

8-3-04
15-3-11

ORDINARY, MS.

<i>Public</i> DEPARTMENT.	
G.O., DATED	<i>6-7-93</i>
No.	<i>5-22</i>

INDEXED

When given for copying.

[Despatch Abstract.]

*Regarding letter
for the Govt of Bengal
regarding certain ma-
ters under the
Act. 'Dinner'*

60

From

The Govt of Bengal

NO 533 T.R.

Dated 24. vi. 93

Recd 30. vi. 93

Regd 1. vii. 93

Enc. 1

Subject-

Forwarding copy of
a letter from the Suptt.
of Emigration, Calcutta
reg. the condition of
certain Native miners
Embarked to Madras per
S.S. "Dumera"

3/7

Copy to the Protector of Emigrants
P.P. officers.

Not to be filed

Put go no 401 d 19-5-93
342 3 d 24 4 93.
322 d 22-4 93

6th July 1893.
No. 533.
order
Recorded.
27/7/93

Note. Enq. 19th May 1893 no 401 the
P.P.O was requested to prosecute the
Commander of the "Dumera" when he
comes to Madras next. Nothing further
seems necessary.

BACK PAPER, No.

OF 18

FURTHER PAPER, No.

March 644

OF 18

93

READ AGAIN ORDER OF GOVERNMENT, DATED
18, No. MISCELLANEOUS.

ENCLOSURES.

one

CURRENT No.

Copy 10/4

STATEMENT WITH DITTO.

ORDER OF GOVERNMENT.

A A

LETTER OF GOVERNMENT.

STATEMENT WITH DITTO.

PAPER NOT FILED UP, BEING MEANT FOR DESPATCH
IN ORIGINAL (not paged).

N.B.—
A = Copy in full.
B = Not to be copied.
F = Copy abstract only.
Q = Copy heading only.

1765

VI.

REVENUE DEPARTMENT.
Land Revenue Branch.

No. 523 T.R.

From

H. J. McIntosh, Esq., C.S.,
Under-Secretary to the Government of Bengal,

To

The Chief Secretary to the Government
of Madras

Forwarded
Dated Calcutta, the 24th June, 1893.

Sir,

With reference to your letter, No. 343,
dated the 27th April, 1893, I am directed to forward
the accompanying copy of a letter, No. 288, dated
the 31st May 1893, from the Superintendent of
Emigration, Calcutta, furnishing the required
information regarding the condition of the native
miners at the time they were embarked to Madras
per S.S. "Demera," and the instructions given
to the Commander of the ship.

I have the honor to be,
Sir,

Your most obed^t Servant,

H. J. McIntosh

Under Secretary to the Govt of

for treatment.

3. On the day of embarkation the coolies in the Depot were medically examined by the depot station doctor, and it was then decided to send 3 fever cases to the Campbell's Hospital and to embark the remaining 36 coolies for Madras, which was accordingly done.

4. A letter to the address of the Protector of Emigrants, Madras with reference to the coolies embarked was handed over to the Master of the Steamer "Sanera", for delivery to that officer; and the Master should have made over the letter and the coolies to the Protector on arrival of the Steamer at Madras. But that he did not do so, he ascribes to the circumstances that there was no officer forthcoming to superintend the landing of the coolies.

5. There is no doubt that the Master acted irregularly in not first delivering the letter to the Protector of Emigrants, Madras

and

and then acting under such instructions as may have been received from him.

Thos Lee

Esq. R. P. J. J. J.

Superintendent of Emigration.

(True Copy)

Attest.

Assistant in Charge Revenue

H. H. H.

Secretary to the Govt.

No 288.

From

To The Superintendent of Emigration

The Secretary to the Govt of Bengal,
General Department.

Calcutta, the 31st May 1893.

Sir,

With reference to ^{my} Mr McIntosh's
Endorsement No 78 I.B., dated the 18th Instant,
forwarding correspondence regarding the return
to Madras of the Native Prisoners despatched
from Calcutta by the S.S. 'Sunera' and
requesting a report, I have the honor to
submit, for the information of Government,
the following report on the subject.

2. After admission into Mr Lambell's
Depot of the 40 Madras Prisoners that had been sent
to Calcutta by the Deputy Commissioner of
Singbhum, it was found that there were 8 cases
of fever among them, and 1 case of Cholera
which was sent on at once to the Campbell Hospital.

ORDINARY, MS.

Public DEPARTMENT.	
G.O., DATED	6-7-93.
No.	5-23.

INDEXED

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[Despatch Abstract.]

Copy to the Sanitary
Commission for information
& guidance para 1 & 3
of letter from the Govt
of India for winding
up of the Army Sanitary
Commission on the
report of the Sanitary
Commission with the Govt
of India for 1890. &
para 2 to him for
for remarks.

BACK PAPER, No.

FORWARD PAPER, No. 1936

/or 1893

HEAD AND ORDER OF GOVERNMENT, DATED
18, No. MISCELLANEOUS.

ENCLOSURE.

CURRENT NO.

STATEMENT WITH DUTY.

ORDER OF GOVERNMENT.

LETTER OF GOVERNMENT.

STATEMENT WITH DUTY.

PAPERS NOT FILED UP, BEING WANT FOR DISPATCH
IN ORIGINAL (not paged).

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India Office,
London, 13th October 1892.

Statistics,
No. 65.

To His Excellency The Most Honourable The Governor General of
India in Council.

MY LORD MARQUIS,

I forward, for the information of your Excellency's Government, 30* copies
of a Memorandum by the Army Sanitary Commission on the Report of your Sanitary Commissioner
for 1890.

2. I commend to your special notice the remarks of the Commission, in
their opening paragraph, regarding the delay in the receipt of the Sanitary Com-
missioner's Report, and also the important suggestions and recommendations
summarized at the end of their Memorandum.

I have the honour to be,

My Lord Marquis,

Your Lordship's most obedient humble Servant,

KIMBERLEY.

Memorandum by the Army Sanitary Commission on the Report of the Sanitary Com-
missioner with the Government of India for 1890.

Delay in receipt of Report.—This Report did not reach us till the 15th of
June, or nearly eighteen months after the close of the year to which it refers.
We are well aware of the difficulty of obtaining the data necessary for its pre-
paration from the many sources from which they are drawn on the exact dates
prescribed for their submission, and how the want of punctuality on the part of
even one individual may retard the completion of the general statistics. We are
also aware that not unfrequently returns have to be sent back for correction or
for explanation on certain points, and that reports also have to be amplified or
amended when the information originally furnished has been incomplete, or
seemingly inaccurate. We do not underestimate these difficulties as causes
of delay which are constantly recurring, and which it is not always easy promptly
to overcome. We would merely point out that the sanitary history of the year
loses much of its interest and practical importance by being so long deferred,
and would express a hope that it may in future be found possible to have it
ready within twelve months after the close of the year to which it refers.

2. *European Troops.—General Results.*—With the exception of the epi-
demic of influenza, to which particular reference will be made hereafter, the year
was generally healthy. Owing chiefly to this cause there was some increase in
sickness, whether judged by the admissions into hospital or by the proportion
constantly in hospital, but there was a considerable diminution in the death-rate.
The results among European troops in the three Presidencies are shown in the
following statement, to which have also been added the separate statistics of
Quetta and Burma.

European Troops.

	Strength.	Ratios per 1,000 of strength.				
		Admissions.	Constantly Sick.	Deaths.	Invaliding.	Total Loss.
India ...	67,823	1,520	87	13.84	25	39
Bengal ...	41,353	1,584	89	15.50	25	41
Madras ...	13,707	1,442	91	12.84	23	36
Bombay ...	12,763	1,396	77	9.56	29	38
Quetta* ...	2,019	1,099	53	9.41	...	...
Burma† ...	4,712	1,743	102	20.80	...	...

* Included also in Bengal.

† Included also in Madras.

Taking the statistics of the European Army in India as a whole, the results are generally favourable. With a slight increase in sickness the mortality was less than it had been since 1884. Of the three Presidencies Bombay shows the lowest ratio both of sickness and of deaths, while under both these heads Bengal shows the highest. If the figures for 1890 in Bengal be compared with those of former years we find that the constant sick-rate (89) is much above that of any of the preceding ten years, except 1889, when it equalled 87. For the ten year period before that, that is to say, for the ten years 1870-79, the rate averaged only 61. In regard to mortality the results of 1890 are more satisfactory. For 1870-79 this averaged 21 per 1,000. Since then it has fluctuated between 27.73 and 11.21; in 1890 it was 15.50. Only four of the ten years between 1879 and 1890 yielded a lower rate than 1890. In Madras the constant sick-rate (91) exhibits an even more remarkable increase when compared with former years than Bengal. In the ten years 1870-79 this rate was only 60. The death-rate 12.84 is a marked contrast to 20.05, the ratio for 1889. Between 1870 and 1879 it averaged 17.69. As regards mortality the Bombay returns for 1890 are very favourable, not only when compared with those of the other two Presidencies in that year, but also when compared with those of the same Presidency in former years. Under both admissions and constantly sick, as may be seen in the statement above given, the rates are much under those for Bengal and Madras. The death-rate 9.56 is very low. During the ten years 1870-79 in Bombay it averaged 15.27, and since then the minimum annual ratio has been 10.37 in 1882 varied by a maximum of 30.90 in 1880. The statistics of European troops in Quetta and Burma, which have been added to the statement, are of interest as illustrative of their experience in parts of the country which have been occupied during recent years. In Quetta the diminution of sickness and mortality is very satisfactory. In Burma also, so far as mortality is concerned, the figures for 1890 are most favourable when compared with the two preceding years. The rates of admissions into hospital had also been considerably reduced, but there had been a rise in the constant sick-rate. For this rise in the sick-rate here and also in other parts of India venereal diseases are largely responsible, though in Burma it also seems to have been swelled by the number of men of the Chin-Lushai expedition remaining sick in the beginning of the year.

3. *Points of special interest and importance.*—All these and many other matters are fully discussed and illustrated in the Report, in which there are abundant statements comparing the results of 1890 with those of former years, and showing how these results have affected the different Presidencies and the different groups of stations in each Presidency, what diseases chiefly prevailed, and the extent of this prevalence as well as the proportion which each contributed to the mortality. We shall not enter into these details which are already so clearly and fully set forth, but shall reserve our remarks in the main for a few subjects of special interest and importance. They are—

1. The epidemic of influenza with its concurrent increase in respiratory diseases;

2. The continued prevalence of venereal diseases; and
3. The continued mortality from enteric fever.

We shall deal with these questions primarily as they affected the European soldiers, but shall also take into account any information collected from the Native troops, the jails, and the general population which bears on them.

4. *The influenza epidemic.*—Its prevalence among both Troops and Prisoners.—The epidemic of influenza was certainly the most remarkable event in the sanitary history of the year. In noting on most of the Provincial Sanitary Reports for 1890, we have regretted the want of information in regard to it because a rare opportunity seems to have been lost of observing and recording the history of the disease as it affected the people generally, and thereby accumulating a mass of evidence in respect to it which could not have failed to prove of great interest and importance. In this Report we have most valuable data regarding both troops and prisoners, all the more valuable because these are spread over such a wide area, and because the observers were all well qualified to record them. Statistics of influenza for which special tables have been introduced, are given month by month for all these bodies, and we shall now summarise them as concisely as possible in the following statement:—

Influenza among Troops and Prisoners.

		Strength.	MONTHLY NUMBER OF ADMISSIONS INTO HOSPITAL.												Ratio per 1,000.
			January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
European Troops,—															
Bengal	...	41,353	...	3	328	914	49	1	...	1	3	...	...	1	31.4
Madras	...	13,707	...	...	40	396	198	68	13	1	...	...	...	...	52.2
Bombay	...	12,763	...	...	105	141	1	...	...	...	...	...	...	...	19.4
Native Troops,—															
Bengal	...	64,030	...	...	1,230	2,589	403	70	53	...	...	...	...	...	67.9
Madras	...	26,032	...	...	173	698	70	12	2	...	...	...	1	...	36.7
Bombay	...	24,032	...	8	739	1,427	...	...	...	...	...	...	...	...	90.8
Prisoners,—															
Bengal	...	57,500	...	15	286	3,422	940	295	199	6	1	...	1	1	89.8
Madras	...	7,702	...	...	...	97	734	187	33	...	...	...	...	...	136.6
Bombay	...	7,284	...	1	56	91	32	...	...	...	...	...	...	...	24.7

We have added the strength in each case to show the large body of men who formed the field for observation. The area covered is also very large. Practically it embraces the whole of India, from the frontier in the north to the southern part of the Madras Presidency, and from the extreme west of Bombay to Burmah and Assam in the east. We have the great facts of general prevalence, though the degree of prevalence varied considerably, from 19.4 cases per 1,000 among the European troops in the Bombay Presidency to 136.8 among prisoners in Madras; of this general prevalence being confined to a limited portion of the year, commencing with few exceptions in the month of March, attaining its maximum in all but one instance in the month of April, and then more or less gradually disappearing altogether.

5. *Less prevalent among women and children.*—In the above Table the wives and children of European soldiers are not entered because it would thereby have been unduly complicated. Among them the disease was much less prevalent than among the men. The admissions equalled for women 35.6 in Madras, 15.3 for Bengal, and 9.7 for Bombay. For children the rates were 16.5 for Madras,

6.8 for Bengal, and 2.6 for Bombay. Among all of them the disease commenced in March, and among all of them, except the women in the Bombay Presidency, it attained its maximum in April. In Bombay the cases among women were confined to 5 in March and 1 in April, and among children to 3 in March. As a whole the statistics of the epidemic among the women and children of European regiments in the three Presidencies correspond with those already cited regarding the men of these regiments, the Native troops, and the prisoners.

6. *Concurrent increase of pneumonia and other respiratory diseases.*—As is usual when such epidemics occur, there was along with the influenza a concurrent and very marked increase in cases of pneumonia and other respiratory diseases, and this is all the more remarkable in this instance because it took place as the warmer weather was setting in, a time when such diseases are wont to decline. It is impossible to separate the cases which are to be associated more or less directly with the influenza, and those which are to be attributed to ordinary causes. Even in the returns rendered by officers in medical charge of troops and prisoners perfection in statistics is not to be looked for. One observer, for example, would return a case under the head of respiratory disease which another would return as influenza, and when the epidemic commenced as it often did in a gradual and stealthy manner, we are told by the Sanitary Commissioner that the early cases were not unfrequently entered as cases of ordinary fever. Even as regards comparative prevalence the statistics are not to be accepted as quite exact, for it would appear that many slighter cases of influenza were treated without being admitted into hospital, and therefore were not entered in the returns. But the great facts remain as a most valuable and trustworthy record of the history of a great epidemic, and among these great facts there can be no question that along with the influenza there was a very large and concurrent increase of respiratory diseases and especially of pneumonia, the mortality from which was much greater than in ordinary years.

7. *Geographical distribution of the epidemic by groups.*—Different parts of the country were affected by the influenza in very different degree. Taking the twelve groups into which the European troops are statistically divided we find that the Punjab suffered least. Here there were only 9.5 admissions per 1,000, whereas in the Gangetic Provinces they equalled 78.4. The next highest ratio was 52.2. It is not possible to make exact comparison between the European troops and Native troops, or between them and the prisoners, as to prevalence, for the stations occupied by the two classes of troops are not always the same, and many jails are situate where there are no troops near them, either European or Native. The statistics of the disease among both Native troops and prisoners each afford valuable data regarding the geographical distribution and relative prevalence of the epidemic, and the areas concerned may be easily ascertained on reference to the tables which detail the individual places embraced in each. The Native soldiers suffered most in Quetta. Here the cases equalled among Bombay troops 377.6, and among Bengal troops 176.5 per 1,000; not far short of this last was the ratio of 172.2 in Bengal proper and Assam. The next highest is 118.8 in Rohilcand and Meerut. The other groups suffered but little. Among the groups of jails Bengal proper with Assam returns 161.8, Berar 160.4, and Madras 136.6, Central Provinces 124.8, and Lower Burma 95.1 cases per 1,000. Among the others the numbers were much less, the minimum being 2.8 among the convicts in the Andaman and Nicobar islands.

8. *Geographical distribution of the epidemic by stations.*—If we take the special tables devoted to the statistics of this epidemic of influenza, XXVI. of European troops, XXVI. of Native troops, and XX. of jails, much interesting and important information is to be found regarding the incidence of the disease in particular stations. To begin with the European troops, cases were recorded among them in 59 different places. In some few of these the maximum occurred in March, but in nearly all it was in April. In none of them, except at Jubbulpore, where 3 are entered in February, was any case returned till March. Among Native troops there is the same general culmination of the sickness in April, but there are some notable exceptions, such as Lucknow, Jubbulpore, Dharmasala, several stations in the Bombay Presidency, and three of those in Berar, in all of which the maximum was reached in March. No less than 135 jails

out of a total of 249 were attacked. Of these three return the first cases in February, viz., two at Benares and 1 at Yerrawda, and 15 return the first cases in March, but the general prevalence was in April, though in some few it did not occur till May, rapidly dying out in all of them after that.

9. *Information regarding the commencement of the epidemic.*—From the Statistical Tables the exact date of the first appearance of the epidemic among each body of troops and prisoners cannot be ascertained, and from what we have already said it will be seen that it would have been extremely difficult to obtain this information with accuracy. On this point some details are given in the body of the Report. We learn there what is a very important fact in connection with the history of the disease in 1890, that in August 1889 a remarkable outbreak of it had occurred in the Thayetmyo jail in Burma, where 33 prisoners were attacked, as well as some of the guard and other jail establishment. In the middle of January 1890 influenza was reported to be prevalent in Jalaun, and in Bijnor from February. Both of these are districts of the North-Western Provinces. The Sanitary Commissioner writes that "the first European garri-sons to return cases were Jubbulpore (week ending 28th February), Lucknow, Umballa, and Mhow (week ending 7th March), and the last those of Burma, viz., Rangoon, Thayetmyo (week ending 9th May), Mandalay (week ending 6th June), Bernardmyo (week ending 8th August)." It would no doubt have taken up much space to give the weekly admissions from influenza during the epidemic time, but such a statement would have been of great value, and would perhaps have helped to show how far they were governed by some general laws.

10. *Epidemic attributed by some to importation.*—As to the origin of the epidemic, the opinions of the medical officers seem to incline to the theory of importation, and some of those who are quoted express themselves very decidedly on this point. There is, however, a great want of evidence to substantiate this conclusion. The mere assertion that the disease was imported, without any facts in support of it, is of little value. The mere fact that a person from a place where influenza was prevailing was the first to be attacked after his arrival in another place, and that thereafter the residents suffered, is no evidence that the new comer was the agent in spreading the disease. Many more details are required. We see no mention in the Report of attendants on the sick having suffered in larger proportion than other members of the community. The facts regarding them would have been useful in arriving at a sound conclusion in respect of the doctrine of importation. Other medical officers speak more guardedly and say that the new comers had "probably" been the means of introducing the disease, but mere conjectures do not aid in the settlement of this question.

11. *The general conclusions which seem to be warranted by the facts.*—What was the cause or causes of this great epidemic of influenza we are unable to say, but, on a consideration of all the facts so far as they have been placed on record, there seem to be certain general conclusions which are self-evident. We can only judge of the causes by the results, and, judging from these results, we conclude:—

- (1.) That in August 1889, causes which are not commonly present in India, at least not in sufficient force to give rise to any marked effect, were at work at Thayetmyo and produced the remarkable outbreak to which reference has been already made.
- (2.) That, in the early months of 1890, similar causes were operating very widely over India.
- (3.) That these causes were not present in the same force in all parts, but that they varied in intensity in different localities and among different communities.
- (4.) That over great part of India these causes were in maximum force during the month of April.
- (5.) That thereafter they began to decline and in most parts speedily disappeared, but that the occurrence of a few isolated cases in the

later months of the year indicated that they were still present here and there, though in a very minor degree.

(6.) That the disappearance of the influenza, like that of all other epidemics, is a feature in its history which demands explanation just as much as its appearance or prevalence.

(7.) That where, as in this instance, great and widely spread forces were at work producing disease, the only practical measures which can be taken to resist them lie in the improvement of local conditions.

12. *Continued prevalence of Venereal Disease.*—The continued and indeed further increased prevalence of venereal diseases is a matter for great regret. In 1889, the admissions under this head reached the ratio of 482 per 1,000 throughout the European Army of India—the highest ratio which had then been attained. The statistics of 1890 unfortunately show a higher ratio still—a ratio of 504 per 1,000. Thirty-three per cent. of all admissions were directly due to venereal diseases, and to the same cause are ascribed 7 per cent. of the deaths and 13·2 per cent. of the invaliding. In all three Presidencies there was an increase over the returns of 1889 and there was also an increase under every form of disease except primary syphilis. The comparison which the Sanitary Commissioner draws between the results of 1884, when lock hospitals were in force, and the last two years during which they have been given is very much in favour of 1884. The figures stand thus:—

Admissions into Hospital per 1,000.

	1884.	1889.	1890.
Primary syphilis	90·2	225·1	220·7
Secondary syphilis	24·4	51·2	66·3
Gonorrhœa, &c.	179·0	205·2	216·6
Total	293·6	481·5	503·5

A similar tale is told if the figures for each Presidency be taken separately. In our Memorandum on the Report of the Sanitary Commissioner with the Government of India for 1889, we stated the reasons which induced us to believe that the lamentable increase of venereal diseases among European soldiers in India of late years could not be explained merely by the closing of the lock hospitals. Whatever may be the cause or causes which have produced this result, nothing could well be more unsatisfactory than the state of things depicted in this Report as existing in 1890. In the European Army, as a whole, no less than 34,152 cases of venereal disease were treated during that year, or considerably more than all the cases of malarial and other fevers put together. Turning to Table XXVII. of European Troops, at the end of the volume, we find the details of admissions from venereal diseases by stations. In not a few of these the ratio exceeded 700 per 1,000. Among any considerable body of men such as is sufficient for statistical comparison the maximum seems to have been reached at Ahmednagar where it attained to the proportion of 973 admissions per 1,000. In respect of venereal diseases the contrast between European and Native troops is very striking. In the whole Native army, the cases of venereal disease amounted only to 5,244 or 41·1 per 1,000 of strength. Among European soldiers, as already shown, they equalled 504 per 1,000. Out of every 100 among Native troops the proportion was 3·61. The Sanitary Commissioner makes no mention of the voluntary hospitals which were to take the place of the cantonment lock hospitals, and by which it was hoped that some good might have been done. The only information we have regarding them is contained in

a "Report on Voluntary Venereal Hospitals in the Punjab for the year 1890." From this Report, we gather that such hospitals had not been open in all of the cantonments, and that where they were open they had not been very much made use of. On the whole, however, 431 women were admitted into them during the year, or an increase of 179 on the year previous. The Government of the Punjab is of opinion that "it is too early to form any definite conclusions as to the value of the new system for the prevention of propagation of venereal disease, and considers that a further trial is necessary to allow of any definite conclusions being arrived at on this point." In his future Reports it is desirable that the Sanitary Commissioner should furnish full particulars regarding these hospitals in all the provinces.

13. *Continued mortality from Enteric Fever.*—Although there was some reduction in the mortality due to enteric fever during 1890, the number of deaths ascribed to this disease is far in excess of that under any other head. Of the total of 939 deaths throughout the European Army in India in 1890, no less than 333 appear as caused by enteric fever, or 35·5 per cent.; of the total death-rate of 13·84, 4·91 was due to this disease. There are two facts in its history during 1890 which deserve notice, although they are by no means new, and are, indeed, merely a repetition of former experience. The first is that it was very widely spread. On turning to Table XXIV, we find that cases were admitted into hospital in 94 different places, but that in many of them they were very few in number. As a whole the Bengal Presidency suffered very much more than either Madras or Bombay. The admission-rates for the three were 24·1, 9·3, and 10·2, while the death-rates equalled 6·26, 3·65, and 1·88. The proportion of cases that proved fatal varies so much in different cantonments as to lead to the inference either that there is no fixed rule as to what constitutes a case of enteric fever, or that the disease varies greatly in its intensity as influenced by locality or other circumstances. At Poona, out of every 100 cases treated only 8 died, whereas in Fort William the percentage was 75, and between these extremes there are many intervening steps. The other great fact is that young soldiers during their early years of Indian residence are the most prone to be attacked. The experience of 1890 adds fresh evidence on this point. As regards age, the liability of men of 24 and under was 65·93, between 25 and 29 it was 24·07, and between 30 and 34 only 10 per cent. As regards residence the liability was as follows, first and second years 66·47, third to fifth 19·40, sixth to tenth 14·13.

14. *Causes to which Enteric Fever is ascribed.*—This proneness of young soldiers to be attacked with enteric fever during the first portion of their Indian service is fully recognized, and is illustrated in the facts cited by many of the medical officers whose reports are quoted. One medical officer writes, "No doubt, the arrival of drafts is always followed by an outbreak." Another writes, "The station was comparatively free from enteric fever during 1890, the two main factors in India being absent, young soldiers and new arrivals." But on a point like this the evidence of statistics collected all over India during a series of years is more valuable than the experience of any individual station, especially when that is limited to a single year. And the statistics of enteric fever among European troops in India have told the same consistent story throughout, the practical conclusion to be drawn from which is that the young soldier requires special care during his early Indian service. Many of the medical officers whose reports are quoted are of opinion that the disease is due to specific contagion contracted in the bazaar or through some indirect source; but it is satisfactory to find that, whether attributed to climatic conditions or some specific cause, the practical aim is the same, to discover what local insanitary conditions exist in each cantonment, and to have them removed.

15. *The Bacillus Typhosus.*—Attention was drawn in last year's Memorandum to the discovery of the *Bacillus Typhosus* in certain Indian enteric cases. On this point some further information of interest is given in this Report for 1890. The Sanitary Commissioner writes: "Hitherto, when a case diagnosed as enteric fever has been found on *post-mortem* examination to want the anatomical intestinal lesions, it has simply been assumed that the diagnosis had been wrong. But Dr. Justyn Karlinski, in Europe, has published two carefully studied cases, in which the symptoms were anomalous, and no intestinal

"lesions were present, and yet the bacillus was found by cultivation from the spleen and other internal organs, and another in which, with only an old cicatrix in the intestine, the bacilli were recovered from the blood by cultivation." This opens up a very wide field of inquiry. It shows that the *Bacillus Typhosus* is not confined to well marked cases of enteric fever, and it is therefore most important that search should be made for it in other Indian fevers, many of which it is found in practice difficult, if not impossible, to distinguish from enteric fever.

16. *Cholera*.—Although cholera was little prevalent, and added only '72 to the mortality, the facts concerning it are of much interest. Of the 58 cases of European soldiers treated, 50 were admitted in Bengal, 7 in Bombay, and only 1 in Madras. The 58 cases were spread over 18 stations and over nine months of the year. Except at Lucknow, where there were 18, the attacks in any one place were few, and in many instances confined to one or two. The same remarks apply to the history of the disease among Native troops during the year, with the exceptions of Dehra Dun and Dharmsala, at both of which outbreaks of some severity took place in the month of July. The history of these outbreaks has not been given, but the general results are incorporated with those derived from all the cholera reports taken together. The localization of this disease is well illustrated by the proportion of buildings attacked out of the total number occupied. For British troops this proportion was 15 per cent., for Native troops 3'18 per cent., and for jails 24'6 per cent. The percentage of attendants on the sick who were themselves attacked varied between 0'73 for European troops to 4'07 for Native troops. In all, out of 1,206 attendants on 673 cases of cholera, 38 were themselves attacked, but the history of even these few who were attacked is not such as to warrant the conclusion that they were attacked because they had been attending on the sick. The results of moving into camp continued to be very satisfactory. This is well illustrated by the experience of the Goorkhas at Dharmsala. They moved into three camps. In one of these camps there were 17 cases during the first 24 hours after removal, but none after that; in another camp there were 6 cases during the first 24 hours and 29 in the second, but none afterwards; in the third there were no fresh cases, although there had been 57 cases in this party before their removal.

17. *Native Army. General Sanitary history in 1890*.—In speaking of the influenza epidemic and of some other diseases among European soldiers, we have already made reference to the experience of the Native Army in respect of these diseases. As a whole, the sanitary history of the Native troops during 1890 was not favourable. The results among different bodies are thus compared by the Sanitary Commissioner:—

		Total Deaths per 1,000, including Absentees.	Average Strength present with Regiments.	RATIO PER 1,000.			
				Admissions into Hospital.	Constantly Sick.	Deaths from Cholera.	Present Deaths from all Causes.
Bengal Native Army	...	21'82	64,080	1,306	42	3'28	19'16
Madras " "	...	20'64	26,032	924	41	54	15'63
Bombay " "	...	12'92	24,032	1,139	35	12	10'99
Central India and Rajputana Regiments	...	9'96	5,118	702	21	78	9'96
Hyderabad Contingent	...	6'71	7,071	553	17	...	4'81
Native Army as a whole	...	18'64	127,746	1,137	39	1'83	15'91

It will be observed that under every head the ratios vary greatly. Taken as a whole both sickness and mortality were greater than they had been, since the year 1881. In Table XXII. the details are given for 17 groups of stations,

and there the contrasts are very remarkable. The ratios for admissions into hospital vary from 674 among the Madras soldiers in Northern Madras, to 2,487 among Bengal troops in Burmah. We omit in this comparison the statistics of Madras troops in Upper Burmah as they are not fairly comparable with those of regiments spread over Burma generally. The Bengal troops in Burma also yield the highest sick-rate, 112 per 1,000, the lowest being 26 among Bombay troops in the Konkan. Among Bengal troops in Burma also the death-rate was highest, 78'68, whereas in the Nagpore group it was only 6'85. If we take the history of individual stations we find that in many of them the sickness was very great and the mortality heavy. In a few these were connected with field service or out-post duty. Among Bengal troops on the Chin-Lushai expedition the admissions into hospital equalled 3,415, the constant sick 72, and the deaths 36 per 1,000. Among 14 other bodies of men the admission-rate exceeded 2,000. In many places the death-rates were very high. The maximum 179'59 was attained among a small body of men marching in Burma, but of this 175'51 was due to cholera. The next highest death-rate 93'84 was also in a great measure due to the same cause. It is recorded at Dharmsala.

18. *Sanitary defects*.—The extent of the sickness and mortality in each station is clearly shown in the summary of the sanitary sheets for Native troops in the three Presidencies where the local conditions are also described. Among these conditions we observe that more or less overcrowding was a very common defect. At Fort William this evil was very grave, for at times 868 men were placed in quarters where there was proper accommodation for only 392. It is explained that the overcrowding was occasional, but even when only temporary such a serious diminution of air and space per head must be attended with great danger. The sickness here equalled 27'97 admissions per 1,000 and the deaths 32'21. Although this is an extreme case, overcrowding is a defect which is very frequently mentioned in these sanitary sheets, and it is one which ought to be remedied. Another serious defect which is not uncommon is the want of proper drainage. At Alipore, for example, it is noted "surroundings low lying and badly drained and swamps are formed during the rains"; at Barrackpore the drainage is reported to be "very bad." Here the mortality was only 8'21, but sickness was prevalent to the extent of 1,700 admissions per 1,000. At Benares, drainage is said to be "defective during floods." At Sialkot, drainage "defective." At Meerut, "lines under water during heavy rains." At Jacobabad, "drainage bad in wet weather." In many places complaint is made of the water-supply; in others the conservancy is at fault; in others again the men are believed to underfeed themselves. Some further information on this most important subject of local defects is to be found in the summary of the Annual Sanitary Reports on the cantonments, but these include Bengal only. In connection with the outbreak of cholera which occurred at certain places during the year, attention is specially drawn to defects in the water-supply to which these outbreaks are attributed. At Chaubuttia the water-supply is described as "doubtful and subject to accidental contamination," at Naini Tal to be "not above suspicion," at Dehra to be "open to contamination," and the same is said of the supply at Dharmsala. It is hardly necessary to point out that all these are evils which ought to be dealt with.

19. *Military sanitary works*.—In addition to summarizing the Bengal Cantonment Reports, Section VIII. gives an account of the military works completed or in progress during the year 1889-90 which could not be furnished in the Report for 1889. No great works are mentioned. The money was chiefly expended on barracks, officers' quarters, and hospitals. It is mentioned that at Rawalpindi the sudder and cantonment water-supply was in progress, and that the preliminary survey of the water-supply project for Murree was finished. During 1890-91 the expenditure on military works designed for the health and comfort of troops in India amounted to Rs. 91,02,988, but detailed information regarding them was not available. It would be interesting to know how far the troops in the neighbouring cantonments have participated in the benefits of the new water-works which have been inaugurated of late years in certain towns, especially in the North-Western Provinces.

20. *The Falls of India*.—In the separate memoranda on the Provincial Sanitary Reports, we have already commented on the vital statistics of the

general population, on the history of the chief diseases among them, on vaccination, and on civil sanitary works, each of which forms the subject of a distinct section in the Report of the Sanitary Commissioner with the Government of India, and in regard to them we have no further remarks to offer. It only remains to consider the health of the jails of India during 1890. This important matter is dealt with by the Sanitary Commissioner with the Government of India in the fourth section of this Report. The statistics of the year are fully discussed, not only as a whole but also in provinces, in different geographical groups, and in individual jails. As a whole the results show an improvement on those of former years. In consequence of the epidemic of influenza both admission and constant sick-rates were high, but the death-rate (31.49) was lower than it had been in any of the individual years, or than the average in any of the five year periods with which it is compared. The reduction of the death-rate in respect of both cholera and bowel complaints is a marked feature in this comparison. The general facts for 1890 in the three Presidencies are shown in the following statement:—

Presidency.	Average Strength.	RATIO PER 1,000.					
		Admissions into Hospital.	Constantly sick.	Deaths from:			
				Cholera.	Dysentery and Diarrhoea.	All Causes.	
Bengal	57,500	1,236	39	1.67	9.36	32.37	
Madras	7,702	810	28	2.60	7.54	25.32	
Bombay	7,284	861	29	5.55	7.96	32.81	

In all the provinces of Bengal, except the North-West and the Punjab, the mortality in 1890 was less than it had been in 1889. In the North-West it rose from 28.37 to 33.82, and in the Punjab from 29.19 to 31.29. In the others there was a decided diminution, especially in Burma, Assam, and the Central Provinces. The same remark holds good also for the Presidency of Madras. In the Bombay Presidency, on the other hand, the statistics are less favourable than in 1889. All these facts, and many other details, are clearly tabulated in the Sanitary Commissioner's Report, and we need not repeat them here. He has, moreover, singled out the jails in each province where the mortality was high, and to some of these we would draw attention, coupling the fact of more or less excessive mortality with the information given regarding their sanitary condition as shown in the abstract of the sanitary sheets. Beginning with Lower Bengal, we have the jail at *Arrah*, with 2,286 admissions and 132 deaths per 1,000. The strength was small, only 143 prisoners on an average, and, of the total death-rate of 132, 118 was caused by cholera. The following defects are noted: "Excessive ventilation in winter, water liable to contamination, site very objectionable, and drainage defective." *Rungpore*, also a small jail, 1,154 admissions and 83 deaths per 1,000. No cholera. All that is said is that "ventilation is defective in the female and lower storeyed barracks, and that the drainage project for the town completed during the year benefits the jail." Or, to take a larger jail, *Midnapore*, with an average of 830 prisoners and no cholera, returns 801 admissions and 45 deaths per 1,000. It is said: "Water-supply defective and insufficient, personal cleanliness consequently defective, and bowel complaints prevalent." In the North-Western Provinces we take the following:—*Gorakhpur*, strength 445, admissions 1,271, and deaths 98 per 1,000. No cholera. "Drainage on the west and south of the jail defective during the rains. Water in the jail well extremely bad, but water is now procured from a well in the city. Surroundings very objectionable, the ground being low and liable to floods." *Muttra*, strength 246, admissions 1,422, and deaths 69. No cholera. "Considerable overcrowding existed in the 'under trial' ward and in Barrack No. 10 during the last three months of the year." In the Punjab there are several instances of excessive mortality. In the small jail of *Dharmasala* the prisoners suffered from cholera

as well as the troops in the neighbouring cantonment. The sanitary sheet records: "Lateral ventilation insufficient. Personal cleanliness neglected, there being no convenience for washing in the winter and in bad weather. Clothing very defective. Surroundings unclean and objectionable." Another Punjab jail, *Delhi*, with an average of 564 prisoners, returns 2,588 admissions and 62 deaths per 1,000. No cholera. "Overcrowding during part of April and from July to November." Many other examples might be cited of excessive sickness and high mortality concurring with manifest and serious sanitary defects. These sanitary sheets are specially valuable, because they set the two sets of facts—the state of health and the local defects—side by side. They deserve special attention, because they are the first step towards real practical sanitary work, which consists in the removal, as far as possible, of every local condition which is prejudicial to health. From this point of view we regard these sheets, not only in the case of jails but also of cantonments, and of towns and villages where the needful data can be obtained, as the most important part of the whole Sanitary Report, and would urge that the greatest care should be taken in their preparation.

21. *General conclusions on all the Indian Sanitary Reports.*—As this is the last of the Indian Sanitary Reports for 1890 to be noted upon, we shall take the opportunity of recapitulating very shortly some of the more important suggestions and recommendations we have made in our separate memoranda on these reports, both as regards the preparation of such reports in future, and also, which is of much more practical moment, as regards the general principles which ought to govern the management and conduct of sanitary work in India.

1. The experience of another year has strengthened our conviction in regard to the points noted at the close of our Memorandum on the Sanitary Reports for 1889 concerning—

- (a) Registration of births and deaths.
- (b) The necessity of recognizing in all sanitary reports the powerful influence which atmospheric phenomena and the food supply must exercise on the health of the year.
- (c) A uniform system of mapping out the history of cholera in each province during the year.
- (d) The great value of the new Provincial Sanitary Boards as an agency for inaugurating and carrying out real sanitary work.

To these we would now add the following recommendations:—

1. That advantage should be taken of the Census of 1891 as compared with that of 1881 to check the registration of births and deaths during the intermediate years, and ascertain not only by provinces, but also by districts and large towns, how far this registration is corroborated by the Census figures.
2. That in recording the history of cholera year by year attention should be given to the collection of facts regarding the area over which it was distributed, the localities within that area which were affected by it, and the sanitary condition of those places which suffered most severely from it, rather than to supposed histories of importation and other matters which, even if they could be established as facts, can form no basis for efficient preventive measures.
3. That in recording the history of all diseases the same practical object should be kept in view, and that, in order to aid its attainment, a standard form of statement should be adopted in all sanitary reports which might take the place of the various ones now in use, and none of which furnish all the data desired. This statement should show in consecutive columns—

The district.
Town or rural area.
Total population.
Male population.

Female population.
 Number of births during year.
 Birth-rate per 1,000 of population.
 Number of deaths during year.
 Deaths from cholera per 1,000 of population.
 Deaths from small-pox per 1,000 of population.
 Deaths from fevers per 1,000 of population.
 Deaths from dysentery and diarrhoea per 1,000 of population.
 Deaths from injuries per 1,000 of population.
 Deaths from all other causes per 1,000 of population.
 Deaths from all causes per 1,000 of population.
 Sanitary defects.
 Measures taken for improvement.

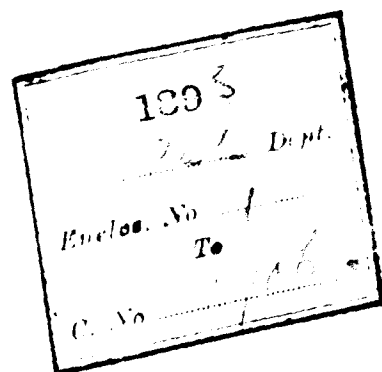
4. That the influence of vaccination in checking small-pox should be shown by recording side by side, during a series of years for each district, the annual successful vaccinations and the annual ratio of deaths from small-pox per 1,000 of population.

5. That whenever any unusual prevalence of disease threatens, such as the influenza epidemic of 1890, early steps should be taken by the Sanitary Commissioner to collect, as far as possible, full particulars regarding the time and place and extent of its distribution, and that these should be recorded in the annual Sanitary Reports.

6. That the Report of the Sanitary Commissioner with the Government of India should give some account of the working of the Voluntary Venereal Hospitals in the different Provinces and their effect, if any, on the extent of venereal diseases among European soldiers.

7. That, having regard to the interesting researches already made concerning the *Bacillus Typhosus*, careful investigations should be carried out to ascertain how far it is present in cases of fever which are not decidedly of an enteric type.

22nd August 1892.



No.

CURRENT No. 1706

FROM

C. J. LYALL, ESQ., C.S.I., C.I.E.,
 Secretary to the Government of India,

TO

*The Chief Secretary to the Government
 of Madras*

Home Department.
 Sanitary.

CHIEF SECRETARY
 22 JUN 93
 GOVERNMENT OF INDIA

Simla, the 16 June 1893.

SIR,

IN continuation of Home Department endorsement No. *Sanitary* dated the 22nd January 1892, I am directed to forward

No. 65, dated 13th October 1892.

for the information of His Excellency the Governor

in Council
 a copy of a Despatch from the Secretary of State enclosing a Memorandum by the Army Sanitary Commission on the Report of the Sanitary Commissioner with the Government of India for 1890, and to invite attention to the suggestions contained in the concluding paragraph of the Memorandum.

2. With reference to the third of the recommendations there made, I am to say that the Government of India, as at present advised, are in favour of adopting a statement in the form annexed, showing the extent to which the principal diseases in the several Provinces are connected with or influenced by local unsanitary conditions. I am to enquire whether, *in the opinion of His Excellency the Governor in Council*, there is any objection to its adoption in substitution for the revised Annual Form No. II which was circulated with my letter No. *Sanitary*, dated the 24th February 1892, and for the form prescribed in paragraph 1, Home Department letter No. *233*, dated 27th July 1886.

It further appears to the Government of India that if the new Annual Form No. II now proposed is adopted, it may be possible to dispense with or considerably curtail Form B circulated with my letter of the 24th February 1892. The Governor General in Council would be glad to receive *the opinion of the Madras Government* on the question whether this form should be altogether abolished, or whether it should be retained in respect of municipalities only. It is requested that in considering the question the remarks of the Army Sanitary Commission in paragraph 34 of their memorandum on the Provincial Sanitary Reports of 1889 may be kept in view.

3. As regards the Commission's fourth recommendation, I am to request that the statement suggested by them for the purpose of exhibiting the influence of vaccination in checking small-pox may be embodied in the Annual Vaccination Report.

I have the honour to be,

SIR,

Your most obedient Servant,

Secretary to the Government of India.

ANNUAL FORM NO. II.

Statement of deaths registered in each town and rural circle of the Province, together with the present sanitary defects of the circle, and the measures taken to remedy them.

1	2	3	4	5	6	7	8	9	10	11	12
Serial number.	District and Town or Rural Circle.	Area in square miles.	Average population per square mile.	POPULATION (Census 1891).	BIRTHS.	NUMBER OF DEATHS REGISTERED.	Number of deaths of males to every 100 deaths of females.	DEATHS PER 1,000 OF POPULATION FROM	MEAN RATIO OF DEATHS PER 1,000 DURING PREVIOUS FIVE YEARS.	Principal Sanitary defects of circle.	Measures taken for sanitary improvement of circle.
				Male. Female. Total.	Total number. Birth-rate per 1,000 of population.	Male. Female. Total.		Cholera. Small-pox. Fevers. Dysentery and Diarrhoea. Injuries. All other causes. Male. Female. Total.	Male. Female. Total.		
	Burdwan. T. C. C. C. R. R.										
	Total District										
	Palna. T. C. C. C. R. R.										
	Total District										
	TOTAL OF ALL TOWN CIRCLES IN THE PROVINCE.										
	TOTAL OF ALL RURAL CIRCLES IN THE PROVINCE.										
	GRAND TOTAL FOR THE PROVINCE.										

* The figures in this column will be taken from column 4 of Annual Form No. I.

C. 1706
Pat. Dept.

Pat. 93 D 9-2 92 km
1695-2512-8-81
627 224-6-92 Rm

From
The Govt of India
Home Dept.

No 3 Aug
87.

Dated 26.6.93
Recd 22.6.93
Regd 23.6.93
Enc. 1. H. D. C. 46-001706.

Subject.

Forwarding copy of a despatch
from the Secy of State enclosing
a memorandum by the Army
Sanitary Commission on the
Report of the Army Commissioner
with the Govt of India for
1890.

Hm.
6th July 1893
N. 523
order. l. 6/93.

Paragraphs 1 & 3 of the foregoing

letter will be communicated to the
Sanitary Comm. for information and
guidance and para: 2, referred to him
for remarks.

18
4/9/93

729
30/6

For the Madras Ref.

Index no 1 Sanitary of 24 Feb 92
35
could not be traced in the Pat Register
Please therefore ask the Secy for it
as consult the Index of 92.

Wm.
27/6

2. The Sanitary Comm.
Copy to the Local Board
Judicial Dept
Military Dept
Engin General
l. 197

DISPATCHED
12 JUL 93
M.S.

62 117
(b. a. c. sent separately)

SA
27/6

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29/6

1. in a. m. d. y.

27/7

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