,966	126	87	85·2	2·1	0·6	2·5
Malabar		1·5	2,855	2,995	82	54	103·8	2·8	0·9	2·7
Canara		1·4	2,856	2,579	57	21	80·4	1·9	1·2	2·3
Ceded Districts		1·9	4,013	3,255	23	6	81·8	0·5	0·4	0·7
Hyderabad Subsidiary Force ...		2·07	4,569	4,341	7	...	149·7	1·02	1·02	0·6
Seringapore Force		2·1	4,085	3,502	25	...	87·9	0·6	0·6	0·6
Southern (Europeans, to 1851, and Northern (Europeans, from 1857-58)		2·07	9,938	9,581	116	...	86·3	1·1	1·1	1·3
Northern Mahratta Division (Europeans to 1846)		2·2	243	153	4	...	62·9	1·6	1·6	2·6
Mysore (from 1846)		1·1	2,630	3,509	27	...	133·4	1·02	1·02	0·7
Provinces, from 1858-59,	Amalgamated in Asserim	1·6	10,410	14,962	248	18	143·3	2·3	2·2	1·5
Europeans (from 1844 to 1854-55)		1·7	1,843	2,029	53	2	110·09	2·8	2·7	2·6
Europeans, from 1842 to 1845.		2·6	.....	.....	...	...	...	...	...	...
Natives, from 1842 to 1847 and 1857-58		3·6	195	808	18	...	414·3	9·2	9·2	2·2
Europeans from 1852-53 to 1855-56.										
Natives, from 1848.		1·1	146	807	5	1	5·5	3·4	2·7	0·6
Presidency.	Europeans, for 1857-58.									
	Natives, from 1848 to 1850-51 and 1857-58.	1·2	2,371	3,417	15	...	145·1	0·6	0·6	0·4
(for 1842)		16·6	.....	.....	...	3	...	...	...	...
General Hospital		...	.....	.....	38	...	...	...	...	...
Total...		2·2	57,053	64,585	1,008	227	112·02	1·7	1·3	1·5
Presidency	EUROPEANS.	1·8	1,008	1,095	39	2	128·5	3·9	2·3	1·9
Centre		2·2	1,139	1,062	22	...	93·2	1·9	1·4	2·07
Southern		1·2	1,132	1,757	174	91	155·1	15·3	8·1	9·9
Malabar		1·1	1,132	1,757	174	91	155·1	15·3	8·1	9·9
Canara		1·1	1,132	1,757	174	91	155·1	15·3	8·1	9·9
Ceded Districts		1·1	1,132	1,757	174	91	155·1	15·3	8·1	9·9
Hyderabad Subsidiary Force ...		1·1	1,132	1,757	174	91	155·1	15·3	8·1	9·9
Seringapore Force		1·1	1,132	1,757	174	91	155·1	15·3	8·1	9·9
Southern (Europeans, to 1851, and Northern (Europeans, from 1857-58)		1·1	1,132	1,757	174	91	155·1	15·3	8·1	9·9
Northern Mahratta Division (Europeans to 1846)		1·1	1,132	1,757	174	91	155·1	15·3	8·1	9·9
Mysore (from 1846)		1·1	1,132	1,757	174	91	155·1	15·3	8·1	9·9
Provinces, from 1858-59,	Amalgamated in Asserim	1·1	1,132	1,757	174	91	155·1	15·3	8·1	9·9
Europeans (from 1844 to 1854-55)		1·1	1,132	1,757	174	91	155·1	15·3	8·1	9·9
Europeans, from 1842 to 1845.		1·1	1,132	1,757	174	91	155·1	15·3	8·1	9·9
Natives, from 1842 to 1847 and 1857-58		1·1	1,132	1,757	174	91	155·1	15·3	8·1	9·9
Europeans from 1852-53 to 1855-56.		1·1	1,132	1,757	174	91	155·1	15·3	8·1	9·9
Natives, from 1848.		1·1	1,132	1,757	174	91	155·1	15·3	8·1	9·9
Presidency.	Europeans, for 1857-58.									
	Natives, from 1848 to 1850-51 and 1857-58.	1·1	1,132	1,757	174	91	155·1	15·3	8·1	9·9
(for 1842)		1·1	1,132	1,757	174	91	155·1	15·3	8·1	9·9
General Hospital		1·1	1,132	1,757	174	91	155·1	15·3	8·1	9·9
Total...		1·1	1,132	1,757	174	91	155·1	15·3	8·1	9·9

No. 99. ORDER THEREON, 15th November 1869, No. 1561.

The Government are indebted to Dr. Balfour for his Memorandum, and for the suggestion, which they think a valuable one, that the towns and villages immediately adjacent to the line of Railway through the Ceded Districts, the Southern Mahratta country, and the intervening tracts, where outbreaks of cholera have been most frequent and severe, should be examined, and that sanitary regulations should be there introduced and enforced.

2. The Governor in Council is not prepared to recommend that a special Sanitary Officer should be appointed to carry out Dr. Balfour's suggestion; but resolves to call the attention of the Sanitary Commissioner to the subject, with a view to his visiting those portions of the line of Railway which are within the limits of this Presidency, and reporting what measures are, in his opinion, feasible and necessary.

3. Copies of these Proceedings will be forwarded to the Government of Bombay and to the Resident at Hyderabad, that such action in the matter as may seem fit may be taken regarding the portion of the line within the Bombay and Hyderabad territories.

(True Extract.)

R. S. ELLIS,
Chief Secretary.

To the Sanitary Commissioner.
,, Inspector-General of the Indian Medical Department.
To the Deputy Inspector-General E. G. Balfour, M.D.
To the Military Department.

PUBLIC DEPARTMENT.

No. 1562.

To

THE

SIR,

I am directed by His Excellency the Governor in Council to forward for information, and in order that such steps may be taken as may seem fit, the enclosed Proceedings of this Government regarding the necessity for sanitation in towns and villages in those tracts, traversed by the line of Railway between Madras and Bombay, where outbreaks of cholera have heretofore been most frequent and fatal.

I have the honour to be,
Sir,
Your most obedient servant,

Chief Secretary.

FORT SAINT GEORGE,
15*th November* 1869.

Exd. J. Wright.

Govt. of {1869} Madras.

PUBLIC.

To

THE SANITARY COMMISSIONER.

&c., &c., &c.

Dated November 15th.

Recd. *Encl.*

G. O., 15th November 1869, No. 1561.

NOVEMBER.

Nos. 98—100.

Communicating Dr. Balfour's suggestions in regard to the sanitary inspection, &c., of the places adjacent to the North-West Line of Railway, where outbreaks of cholera have heretofore been most frequent and fatal.

My dear Colles.

This is the Memorandum which I asked you to print for me. But I have had it written, as, if you object, it can be dispensed with in its present form. If I can it be printed, I should then send the appendices.

I asked Mackenzie how to dissect it. I wished to

send it to him, but he said, "Send to Governor".

I think you are the proper person.

I have spoken with Mr Anderson of the Railway & he considers something of this kind to be urgently needed.

It is for you to judge.

Yours truly
C. Gun

25 August 1869.

My dear Sir,

I thought that Mr Collis would put the Memorandum in type & send it to me; and I did not, I think, expect to see, back in a Copy of what I wrote.

If you will obligingly let me have the paper, for a little, I will send all that is needful; but I do not remember to have the documents referred to, al- ready. I am returning

to my Hon'ble Masters, at
5 P.M. of Monday next, the
XX^th. and if, therefore, you Cause
send the papers then, I
Could perhaps Complete
all to night - but if not,
I will read it expeditiously in Court &
Daniel arrange for their in=
spection thereafter.

The document be
in front, Could you let me
have a duplicate Copy of
it.

I was not aware [illegible] it

[redacted]

[illegible]

[illegible]

[illegible

Memorandum.

The enclosed paper has been obligingly prepared by Dr. Balfour.
There is a good deal of sense in his suggestion that the towns & villages immediately adjacent to the line running from Bhoosly to Bombay should be carefully examined before the line is completed & that sanitary regulations should be strictly enforced.

Mr. Rogers
Hon Dr Balfour
memo put in
by the atmen
WCS

Dr Balfour would have a special Sanitary Commissioner for this purpose (purchase himself?)
I do not think this is necessary but it may be as well to draw the attention of our own Sanitary to the subject with a view to his visiting the portion of the line within our own territory & it would be useful to move the Govt of Bombay to do the same as regards their territory

RS

I would do this also: cut a large portion of the territory thro' as the line is a fair, indifferent territory - for this purpose call on Resident

I would do this

I was when perusing Dr Balfours paper get the appendices he mentions. We have already used his materials & drawn excellent Cholera tables & drawing up the orders for Marches by British troops.

Cholera Memorandum.

The South West Coast of Railway now under construction between Madras and Bombay, runs through districts which have long been scourged by Cholera, and the Resident population and travellers have equally suffered. On the completion of the through line, if the sanitary state of the Stations be duly cared for, journeys will be made with great comparative Safety which hitherto by Cholera has so frequently invaded. The Centre Division and Ceded Districts of the Madras Presidency, the Raichore Doab of the Hyderabad dominions and the Southern Mahratta Country, that immunity can only be hoped for by the application of strict sanitary rules to all the lands adjacent to the Railway To apply such rules is beyond the province of the Railway Medical advisers, and,

a

a Special Sanitary Commissioner should be appointed for the entire Central Coast, from Madras to Bombay.

It is occasionally suggested that Cholera out-breaks are fewer and less severe than they used to be. But in this Central district of peninsular India there has not been any decrease.

In 1865, the northern part of Mysore, the Ceded Districts and the western half of the Hyderabad Territories were scourged with the plague. In 1867 and 1869, the western Road to Sholapore, and the Southern Coast from Hyderabad were repeatedly closed and in 1869 the usual telegram from Kurnool was "Cholera on all the roads of the district."

Cholera has always been the cause of many of the deaths amongst the Madras Native Soldiers. In the 24 years 1821 to 1844, the aggregate strength of the Madras Native army was 1,655,236, and 30,138 deaths occurred amongst them; 8,836 of which were occasioned by cholera. But the number attached

Cholera	8836
Fevers	5946
Dysentery & diarrhoea	4098
All other diseases	11258
Total	30,138

and best were greatest in the Southern Mahratta Country, the Hyderabad Territories, the Ceded Districts and the Doab of the Kistnah and Toombudra through which the South west line of Railway runs.

Division or Force

	Ratio per 1000 of mean strength	
	Cholera	Fever
Sagpore	3·59	1·8
Malabar and Canara	4·86	1·7
Travancore	7·57	1·6
Presidency	8·61	3·6
Northern Division	10·80	4·3
Mysore Division	11·81	4·9
Centre Division	12·82	5·3
Southern Mahratta Country	17·18	6·7
Southern Division	17·91	7·6
Hyderabad & Jalnah	20·00	7·4
Ceded Districts	23·38	9·0
Field Force Doab	23·85	9·4

This will be seen by the Statement in the margin; the data for which have been obtained from Dr. Jorions Cholera map. (See Appx. A)

Again, that map gives 152 routes of Regiments which suffered from Cholera, during their marches, in 37, or 1/4th of all those 152 out-breaks of this disease occurred on places immediately on the S.M. Railway line or in Towns adjacent that contaminated persons could carry sickness to the line. In those 37 cholera marches (See Appx. B) 1569 Soldiers were attacked and 664 of them died. The strength

Cannanore	1	Bezwada	1
Bycombolapoorly	1	Adoni	1
Trichinopoly	3	Oyraf	1
Hurryhur	1	Perinatoor	1
Ghooty	3	Tewardegoor	1
Tanjore	1	Paulmoor	1
Condoor	1	Cuddapah	1
Vellore	1	Tuljapoor	1
Hundee Anantpoor	1	Sholapoor	1
Cuddalapah	4	Bejapoor	3
Guntacul	1		37
Nagamoor	1		
Madanapalle	1		

of two Regiments was swept away with the exception of one whole Regiment strong it was swept away.

The comparative frequency of the 152 outbreaks in the several Divisions of the Madras Army is shown in the margin; and as will be observed, the least districted strength - which much of the S. W. Railway line runs, had the largest number of outbreaks.

Division	No. of outbreaks
Presidency	1
Nagpore	2
Northern	12
Southern Mahratta	12
Mysore	19
Hyd: Subsy: Force	24
Southern	24
Central	26
Ceded Districts	32
Total	152

Indeed, at one time, a regiment traversing through that central tract was declared particularly fortunate if it escaped an attack of this disease (See Appx C). Even individual travellers disliked to cross that central region and certain towns had an extreme ill fame.

See Pearse's Vol II page 603 Bellary

See Vol II page 603 of the Sanitary Commissioners Report, Sir George Pearse & Dr Lee's Report on the Mortality in Bellary from Cholera and from all diseases, and, in the 25 years recorded, of the total mortality, 38.82 per cent of Europeans and 50.39 per cent of Native Soldiers died from Cholera.

	European			Native			
	Total deaths	Deaths from cholera	Deaths from other diseases	Total deaths	Deaths from cholera	Deaths from other diseases	Percentage of Cholera deaths to total mortality from all causes	
1829 to 1838	285	62	581	283	21.75	48.7	
1842 to 1856	359	207	937	488	57.9	82.08	
Total	644	269	1518	771	38.82	50.39	

The information given by Dr Pearse is the most recent, and a collected form, is available for comment; at page 660 of the same volume, is a statement showing the strength, sickness and deaths in the Madras Army for the 17 years 1842-1857-8; and from the abstract and the margin it will be observed

Divisions	European Total deaths	European Deaths from cholera	European Deaths from other diseases	Natives Total deaths	Natives Deaths from cholera	Natives Deaths from other diseases
Southern Mahratta Country	52	12	40	892	468	424
Hyd: Subsidiary Force	846	56	790	1942	1028	890
Ceded Districts	417	208	209	987	498	489
Total	1315	276	1039	2821	1994	1813

that large a portion of the deaths in the Central tract made notice, in occasions by cholera. In the seventeen years, numbers nearly equal to half a Regiment of European and one to three Regiments of Native Soldiers were swept away by this fatal disease in these three Divisions of the Madras Army (See Appx E).

Again, in the 152 cholera marches
of outbreaks occurred on the banks

Division	Number Outbreaks	Number within 5 miles of a river	Number on the banks of	of rivers & are within 15 miles of them (the average distance being 3/8 mile) and, of the 106, 49 occurred on the banks of rivers & (see 4th p.)
Presidency	1	—	—	
Central	26	20	6	
Southern	24	21	13	
Nagpore	19	14	3	
Ceded Districts	32	22	9	
Northern	12	6	4	
24 Pergunnahs	24	16	9	
Calcutta	2	2	1	
Mahratta Country	12	5	2	
Total	152	106	49	

Of 10 out-breaks, near the Penna
river in the Central division, and
Ceded districts 3 occurred on its
banks: Of 15 outbreaks near the
[illegible] every river, 11 were on its banks;
of 9 near the Palar, 2 were on its
banks; of 8 near the Tumbudra
and its tributary the Toonga, 6 were
on their banks; and of 7 near the
Kistna, 6 were on the banks. The
delay on the banks of rivers and
the labourers in crossing them may
render soldiers more liable to be
attacked

attacked with Cholera; but, near rivers,
there may be some contaminating agent, and
as the North west line of railway skirts
and crosses several rivers and their tri-
butaries the towns and their banks,
should receive extra Care.

1 Ponaga	1 Pennadee
3 Gondacama	6 Kistnah
2 Pankas	1 Conada
1 Tambracanny	2 Rookecoolia
11 Cauvery	2 Godawry
1 Vygah-aur	1 Condalgy
1 Calbany	1 Soondee
1 Toonga	1 Wurda
5 Tumbudra	1 Pein
1 Perunnar	1 Gutpurbah
1 Goonjna	17 total.

I am of opinion that a special
Sanitary Commissioner is required for
the Central districts through which
the Railway from Bombay to Madras is
now under construction and that his

authority should extend for fifty miles on either side of the line.

In the "Statistics of Cholera" and in "The Localities in India exempt from Cholera" the names were given of numerous towns and villages in which Cholera had never been known to occur, though it had been invading places in India for at least a hundred years. Certain districts or towns on the other hand are unusually liable to be ravaged by this disease and readily impart their contaminating influences to travellers.

For instance, of 26 outbreaks of Cholera, amongst troops marching in the Central Division, two occurred at Ardinghee and four at Chittur.

Of 24 outbreaks in the Southern Division, three occurred at Coimpetty, and nine at Trichinopoly.

Of 19 outbreaks in the Mysore Division, three occurred at Bangalore, and three at Nundydroog.

Of 32 instances in the Ceded Districts, two occurred at Cuddapah, 4 at Cuddapah, 3 at Kurnool, and 5 at Ghooty.

Of 24 in the Hyderabad Dominions, 4 occurred at Secunderabad and 1 at Penganoor both on the banks of the Kistnah.

Of 12 outbreaks in the Southern Mahratta Country, 3 occurred at Belgaum.

On the above grounds I suggest the appointment of a special Sanitary Commissioner for the districts

on each side of the two railways from Bombay to Madras. The medical and sanitary officers of the railway companies are restricted to their lines of stations. The Sanitary Commissioners of the Government have, in their own duties, ample to occupy their time; and could not give the requisite attention needed by the districts through which this line & railway runs.

I think that, if we had a good sanitary Conductor, the Commissioners of the Government could keep them so: but, there is, at least, three years work before a special Sanitary Commissioner, and his labours may advantageously be early entered on, in order that the inhabitants, the resident officers & travellers, may be speedily benefited by railway communication. I think that it is highly desirable that the through line should be early placed in a perfect-

able sanitary Conductor.

Edward Balfour M.D.

Madras
25 August 1859.

Public Department.

PROCEEDINGS of the MADRAS GOVERNMENT.

Read the following letter from the
Dy Surgr Genl of Hospitals
E. G. Balfour
dated Cuddalore 25th Aug 1869

Ordered thereon 15th Nov. 1869. to be recd.

The Government
are indebted to Dr Balfour
for his memorandum,
and for the suggestion,
which they think a
valuable one, that the
towns and villages
immediately adjacent
to the line of Railway
through the Ceded
Districts, the Southern
Mahratta Country,
and the intervening
tracts, where outbreaks
of Cholera have been
of most frequent

Public Dep. 15 Nov. 1869.
From
Dr E. G. Balfour
Dy Surgeon Genl of Hospitals

Recd 20 Nov 1869

Memorandum Re-
=garding the Expedien=
=cy of Placing a Sta=
=tion Hospital at Cud=
=dalore Railway
=Station for the Reception
& the Treatment of
=Cholera Patients
=during the Prevalence
=of the Epidemic
=during the
=ensuing
=Season

C.S. Nov 20
Rec'd 15/11/69

and cases should be examined, and that sanitary regulations should be there introduced & enforced.

The Governor in Council is not prepared to recommend that a special sanitary Officer should be appointed to carry out Dr Balfour's suggestion; but resolves to call the attention of the Sanitary Commissioner to the subject, with a view to his visiting those portions of the line of Railway which are within the limits of this Presidency, and reporting what measures are, in his opinion, feasible and necessary.

Copies of

3 Copies of these Proceedings will be forwarded to the Government of Bombay and to the Resident at Hyderabad, that such action in the matter as may seem fit, may be taken regarding the portion of the line within the Bombay and Hyderabad Territories

To the Sanitary Commissioner — dated 17th
The Government of India (P.W.D.)
do Dr Balfour, Secretary, Bombay
do Resident at Hyderabad
} by letter

Govt. of {1869} Madras.

Public

To

The Sanitary Commr.
&c.

Dated 1869 Nov. 15th

Recd. 1869, No. 1561.

Nos. 98–100.

Forwg Dr Mulfords
suggestions in regard
to the sanitary inspection,
&c., of the places adjacent
to the N.W. line of Railway,
where outbreaks of cholera
have heretofore been most
frequent & fatal.

Public 1869 Despatch

No. 152.

The

4/18 Nov/69

F 4a-1068
10

No. 100-

Forwarding, in view to the
necessary steps being taken,
Proc: of this Govt: regarding
the necessity for sanitation
in towns & villages in those
tracts, traversed by the
line of Railway between
Baroda & Bombay, where
outbreaks of cholera
have hitherto been
most frequent & fatal.

c2: Mar