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MADRAS RECORD OFFICE.

Government of Madras.

Public DEPARTMENT.

G.O. No.	930	Press ~~Mis.~~
Dated	27-7	1970.

Not to be folded or roughly handled

*Proceedings of the Madras Government, Public Department,
27th July 1870.*

No. 120. Read the following Extract from the Proceedings of the Government of India, Home Department, (Sanitary,) dated Simla, 6th July 1870, No. 241:—

Read again the under-mentioned letters from Local Governments and Administrations, forwarding the Annual Reports of their respective Sanitary Commissioners for 1868:—

From the Chief Commissioner of the Central Provinces, dated 9th August 1869, No. 2416—275.

Ditto ditto Oudh, dated 2nd October 1869, No. 4377.

Ditto Government of Bengal, dated 21st February 1870, No. 659.

Read also—

The Annual Sanitary Reports for the North-Western Provinces, the Punjab, and British Burmah for 1868.

And—

A letter from the Sanitary Commissioner with the Government of India, No 188, dated 28th May 1870, submitting a general review of the above Annual Reports.

RESOLUTION.—The Governor-General in Council observes that the main features of the review, submitted by the Sanitary Commissioner with the Government of India, are that very much remains to be effected in the way of sanitary reform, and that the vital statistics in the rural districts are at present of little value, while even those appertaining to towns are very unreliable. The Governor-General in Council is forced to the conclusion that the existing means, financial and administrative, have not generally been fully utilized for carrying out sanitary improvements in most of the cities and towns of India.

2. The suggestions contained in paragraphs 45 to 53 of Dr. Cunningham's letter are approved by the Governor-General in Council, and Local Governments and Administrations in the Presidency of Bengal will be requested to instruct local Sanitary Commissioners accordingly. Considering that uniformity of system is very desirable, the Governments of Fort Saint George and Bombay will also be invited to issue similar orders, unless they have any special objections to urge against Dr. Cunningham's proposals.

3. The Governor-General in Council concurs in opinion with Dr. Cunningham that it is very desirable that all the Annual Reports on sanitation should be of a uniform size. It will be necessary that these reports should be bound up with the Proceedings of the Local Governments and of the Government of India; and on this account, and in consideration of the fact that there will always be voluminous statistical tables attached to these reports, His Excellency in Council believes that folio foolscap size, as already adopted by the Government of Madras, will be found to be the most convenient, and therefore desires that it should be adopted in future. Local Sanitary Commissioners should be instructed accordingly.

*Proceedings of the Madras Government, Public Department,
27th July 1870.*

Ordered that a copy of the above Resolution, together with a copy of Dr. Cuninghams letter, dated 28th May 1870, be forwarded to the Local Governments and Administrations noted on the margin for information and guidance.

Govt. of Madras.	Chief Commr. of Oudh.
" Bombay.	" Central Provinces.
" Bengal.	" British Burmah.
" N. W. Provinces.	Resident at Hyderabad.
" Punjab.	

Ordered, also, that a copy of the above Resolution be forwarded to the Sanitary Commissioner with the Government of India for information.

Ordered, further, that a copy of the above Resolution, together with a copy of Dr. Cuninghams letter, dated the 28th May 1870, be published in the Supplement to the *Gazette of India*.

(True Extract.)

(Signed)

E. C. BAYLEY,
Secy. to the Govt. of India.

No. 121.

ORDER THEREON, 27th July 1870, No. 930.

The Sanitary Commissioner will be requested to inform Government whether he sees any objection to the adoption of the suggestions contained in paragraphs 45 to 53 of Dr. Cuninghams letter.

(True Extract.)

Under Secy. to Govt.

To the Sanitary Commissioner, Madras, with enclosure (to be returned.)

No. 183, dated Simla, the 28th May 1870.

From—DR. J. M. CUNNINGHAM, Sany. Commr. with the Govt. of India,
To—The Secretary to the Government of India, Home Dept.

IN accordance with the orders of the Government conveyed in your

From Home Department, No. 391, dated 1st September 1869. No. 461, dated the 27th October 1869, and with reference to the other letters noted in the margin, I have the honor to submit a general review of the annual reports of the Local Sanitary Commissioners for 1868.

2. These reports reached this Office in the following order and on the dates which are noted opposite to each:—

For the Central Provinces, on 3rd September 1869.
" Oudh, on 26th October 1869.
" North-Western Provinces, on 28th October 1869.
" Punjab, on 6th December 1869.
" Central Provinces (supplementary report on cholera), on 21st February 1870.
" Bengal, on 13th April 1870.
" British Burmah, on 25th May 1870.

It will thus be seen that out of these five reports for the year 1868 two of them, those for Bengal and British Burmah, were not received till after the first quarter of 1870. As remarked in my letter No. 8, dated the 5th January, some exceptional difficulties were to be anticipated in the first year of local sanitary administration, and delay in the preparation of the first annual reports is readily accounted for.

3. Great delay has, however, occurred, and as the time has now arrived at which I should be in a position to consider the general sanitary history of 1869, it does not appear advisable that I should discuss at any great length the reports of 1868. I propose therefore to confine myself to a short review of the main facts of interest which they contain, and I shall then take the opportunity of adding a few suggestions as to the manner in which it appears to me that the annual reports should in future be prepared.

4. The report of the Sanitary Commissioner for the Central Provinces contains a clear and succinct account of his proceedings during the year under review. Under his care, measures have been adopted for obtaining a more accurate register of meteorological phenomena in the Province. More reliable rain gauges were being supplied, and greater attention devoted to the mode of measurement. Additional stations for meteorological observations had also been sanctioned. The register for Nagpore alone was complete for 1868; but it was hoped that, in addition, Raepore, Jubbulpore, Seonee, Saugor, Hoshungabad, Khundwah, Chandah and Sumbulpore would in future supply reliable data. In the other Provinces the work of collating meteorological registers has been discharged by a special Officer designated the Meteorological Reporter; but as no stations in the Central Provinces supply meteorological records to any of these Officers, the arrangements which have been made by the Sanitary Commissioner for obtaining information on this important subject must prove of great value.

5. The meteorological records for 1868 are thus imperfect, the only complete register, as has been already stated, was supplied from Nagpore, but the main characteristics of the year, which were observed there, were observed generally throughout the Central Provinces. Rain fell on 65 days, and the total fall for the year was only

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PUBLIC.

To

THE SANITARY COMMISSIONER,

Madras.

Dated July, 27th.

Recd.

Encl.

G. O., 27th July 1870, No. 930.

JUL 7.

Nos. 120-121.

Requesting the Sanitary Commissioner, Madras, to state whether he sees any objection for adopting the suggestions of paragraphs 45 to 53 regarding the preparation of the Annual Reports, &c., of the letter of Dr. Cunningham, the Sanitary Commissioner with the Government of India.

25.5 inches. The average for Nagpore is 40 inches, and in 1867 there had been 58.1. The chief features of the year thus were a small rain-fall and an early termination of the monsoon.

6. To the vital statistics of the Province Dr. Townsend has paid special attention, and four Tables are appended to show the results during 1868. Registration as yet embraces only about five millions or less than one-half of the total population, and it is evident, as fully acknowledged by the local authorities, that no reliable conclusions can be drawn from the data available. The disparity in both the birth and death rates of neighbouring Districts to which attention is called by the Sanitary Commissioner is sufficient to show that registration is as yet very imperfect and incorrect; but the subject is receiving the attention of the Chief Commissioner, and with the hearty co-operation of the District Officers and the careful supervision of the Sanitary Commissioner, the beginning, which has been already made, will doubtless end in procuring most valuable statistics,—valuable not only in a scientific light, but as affording the only sound basis for sanitary reforms.

7. It is not therefore advisable to attempt any full analysis of these returns, and it will be sufficient to state the general results and to illustrate the disparities which indicate defects in the records, and to remedy which the attention of the authorities is being directed.

8. Out of a population of nearly five millions (4,744,836) 107,199 children were born, of whom 58,804 were males and 48,395 females, giving a total ratio of 22.1 per 1,000 or 24.4 of male and 22.2 of female births per 1,000. The general birth rate varies from 14.6 in Nursingpore to 33.5 in Seonce, and similar discrepancies appear if the relative rates of the sexes be examined in different Districts. The difficulty of registering births with any accuracy is well known, and it is not surprising that the results should as yet be evidently unreliable.

9. The total death rate in the population among whom registration is carried on amounted to 16.5 per 1,000, giving 24.8 in the cities and only 14.7 among the country people. In the body of the report, paragraph 22, the death rate is stated to be 19.7 per 1,000; but this would appear to be a misprint, as the ratio of 16.5 is given in the Tables. Considerable discrepancies are apparent in the statistics, and these have not been lost sight of by the local authorities. It is gratifying to learn that, notwithstanding these defects, as a whole they indicate considerable improvement, and that strenuous efforts are being made to render them more and more trustworthy.

10. Where confidence cannot be placed in the number of deaths recorded, the causes to which the deaths have been due are not likely to be very accurately stated. Sixty per cent. of the whole mortality is under the head of "Fevers;" and although the Sanitary Commissioner is of opinion that deaths from other causes are frequently entered under this head, there is little doubt that malaria is directly or indirectly the cause of one-half of the mortality of these Provinces. In 1868, however, fevers, and specially intermittent fevers, were less prevalent than usual, a fact which he ascribes to the peculiar meteorology of the year, and the accuracy of which is fully borne out by the statistics of the troops and prisoners as given in my annual sanitary report for 1868.

11. The history of the cholera in the Central Provinces is carefully sketched in Dr. Townsend's general report, and it also forms the subject of a special and very complete report which was separately submitted to the Chief Commissioner. In 1867, it is to be remarked, these Provinces were remarkably free from the disease. In 1868 they suffered much; and in 1869, it may also be observed, they have

been the scene of a very severe outbreak. During 1868, 7,592* deaths were reported from this disease, but the general impression appears to be that the numbers were considerably under-stated. All of the Districts, except Sunbulpore, suffered more or less, but the severity of the epidemic was confined to Seonce, Mundla, and Jubbulpore. In these three the deaths from this cause are returned as having been, respectively, 1,638, 1,074, and 2,940.

12. As soon after the epidemic as the weather permitted, Dr. Townsend proceeded to these Districts, and, during the course of the cold season, investigated the circumstances connected with the greater or less prevalence of the disease in upwards of 300 villages. His enquiries were directed chiefly to the nature of the soil, the water supply, and the general sanitary condition, as well as to the circumstances connected with the appearance of the first case in each. Where any village preserved complete or comparative immunity from cholera, an explanation of such immunity was sought for on the spot. The result of this personal enquiry is embraced in the special report to which allusion has already been made, and which is a very valuable record of a most pains-taking investigation.

13. Dr. Townsend discusses at some length whether the disease was bred within the localities attacked or whether it was introduced from elsewhere, and on this point he comes to the conclusions "that, although there was no actual proof of the choleraic influence, or infecting matter having been imported from elsewhere, yet the fact of the first manifestations of the disease having occurred in bodies of men located close by a road daily thronged with passengers from a part of the country in which the disease had previously appeared, afforded strong support to the supposition that the infecting matter may have been imported rather than generated;" and to this statement he adds "the account given of the subsequent spread of the disease and of its appearance in the different towns and villages scattered over the epidemic area, appears to me to favor the opinion that the choleraic influence is diffused by means of human intercourse and by that means alone."

14. Numerous instances are adduced in which an outbreak of cholera followed closely on the arrival of some person or persons actually suffering from the disease, and such instances are particularly striking in those parts of the country in which the villages are much scattered. Numerous examples are given in which the meeting together of a number of persons to join in a marriage procession and their subsequent dispersion, appear to have been the means of diffusing the disease. Cases are, moreover, cited, in which it would seem to have been carried from an infected locality by an individual who was not himself suffering from it. Such cases are of much interest, and it is very desirable that they should be carefully investigated and recorded in the manner which Dr. Townsend has adopted. On the other hand, it is to be observed that, in very many villages no evidence of importation could be obtained, while in others the arrival of a person suffering from cholera was not followed by any outbreak of the disease in the community among which he had come. Moreover, the limits within which the severity of the epidemic was confined are not easily explained on the theory of human intercourse.

15. But whatever difference of opinion may exist on the general question of the communicability of cholera, and as to the deductions on this difficult problem which are to be drawn from the history of the outbreak in the Central Provinces which Dr. Townsend has so carefully investigated, there is practically no difference as to the possibility of adopting any repressive measures for meeting such a danger. Quarantine was tried; but "in no case," remarks Dr. Townsend, "did quarantine succeed in preventing the invasion of cholera, and it may be doubted whether the advance of the disease was in any degree delayed."

* This is the number entered in Table VI. of Annual Report. In Table VI. of the Special Report the number is given as 9,602. The deaths from cholera for 1869 are given as 47,848.

"Quarantine," he adds, "may therefore be said to have failed, and it is probable that when once any portion of the population of a tract of country has become infected with cholera, all attempts to check the spread of the disease by quarantine measures will prove futile." In illustration of the same, he observes that, "early in the present year (1869), when the first outbreaks of cholera were reported, I recommended the establishment of quarantine at certain points. Afterwards, however, in the course of my tour, on arriving at a point on one of the main lines of communication where quarantine had been established, I found that, although a large number of foot passengers, a drove of pack bullocks, and some 60 carts had been stopped from two to four days, and the progress of important railway works in the neighbourhood greatly interfered with, no passengers of the better class had been detained. Moreover, cholera had passed the barrier, and had already appeared in villages behind it. The uselessness of quarantine of this kind was so obvious, and the obstacles in the way of rendering it more stringent and effectual so great, that I recommended that the general traffic of the country should no longer be interfered with by attempts of the kind."

16. But, although strict quarantine must thus be regarded as a failure, ^{Minor measures of supervision recommended.} Dr. Townsend is of opinion that certain minor measures of precaution may be adopted with advantage; that bodies of men returning from infected localities should be carefully watched, and, when possible, diverted from the main lines of communication; that accommodation should be provided for the treatment of sick travellers near the approaches of large towns; that the holding of fairs within an epidemic area should be prohibited; that whenever cholera appears at them or other gatherings the meeting should be dispersed; and that marriage processions should, as far as possible, be discouraged whenever cholera is about. Whatever opinion is held regarding the effect of human intercourse in disseminating the disease, there can be no question that congregations of people, and especially large congregations, favor its spread; and the recommendations which Dr. Townsend supports may therefore be carried out with advantage.

17. In the course of his investigations the Sanitary Commissioner came ^{No perceptible influence of site and sub-soil moisture on cholera.} to the conclusion that elevation and dryness of site are no safeguard against the invasion of cholera. Villages situated on the tops of rocky ridges or on high, open plateaus, but built on hard impermeable rock, bare of soil and where sub-soil water did not exist, suffered in some cases with extreme severity. The opinion, therefore, at which Dr. Townsend arrived was this,—"that the notion of there being any relation between moisture of the soil and sub-soil water, and the development of the infecting matter of cholera, derives no support from the study of the disease as it prevailed in these Provinces."

18. But there was one condition which appeared to exert a very remarkable influence on the progress and diffusion of cholera in this epidemic, and it is to the careful enquiries under this head to which I would draw particular attention. The connection between an impure water supply and a severe outbreak of cholera in any community has been much insisted on by high sanitary authorities; and the facts collected in the Central Provinces regarding the epidemic of 1869, appear to Dr. Townsend strongly to substantiate the truth of this opinion. Comparing the different tracts of country he finds that, where the number of villages attacked and the percentage of mortality from cholera were small, the water was chiefly drawn from deep wells where it was abundant, and that where it fell with the greatest severity the water supply was both deficient in quantity and especially liable to contamination. Or taking the Districts where the disease was most prevalent, the ratio of mortality, as a rule, was high or low in individual towns and villages in inverse proportion to the measure of good pure water available. Numerous instances are cited in which individual villages in an infected tract escaped the severity of the outbreak, and in some instances escaped altogether, and where no explanation could be assigned for the enviable

distinction beyond the fact that the water supply of that community was more abundant and better than that of their neighbours. On the other hand, the villages that suffered in the greatest degree were all dependent on sources of water supply more or less evidently liable to all kinds of pollution.

19. Without entering into the question of the manner in which an impure water acts in favoring the spread of cholera, ^{Necessity of improving the water supply.} whether ordinary impurities alone are sufficient, or whether some special *contagium* is requisite, it is sufficient for all practical purposes to admit the fact that one of the most important sanitary reforms which can be adopted for preserving the people against the ravages of cholera is to improve the water supply. The importance of this matter has been strongly urged on the Local Government and in the orders of the Chief Commissioner which accompany Dr. Townsend's report, the necessity for this improvement is fully admitted. District Officers have been instructed to call on the landowners to procure for their villages a supply of water which shall, in each case, be pure and sufficient for their wants, and the attention of the District authorities to this important point cannot fail to be productive of much practical benefit to the people.

20. Of the other diseases to which special reference is made, the only one that ^{Small-pox.} need be noted is small-pox. From this the Central Provinces were unusually free during 1868. Nimar and Hoshungabad were exceptions to this rule, and with reference to them and other Districts which were affected above the average, it is remarked that they had enjoyed comparative immunity during the two previous years, and that the increase may in a measure be attributed to the larger number of unprotected persons who were thus exposed to the influence of the poison.

21. The third section of Dr. Townsend's report is devoted to a short ^{Sanitary condition of individual Districts.} summary of the sanitary condition of the different Districts. Into these details it is not desirable that I should enter. In not a few parts of the country, owing to the unusual drought, provisions were high and in some cases there was much distress, but, as a rule, the abundant demand for labor and the high rate of wages afforded relief. Many defects are brought to notice in conservancy and water supply, and suggestions made for their improvement. The practice of stalling cattle in large numbers within the villages and even within the houses prevails largely throughout these Provinces, and the evils of such a system are frequently alluded to. Testimony is borne to the general interest which is taken in the sanitary improvement of their Districts both by the District and Medical Officers, and with their valuable aid the people will, in time, become impressed with the injury to health which arises from this and other customs.

22. Dr. Townsend's reports are eminently practical. His great object has ^{General remarks.} been to collect facts, and, although a difference of opinion may obtain as regards some of the conclusions which he has drawn from them, it must be admitted that he has spared no pains to make his record of them as full and accurate as possible. His recommendations are simple and to the point, while the remedies which he proposes are, at the same time, such as may be carried into practice without any insuperable difficulties. I have purposely avoided the discussion of any purely theoretical questions. His explanation of the manner in which cholera covered a given area within the Central Provinces may be incorrect, but the value of the sanitary measures, and especially the improvement of the water supply which he recommends as the best means of escape within an infected area cannot be questioned.

23. The sanitary report for Oudh is for the Official year 1868-69. It ^{Sanitary report for Oudh. Part alone received.} consists of three Parts as shown in the Table of contents,—I., summary report; II., original reports of Health Officers; and III., copies of papers by the Sanitary Commissioner. Part I. alone has reached me (in all probability the other two have not been printed), and to it is appended a copy of the sanitary report of Lucknow by the Health Officer of the city.

24. The summary report is divided into several short chapters embracing the subjects of Sanitary Police, State medicine, hygiene, and vital statistics; and Dr. Sutherland's remarks on each and all of these questions, although rather too general in their character, are worthy of consideration. From the census taken on the 1st February 1869, it would appear that the population of Oudh, exclusive of the Native Army, numbers 11,205,133, of whom 273,126 reside in the city of Lucknow. The registration of births is obviously incorrect, and the records of the death ratio also extremely imperfect. From the general Table appended to the report it appears that the births registered were in the ratio of 20·2 per 1000 of the population, whereas the deaths were only 12·9. The birth-rate varied from 9·8 in Barabunkee to 30·9 in Kherce. In Barabunkee the deaths were only 5·3 and in Gondah 19·0 per 1000. The latter is the highest ratio recorded, and it may, I think, be assumed that the mortality throughout the Province has been greatly under-stated. It is not possible to form any accurate estimate of it during the year or of the extent to which that mortality was due to individual causes. In the Districts of Fyzabad, Gondah and Seetapore, cholera was more prevalent than in other parts of the country. Small-pox is reported to have been epidemic and very fatal in the winter of 1868-69 and spring of 1869. Under this head 7,728 deaths were recorded during the year, chiefly in the Districts of Oonao and Gondah.

25. From the data given by Dr. Bonavia in his special report on the city of Lucknow, of which he was Health Officer, it appears that the year was unusually dry. The rain-fall was less than the average, having measured only 27·07 inches. According to the Table of vital statistics, the deaths in the city were at the rate of 19·2 per 1000. One hundred and fifty-three deaths occurred from cholera. Dr. Bonavia remarks,—“the disease showed no sign of spreading by contagion, nor could I collect any evidence of its having been imported in the first instance. I particularly impressed on the men employed under me and on the Police the importance of ascertaining, in each instance, whether any other cases had occurred in the same house during the year; but during the whole time the disease lasted, in only seven cases did a second case occur in the same house.” Considerable improvements have been made in the city, especially in building and re-modelling latrines, and I can bear testimony to the admirable manner in which they were kept.

26. Dr. Plank's report is divided into two portions,—Part I. relating to the mortuary statistics of the year, and Part II. containing an account of the inspections of a number of towns and villages. The mortuary statistics are given in one general Table, the reader being referred to a separate volume of statistics for any further particulars that may be desired. It would be more convenient if all the detailed information regarding the health of the Province were concentrated in one. According to the general return it appears that the death-rate for the whole Province during 1868 was only 10·8 per 1,000 compared with 12·5 in 1867. It is evident that both ratios are altogether untrustworthy. The details of 1868 vary in different Districts from a minimum of 3·8 in Bustee to a maximum of 20 per 1,000 in the Terrai. In all likelihood the latter ratio is considerably under the truth, and the former is incredible. The Sanitary Commissioner is well aware of these inaccuracies, and taking the case of Allahabad shows that if the returns were correct the average value of human life in that District would be 153 years.

27. There is evidence, however, in these returns, unreliable as they are, that the general health of the people in the North-Western Provinces during 1868 was better than in 1867, and the accuracy of this fact is attested from other sources. Fevers, small-pox and cholera were all much less prevalent than they had been in the year previous. The latter disease was chiefly confined to the Districts in the Eastern part of the Provinces Goruckpore, Ghazee-pore, Mirzapore, Azimgurh, Benares, Jounpore and Allahabad.

28. In the second and main part of his Report (occupying 72 of the total of 80 pages), Dr. Plank gives the result of his personal inspection of cities and villages, inspection of 58 cities and towns which he visited during the year. With the exception of a few important cities, such as Allahabad, Benares, Agra and Meerut, they belong chiefly to the Rohilcund Division. In marching from town to town the condition of the villages was also noted, and these are specially commented on in a separate chapter. The defects in drainage and conservancy at these several places are recorded, and the orders of the Local Governments which are appended to the report show that the attention of the District Officers has been called to them with a view to their being remedied.

29. Dr. DeRenzy's report is full of interest. It is divided into four sections:—

I.—On the system of sanitary improvement best adapted to the Punjab.
II.—On the subjects enquired into during the year.

III.—Detailed reports on particular stations.

IV.—On the result of registration of deaths during the year.

It would be impossible within the limits of a general review to enter on the many important questions which are ably discussed under these various headings, and I shall therefore confine myself to a few general observations.

30. As Dr. DeRenzy justly observes the great want in our large towns is works of sanitary improvement, but without money and without specially trained Engineers, it is a matter of no small difficulty to supply what is desired. When the bill for enabling municipalities to borrow money for sanitary improvements becomes law, the pecuniary obstacle will be, to a certain extent, removed, but the engineering skill required will remain unsupplied. The Sanitary Commissioner mentions 20 towns in which such works are urgently wanted, and where he suggests that they should be commenced as soon as possible. But in such a scheme everything depends practically on the amount of money available; and before coming to any definite conclusion on the subject, it would be desirable to know what the proposed works are estimated to cost, and whether the borrowing powers of the municipalities under the new Act will be equal to the strain required.

31. These points have, I doubt not, received consideration, but, even admitting that the towns in question will be able to provide the works required, a very long time must elapse before a series of sanitary works can be executed throughout the cities of a Province, especially when the special engineering staff available for the purpose must be so limited. It therefore appears to be of great importance that, bearing in mind the future improvements which are to be carried out as soon as money and men can be obtained for the purpose, no effort should, at the same time, be spared to remedy the evils at once so far as they can be remedied by simpler and less expensive means. Much has, I am aware, been done in the Punjab to impress on the people the benefits of sanitation, and there can be no question that there are many very simple reforms which can be carried out with great advantage to the public health and at a very trifling cost. It is to be feared lest, in the towns designed for great sanitary works, these simple reforms may not be urged with the vigour which is desirable.

32. In this point of view, moreover, it appears that too marked a distinction has been drawn between the town and the village population, and the conclusion that it is “inexpedient to attempt the improvement of villages at present further than by advice and endeavours to diffuse among the people a knowledge of the laws of health” might be re-considered. For the improvement of villages no expensive works as a rule are needed, nor, even where they may be required, is it probable that funds will be available to carry them into execution for some time to come.

It is therefore all the more desirable that those simple reforms which may be accomplished should not be delayed. The remark that all real sanitary reforms must be worked out by the aid of the people themselves applies, perhaps, with even more force, to the rural population than to the towns, and much may, I believe, be done by District Officers and by all the other Officials who come in contact with the people to aid in the reformation. In addition to diffusing a knowledge of sanitary matters among them, something may eventually be done to oblige land-owners to provide a good, wholesome water supply to their villagers, and to attend to other matters of sanitary importance. The manner in which such measures may best be carried out so that they shall be effectual and at the same time as little distasteful as possible to the prejudices of the people, is a question which might well engage the attention of the local Sanitary Commissioners without interfering with the greater sanitary works which are required for cities, or with any of their other most important duties. The towns named and described by Dr. DeRenzy are much in want of sanitary works. In the necessity for having these wants supplied as early as possible, I fully concur, but I much fear that, if the sanitary improvement of the villages is to be postponed until these and other such works have been completed, much valuable time will be lost.

33. It must be remembered that the Sanitary Commissioner can himself accomplish but little. The actual designing and execution of works of any description must be done by Engineers, the sanitary improvement of villages and the sanitary instruction of the people must be carried out through the agency of District Officers or of municipalities under the general supervision and guidance of the Sanitary Commissioner, and it does not appear that any good will be gained, or that the work will in any degree be facilitated, by leaving any one portion of it to be commenced only when another part has been completed.

34. Leaving the second and third sections of this report which contain a notice of some of the special subjects which the Sanitary Commissioner enquired into during the year, and also his detailed reports of inspection of several stations which are well worthy of attention, I shall pass on to the fourth part which embraces the results of registration of deaths during the year. The original Vernacular Registers are sent to the Sanitary Commissioner's Office weekly, and from them monthly statements are compiled and published in the *Gazette*. Abstracts of the returns from all large towns in the vicinity of Military Cantonments now appear weekly. So far as the results of 1868 are concerned, as the Sanitary Commissioner points out the records in many places are still of little value. In Districts the death-rate fluctuated between 5 and 24 per 1,000, and in the towns similar inaccuracies are evident. The total death-rate for the Province, as deduced from the statistics, is 15 per 1000. To the important subject of registration, Dr. DeRenzy devotes much attention, and the statistics of each year will, I feel sure, show the effect of his careful supervision.

35. As regards special diseases the year would appear to have been singularly free from epidemic sickness. There were very few deaths from cholera; and although the total mortality from small-pox was heavy, the violence of the disease was confined to a few Districts.

36. The report for Bengal is divided into four parts. The first, as explained by Dr. Smith in his prefatory note, gives a general outline of sanitary administration in Bengal, and of the work done in the year under review. The second, which forms the most bulky portion, consists of extracts from forty District reports sent in by Civil Surgeons. The third contains special remarks on these reports, and the fourth is a brief review of topics of general sanitary interest. To these are added an Appendix in which papers by the Sanitary Commissioner on certain important subjects are re-printed.

37. One of the first subjects which engaged attention during the year was the preparation of a series of simple rules for the proper management of village conservancy. The subject of pilgrimage and its effects on the health of the people were carefully studied, and, after visiting Pooree at the time of the great festival, a special report was submitted to the Government on the subject. The conservancy of Calcutta, and especially the very difficult question of how the night-soil may best be disposed, was also enquired into. This matter, as well as a scheme for medical relief of the people, the procedure to be adopted on the appearance of small-pox in an epidemic form, the registration of deaths, and sanitary progress in Bengal, were all made the subjects of investigation and of separate communications to the Government.

38. The reports of the Local Medical Officers and the special remarks of the Sanitary Commissioner on each, which form Parts II. and III., deal with matters of detail, into which it would be impossible to enter without occupying much space and time, and I shall therefore proceed to consider the fourth Part, which embraces some general opinions on leading questions connected with the sanitation of the Province. As Dr. Smith observes, the sanitary measures which are most important and most urgently required for Bengal are "good water-supply, efficient drainage, proper conservancy, and careful disposal of the dead."

39. There is little doubt that here, as in other parts of India, there is almost universal pollution of the water-supply, and the proper remedy for this evil forms one of the most important sanitary questions of the day. On this subject Dr. Smith's remarks are deserving of attention. "I am of opinion," he writes, "that at the expense of every village and town in Bengal a good and abundant supply of water should be systematically furnished to the people by the Government. In outlying places, zemindars and heads of villages should be held strongly responsible that well and tank water within their jurisdiction is not wantonly defiled." It would, I fear, hardly be possible for the Government directly to supervise such a general scheme of water-supply; but, by drawing the attention of District Officers to this very important question, and, if necessary, by introducing fresh legislation on the subject, measures may be adopted which will prove of incalculable benefit to the people.

40. The only statistics regarding deaths in Bengal are contained in Tables regarding one or two very small communities of Native Christians. The returns received for 1868, Dr. Smith remarks, are utterly valueless. It is hoped that some progress has since been made in this most important matter.

41. In a very brief notice on the fevers of Bengal, Dr. Smith expresses his opinion that "the fever of the Bengal Districts is, beyond all doubt, an endemic malarious disease, due to local causes,—chiefly want of drainage, partial or complete stagnation of water-courses, and saturation of the soil with moisture. It is not contagious. Its remissions and exacerbations are more or less regular diurnally. It is not characterized by a specific crisis or relapse. It is a typical malarious endemic fever." Speaking of the conditions which he believes gave rise to the disease, he adds that they are "want of drainage, the reduction of rivers to a low level, the deposit of silt at the mouths of rivers and on marshy plains, &c. Such causes are quite sufficient to account for all the sickness and mortality that have been reported. For a time they did not produce any marked effect. Cumulative action, however, began at last to tell. Nothing more was necessary; silent and gradual influences culminated, and, in the course of time, a most virulent malarious disease sprang forth." Considering the very great loss of life which has been due to this fever, there is no more important subject for sanitary enquiry; and the collection of accurate facts with reference to its appearance in Bengal, or even in one District of it, is of the greatest importance. A very careful note has, I observe, been prepared in the Bengal Office, summarizing

all the information available as to the history of this disease. A very careful enquiry made over at least a portion of the epidemic area in order to ascertain the amount of sickness and mortality in each village, and the local changes, if any, to which the appearance of the disease may justly be attributed, would form the subject of a most useful and interesting sanitary tour.

42. The information regarding the extent to which cholera prevailed in Bengal during the year 1868 is incomplete. From some Districts no reports have been received, and with regard to others, the general tendency of the disease to appear in certain months, and to be at its maximum of prevalence at stated seasons, is given rather than a detail of the facts of the year.

43. The Sanitary Report for British Burmah, as has been already mentioned, reached me only on the 25th of this month, and I cannot therefore attempt anything beyond a very brief notice of its contents. The year was not marked by any general or serious sickness. Epidemic disease was confined to a few unhealthy localities, and even in these it did not prevail to any alarming extent. The people were prosperous, labor was abundant, food plentiful and cheap, and trade flourishing. The Sanitary Commissioner travelled over a large part of the country, and inspected many towns and villages.

44. Statistics of the registration of both births and deaths are given in the report, and a careful analysis of them has been made. The returns, however, as the Chief Commissioner remarks, are still unreliable, and much care must be bestowed on their preparation before any trustworthy conclusions can be drawn from them. Taking the population of seventeen cities, the birth-rate was 31.5 per 1,000, and the death-rate 26.7, but the details are so discrepant that, as Dr. Cowie observes, the figures have little value. No general rate for the Province is given in the Tables. On this subject Dr. Cowie remarks,—“our system of registration has now been under trial for four years. The people of the country are not prejudiced against it, and I have every reason to hope that, when the new forms are issued with greater care in the collection of the vital statistics, satisfactory returns may be looked for.”

45. Having briefly reviewed the reports for 1868, I propose now to offer one or two suggestions for the preparation of future reports. I do not recommend that the Local Sanitary Commissioners should be tied down to one uniform method of preparing them, but a few general observations on the subject may not be altogether without use. As the collection of accurate statistics of deaths in the different parts of the country must form the true basis of all sanitary progress, so the annual statements of such mortality must form the ground-work of the sanitary history of the year. A prominent place should therefore be assigned to the results of registration, and an analysis should be given of their results, showing how far they are reliable and how far improvement is still required, what measures have been adopted during the year for rendering the system more perfect and what still remains to be done. The series of Tables which have been introduced under the orders of the Government will contain all the information desired, and there is no more important duty for a Sanitary Commissioner than to scrutinize the registration, and to do all in his power to improve it. All the reports for 1868 contain vital statistics of the population except Bengal, and here the difficulties are even greater than elsewhere. I am not aware how far registration has yet been established in the Lower Provinces, but if the obstacles to its general introduction prove insuperable, it might be brought into play over the area of one division, and thence gradually extended. Several of the Sanitary Commissioners already follow the course now recommended and make the collection of the mortuary statistics the ground-work of all future progress; but in some of the Provinces registration has not received that attention which its importance demands.

46. A special chapter should next be devoted to a general history of each of the chief diseases throughout the year,—cholera, small-pox, fevers and bowel complaints, the four which are entered in the annual Tables; and in the event of any prevalence of any one of them, and especially of cholera, special efforts should be made to obtain reliable data and to give a connected account of the epidemic showing the distribution of the disease and any facts of interest connected with its progress. In some of the reports these data are spread over a number of different District reports, and it is quite impossible to arrive at the facts without an infinity of labor. The object of one report for a Province is to collect the facts and throw them into a connected narrative, advantage being taken of the detailed information procurable to show how far local conditions affected the results and what were the causes, why particular places suffered more than others.

47. And in order to judge of this general history, information on two most important subjects is very necessary. We must know what has been the meteorology of the year, whether there has been anything peculiar either as regards temperature, rain-fall, and other atmospheric phenomena, and we must also know what has been the general condition of the people as regards abundance of labor, rate of wages, and price of food, how far any one or other of these has been unusual, and how far it appears to have affected the health of the population. These subjects should form the subject of a separate chapter.

48. A fourth chapter might well be taken up with a short account of the work done by the Sanitary Commissioner during the year, of any tour which he may have undertaken, of the general condition of the places visited, and the measures proposed for their improvement. When such a tour has been undertaken with a view to enquire into the circumstances connected with any outbreak of disease, the particulars may more conveniently be given in connection with the history of the outbreak in Chapter II., but the general course and extent of the investigation should also be stated in Chapter IV., abstracts of special inspection reports of Towns and Districts also would appear under this head.

49. In connection with this subject I would observe that it is of the very greatest importance, especially in connection with an unusual outbreak of sickness, that the Sanitary Commissioner should make a tour and ascertain the facts from his own personal observation. Coming in contact with District Officers and with the people themselves will act as a great stimulus to sanitary reforms; and although the Sanitary Commissioner's other duties are many and laborious, he may find time for this important work. Dr. DeRenzy, I would observe, is under an erroneous impression (paragraph 4 of his report) in supposing that he was expected to be “constantly on the move” as the orders of the Resolution, dated the 10th September 1868, which have been already referred to, were complete in themselves, and contain no injunction of this nature. The importance of his becoming personally acquainted with the country is generally inculcated.

50. In a fifth and last chapter a short summary might be given of any sanitary progress which had been effected during the year. I propose to devote a special portion of each Annual Report to this question, and it is therefore important that the data from each Province should be available in a tangible form. I do not anticipate that such statements will every year contain a record of some marked reform. Progress must be slow, but it will be satisfactory to ascertain exactly how far the measures already in force are working, and whether any advance has been made during the year.

51. The report should be concise and to the point, and with reference to this very important requirement it will not be advisable, as a rule, to reprint District reports in full.

Their contents should rather be incorporated in the general history of the year, the details under each head being embodied in the chapter to which they properly belong. All extraneous matter should be avoided.

52. It is very desirable that all the reports should be of one size of page. On this point orders were issued to Madras and Bombay, but, so far as I am aware, no instructions were given for the guidance of the Sanitary Commissioners with the Local Governments and Administrations. For the Tables of vital statistics which have been ordered, this is almost a necessity, and it is advisable on other grounds. The reports for 1868 differ materially in this respect, especially those for Bengal and British Burmah.

53. The early preparation and submission of the report is a matter of very great importance, and regarding which the orders of the Government have already been issued. If the report be made a short, plain record of facts, such as I have proposed, one obstacle to its early preparation will be removed. Unless the reports are received each year at an early date, it will be impossible for me to comply with the orders of the Secretary of State, and submit a general report within the time specified.

54. My general review of the reports for 1868 has been, to some extent, purposely brief; for, as I have already stated, the information they contain is of such old date that it has lost much of its interest. Nearly 18 months have elapsed since the close of the year to which they refer, and the reports for 1869 are already over-due. But, independent of any consideration of this nature, some of the reports do not contain the data required for preparing a general history of the distribution of disease throughout the country, or of sanitary progress for the year. If the general suggestions which have been made in the concluding paragraphs are adopted, these defects will be remedied for the future.

Home 1870 Dept.

[Sanitary.]

From
The Sany. Commr. with the Govt. of India.

No. 183.
Enclosures.
spare copies.

Dated 28th May.

Recd. 4th June.

S.O. N^o 930 of 27 July 1870
L. No. 139. } Public Dept.
L. No. 142. } Progs. } D. No.

Sanitary Proceedings dated 30th October
1869, Nos. 5 to 7.
Ditto 4th September 1869, Nos. 2 & 3.
Ditto 12th March 1870, Nos. 15 & 16.

With reference to the orders of the Government
in the Home Department conveyed in No. 461 of
the 27th October 1869, submits a general review
of the Annual Reports of the Local Sanitary
Commissioners for 1868.

In Public N^o 1068 of 7/70

Mr 1203 of 1/70

No. 241

Extract from the Proceedings of the Government of India in the Home Department (Sanitary),—
under date Simla, the 6th July 1870.

READ again the under-mentioned letters from Local Governments and Adminis-
trations, forwarding the Annual Reports of their respective Sanitary
Commissioners for 1868:—

From the Chief Commissioner of the Central Provinces, No. 2416—275, dated 9th
August 1869.

Ditto ditto Oudh, No. 4377, dated 2nd October 1869.

Ditto Government of Bengal, No. 659, dated 21st February 1870.

Read also—

The Annual Sanitary Reports for the North-Western Provinces, the Punjab, and British
Burmah for 1868.

And—

A letter from the Sanitary Commissioner with the Government of India, No. 183, dated
28th May 1870, submitting a general review of the above Annual Reports.

RESOLUTION.

THE Governor General in Council observes that the main features of the
review submitted by the Sanitary Commissioner with the Government of India
are that very much remains to be effected in the way of sanitary reform, and
that the vital statistics in the rural Districts are at present of little value,
while even those appertaining to towns are very unreliable. The Governor
General in Council is forced to the conclusion that the existing means,
financial and administrative, are not generally been fully utilized for
carrying out sanitary improvements in most of the cities and towns of
India.

2. The suggestions contained in paragraphs 45 to 53 of Dr. Cunningham's
letter are approved by the Governor General in Council, and Local Govern-
ments and Administrations in the Presidency of Bengal will be requested to
instruct local Sanitary Commissioners accordingly. Considering that uniformity
of system is very desirable, the Governments of Fort St. George and Bombay
will also be invited to issue similar orders, unless they have any special objections
to urge against Dr. Cunningham's proposals.

3. The Governor General in Council concurs in opinion with Dr.
Cunningham that it is very desirable that all the Annual Reports on sanitation
should be of a uniform size. It will be necessary that these reports should
be bound up with the Proceedings of the Local Governments and of the
Government of India; and on this account, and in consideration of the fact
that there will always be voluminous statistical Tables attached to these
Reports, His Excellency in Council believes that folio foolscap size, as already
adopted by the Government of Madras, will be found to be the most convenient.

