

Public (1897) Department.

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[Despatch Abstract.]

Recording Pro: L & M Deptt. on
the Memorandum by the Army
Sanitary Commission on the
Report of the San'y: Commission
for Madras for 1894.

22.11.97

BACK PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

FURTHER PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

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CURRENT No. 463

Government (1897) of Madras. LOCAL AND MUNICIPAL.

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Enclosures 1
Spare copies

G.O., Nos. 1997, 1997A L., 15th October 1897.

Order No. 15068 22.10.97
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OCTOBER.

as 15/11/7 *MLP 20/11/97*

Note Last year's report was correct? & the report in this
this year has already gone to him w/ r. There seems
to be nothing there for to record *as*

Memorandum by the Army Sanitary Commission.

Communicating, with remarks, to the officers concerned — on the report of the Sanitary
Commissioner for Madras for 1894, and ordering that a despatch be addressed to the Right
Honourable the Secretary of State for India on the subject.

GOVERNMENT OF MADRAS.

LOCAL AND MUNICIPAL DEPARTMENT.

READ—the following papers :—

Despatch from the Right Hon'ble Lord GEORGE HAMILTON, Her Majesty's Secretary of State for India, to His Excellency the Governor in Council, Fort St. George, dated India Office, London, 12th November 1896, No. 2 (Statistics).

I forward, for the information of your Excellency's Government, 160 copies * of a Memorandum by the Army Sanitary Commission on the report of your Sanitary Commissioner for the year 1894.

* 12 by mail; 148 by book-post.

Letter from J. P. HEWETT, Esq., C.I.E., Secretary to the Government of India, Home Department, to the Secretary to the Government of Madras, Local and Municipal Department, dated 8th January 1897, No. 12.

4. I am to forward a copy of a Memorandum, dated the 14th October 1896, by the Army Sanitary Commission on the report of the Sanitary Commissioner of Madras for the year 1894, and to invite attention to the remarks at the end of paragraphs 2, 8 and 9 and in paragraphs 5, 13 and 14 thereof.

From Surgeon-Lieutenant-Colonel W. G. KING, M.B., C.M., D.P.H., Sanitary Commissioner for Madras, to the Secretary to Government, Local and Municipal Department, dated Fort St. George, 25th April 1897, No. 1001-S.

With reference to the Memorandum of the Army Sanitary Commission upon the administration report of this office for the year 1894, I have the honour to offer certain remarks embodied in the accompanying memorandum. These are given in the order in which the subjects I consider it desirable to discuss are mentioned by the Army Sanitary Commission.

ENCLOSURE.

Memorandum.

1. "The Sanitary Commissioner confines his remarks on the meteorological features of the year to the subject of the rainfall" (vide paragraph 2 of the memorandum under reference).

I consider, having regard to the climatic conditions in this Presidency, that any discussion of the meteorological conditions beyond rainfall would be a waste of time, and a mere refinement when applied to statistics that are regarded by the Army Sanitary Commission itself as incomplete, and have been declared to be so by this office. I expressed this opinion, with reference to the suggestion of the Army Sanitary Commission conveyed in its memorandum on the Bengal Sanitary Report for 1892, that an

elaborate return should be prepared, notwithstanding the acknowledged defective state of registration (vide this office letter, No. 672-S., dated 25th March 1895).

2. "These tables (judging from the context the word 'diagrams' was intended by the Army Sanitary Commission) certainly show at a glance the information they are intended to convey, but they do much to swell the bulk of the report" (vide paragraph 3 of the memorandum under reference).

The intentions of the Army Sanitary Commission are here not very clear; but it is presumed from the final sentence of this paragraph—"until some approximation to an accurate record of deaths has been secured, it would be unsafe to rest conclusions on the relation shown by the figures to exist between number of deaths and prices of food"—that they desire the diagrams should be at once abolished. Yet, I was put to much trouble in preparing the report for 1893, in giving effect to the wishes of the Army Sanitary Commission that these very diagrams should be elaborated and improved in accordance with its request conveyed as follows :—

"The facts for each district are very clearly set forth in a series of diagrams which indicate the monthly rainfall and price of the main articles of food used by the people of that district, and these facts are given not only for the year under report but also for the two preceding years, as well as the average of the ten years previous. In the subsequent section of the report, which deals with vital statistics, a similar series of diagrams is given to illustrate the births and deaths in each district, by means of which the results are shown in a striking way. Is it possible to give all these important facts—the rainfall, price of food, birth-rate and death-rate of each district—on one diagram? At present each district has three—one for rainfall, one for price of food and one for birth and death rate combined. If the change we suggest could be effected, much would be gained, for, irrespective of the economy of space and the economy of time now required to compare one diagram with another, the facts would be presented side by side in the most forcible manner. Although there are difficulties in carrying out this suggestion, they do not appear to be insuperable" (vide paragraph 1 of the Commission's memorandum on the Madras Sanitary Report for 1891).

3. With regard to the final sentence of the third paragraph of the Army Sanitary Commission's Review (above quoted), I consider there is no reason to accept the sweeping assertion therein made. The Commissioners seem to have forgotten that during the existence of extensive scarcity or famine in this country, mortality is written large and, granted that the registration is not always accurate, it is not difficult to recognize an increase that is simply due to energy on the part of district officials. This fact is, indeed, recognised by the Commissioners, as they note with approval in the paragraph of their memorandum dealing with deaths, a remark made by the Government of Madras in its review to this effect. But, irrespective of marked increase of total mortality, I consider the figures deduced by me at pages 58 and 59 of my report for 1893 go to prove that by a careful analysis of the returns so as to deal with mortality affecting various ages information of prime importance is obtained; as, although the gross totals may fluctuate, it is not likely that increased energy as to registration would disproportionately affect only certain ages. As an instance, I would quote the following figures from the report in question (page 33) dealing with districts where the scarcity of 1891-92 had been felt :—

District.	Average for ten years ending 1890.					1891.				
	Birth-rate.	Death-rate.				Birth-rate.	Death-rate.			
		Under 1 year of age.	Under 5 years of age.	Above 50 years of age.	Total.		Under 1 year of age.	Under 5 years of age.	Above 50 years of age.	Total.
Bellary	39.4	140.7	72.3	30.6	22.6	36.4	152.5	88.3	41.1	25.5
Cuddapah	29.0	123.5	41.8	28.4	20.8	26.3	112.1	42.8	41.6	22.3
Kurnool	37.4	147.7	56.3	29.9	25.9	33.3	147.6	62.8	42.6	27.2
Madras	41.0	398.8	139.9	52.5	39.8	38.4	478.2	178.1	82.7	51.0
Nellore	25.5	71.2	27.4	21.8	15.9	23.7	93.5	40.3	29.7	17.0

District.	1892.					1893.				
	Birth-rate.	Death-rate.				Birth-rate.	Death-rate.			
		Under 1 year of age.	Under 5 years of age.	Above 50 years of age.	Total.		Under 1 year of age.	Under 5 years of age.	Above 50 years of age.	Total.
Bellary	31.5	146.6	89.1	50.0	26.6	28.5	132.9	80.9	38.0	21.0
Cuddapah	23.2	123.5	49.3	48.3	23.7	22.4	117.6	45.3	50.6	23.2
Kurnool	30.5	272.2	76.7	58.2	34.2	25.6	130.1	53.9	43.2	22.3
Madras	35.0	364.6	150.1	93.3	44.2	38.1	383.3	154.9	93.3	39.0
Nellore	21.4	102.7	47.4	38.8	19.5	21.6	94.7	38.3	38.8	14.7

4. The opinion now given by the Army Sanitary Commission as to the uselessness of attempts to show a relation between the prices of food and mortality is certainly curiously at variance with the following statements made by it:—

"In former years separate diagrams were given for every district showing such particulars in detail, but now, in accordance with a suggestion we made some time ago, both have been included in one diagram, to which has also been added a *resumé* of the birth and death registration in each month, and the whole compared with the results of former years. Each of these district diagrams bears the heading that it shows the birth and death rate per mille, with rainfall, and prices of food (rice) during the year 1893, compared with 1891 and 1892, and the average of the ten years ending 1890. A diagram which embodies so much information is necessarily somewhat complicated. The form adopted seems well fitted for the purpose, and it is doubtless a great advantage to bring the facts regarding births and deaths in immediate apposition with those regarding meteorology and food supply. We would suggest that each of the diagrams should have footnotes to explain clearly the meaning of the various groups of figures and other symbols employed" (*vide* paragraph 1 of the Commission's Memorandum on the Madras Sanitary Report for 1893).

Indeed, the Army Sanitary Commission hitherto seems to have held very strong views as to the importance of bringing facts showing a "relation between price of food and mortality" to notice; as witness the following remarks by it in the reviews of the Annual Reports of the Sanitary Commissioners of the Punjab and Bombay, respectively, for 1893:—

"*Punjab*.—Appendix A contains a comparative statement showing the mortuary and meteorological statistics of certain districts, together with the prices current of the chief food-grains for 1893 and the five preceding years, but no comment is made on the information which it contains. Even although the facts recorded may not warrant any definite conclusions, it is very desirable that they should be carefully analysed year by year, for there can be little doubt that, although the problem is necessarily complex, both meteorology and food-supply are two factors which exercise a very decided influence on the health of people."

"*Bombay*.—How far have the registers been inspected by the officers of the Sanitary Department, by the Civil Surgeons and by other officials in the course of their tours, and what was the state of things found at these inspections? On these important points the Sanitary Commissioner has not entered, nor has he discussed some other matters which demand notice in an annual report—such, for example, as the general causes affecting the health of the people, the meteorology and the prices of food, which, as we have frequently pointed out, have a most important bearing on the results of the year."

5. "But if the increase of the population between the census of 1881 and the census of 1891 be divided by the number of years intervening between them, an average increment for each of those ten years is arrived at. If this average annual increment is multiplied by the number of years since the census of 1891, it is found to amount to 1,914,512 or greatly more than twice the excess of births over deaths registered in the same period" (*vide* paragraph 4 of the memorandum).

Although I have no wish to deny the truth of the deduction, the Army Sanitary Commission's assumption of the method employed by this office for calculation is incorrect and would lead to erroneous results if employed.

6. "Madras might do worse than adopt the system of registration in force in some of the other provinces of India. In these latter, a small pass-book is given to each of the village watchmen and in this are entered the births and deaths occurring in the watchman's beat. Unfortunately, few of the watchmen can read or write; so that they are obliged to trust to their memories until they have gone to the police station and got the clerk to enter, on their verbal report, the births and deaths both in the watchman's pass-book and in the police registers. Needless to say, this arrangement is not perfect; but it is greatly better, judging from results, than the system or want of system, prevailing in Madras. In the one case, approximately correct figures are obtained; in the other it is largely a waste of time to work out elaborate calculations from data so palpably at variance with the actual facts" (*vide* paragraph 4 of the memorandum).

In their review of the report for 1893 in which, according to the request of the Army Sanitary Commission, the methods of registration adopted in this Presidency are fully described by me, the account was received with complacency, if not approval, in the following words:—

"Some interesting particulars are given of the system under which the births and deaths are registered, and the difficulties which are met with in the endeavours to attain greater accuracy of the records, are well described. The constant supervision and inspections made by the officers of the Sanitary Department and various civil officers during their tours must have an excellent effect and do much to effect improvement. The Civil Surgeon as Sanitary officer of his district has the returns forwarded to him by the Collector, and has the opportunity of calling attention to any entries that evidence carelessness or seem to call for explanation. The Deputy Inspectors of Vaccination, of whom there are 53 in the Presidency, have been found useful in inspecting village registers, and some extracts from their diaries are quoted in illustration of their work. The complaints on all hands refer only to omissions. No mention is made of any fictitious entries having been found which is so far satisfactory" (*vide* paragraph 2 of the Army Sanitary Commission's memorandum on the Madras Sanitary Report for 1893).

There can, of course, be not the slightest doubt that registration demands improvement in this Presidency, and the matter has frequently engaged the attention of Government, and recently a Government order entering fully into the subject was issued (G.O., No. 2132 L., dated 12th November 1896). I am understood not to have much sympathy with a want of free expenditure on matters sanitary; but I had no hesitation in my memorandum on the subject, dated 5th September 1894, and embodied in the Government order in question, in admitting that to reform the registration service *per se* would be financially impossible at present. All that can be done is to improve the existing arrangements, and this policy has been steadily adhered to. I consider that the years 1894 and 1895 exhibited marked improvement in registration, as a result of the continued efforts of all officers concerned.

In any case, I certainly do not conceive the method of using watchmen in the way stated by the Army Sanitary Commission is one that can be commended for introduction in Madras. Indeed, the account given by the Army Sanitary Commission themselves of the result of this system in Bengal cannot be said to be encouraging:—

"* * * Defective registration there can be little doubt was accountable for the lowness of the birth-rate. In sickly seasons the village watchmen, who, in the first instance, note the births and deaths, are themselves equally subject to sickness with the rest of the people, and a large proportion of them are ill at one time or other, their duties often being deputed until they are well again to some part of the family—frequently a boy—ignorant and forgetful. In this, among other ways, errors of omission in the registration of births and deaths may increase during unhealthy seasons" (*vide* the Army Sanitary Commission's memorandum on the Bengal Sanitary Report for 1894).

7. "Statement D gives an abstract of information furnished by Sanitary Officers as to the presumed mode of introduction and spread of cholera in their respective districts" (*vide* paragraph 10 of the memorandum).

The object of this compilation was to meet the requirements of G.O., No. 757, Public, dated 12th September 1893, wherein the hope is expressed that "instructions may be issued to all Civil and Medical officers whose position renders them liable to be called upon to make inquiry into the prevalence and causes of epidemic diseases, impressing on them the necessity for exercising the greatest care in the investigation of the facts connected with the outbreak and progress of such diseases, and for

scrutinizing most carefully the evidence on which these facts rest and for refraining from giving expression to opinions not warranted by the facts established by the evidence." This Government order is the direct outcome of the wishes of the Army Sanitary Commission as expressed in paragraph 19 (6) of their review of the report of the Sanitary Commissioner for the Government of India, which runs as follows:—

"It seems to us that the investigation into the causes and conditions under which any given outbreak of disease has occurred requires to be thoroughly and systematically undertaken at the time when all the facts are fresh in the minds of local observers. * * * * "What we desire to urge is that the reports should contain full information; first, as to the local causes of disease which exists in each locality, and, secondly, as to the measures which are being taken to remove them; and this information should be repeated year after year so that the evils themselves, and the necessity of reform, may never be lost sight of."

8. "The percentage of successful cases among the primarily vaccinated was 93.4 and amongst those re-vaccinated 80.6. The latter percentage is surprising. Yet, in the review of the report by the Government of Madras, re-vaccination is considered to have advanced but slowly, and it is hoped that better results will be secured next year" (vide paragraph 12 of the memorandum).

The connection between the surprising high percentage of "vaccination success" and the advance of re-vaccination is not apparent. If, however, it is the intention of the Army Sanitary Commission to deprecate efforts towards advancement of this important prophylactic measure, I can only say that in doing so their opinions are in direct variance with accepted medical and public opinions throughout the civilized world. It would hardly be possible to peruse reports by public sanitary authorities in Great Britain or in the Continent of Europe on epidemics of small-pox that have occurred within the last fifteen years without this fact forcibly impressed upon the reader. As a type of this evidence, I would refer to the examination of Dr. Barry before the Royal Commission on Vaccination (vide second report of the Royal Commission on Vaccination, 1890, page 26).

9. "After reading in the report on vaccination in the North-West Provinces for 1894-95 that 'the results of arm-to-arm vaccination in these provinces are now almost altogether successful' we may be excused from expressing some astonishment at finding in the eighth paragraph of the Madras Government review an injunction against the use of vaccine lymph obtained from the human subject: 'Every effort should be made to discontinue the use of human lymph.' In the Madras Presidency, preserved lymph is largely used. No fewer than 642,296 persons were vaccinated with lymph preserved with glycerine. It is, we think, no matter for surprise that of these only 89.2 proved successful cases of vaccination. This messing with vaccine lymph mixed with glycerine is evidently not only an expensive procedure, but disappointing in its results. Altogether, vaccination in the Madras Presidency seems to us to be capable of improvement. We have endeavoured to indicate some of the directions which improvement might take" (vide paragraph 16 of the memorandum).

I consider the recommendation of the Army Sanitary Commission to revert to arm-to-arm vaccination astounding. Whilst inoculation of leprosy during vaccination may be held in dispute, there can be no doubt of the fact that syphilis can be so conveyed by a moderate exhibition of want of discretion and care. The following at least is the deliberate opinion of a Committee that may be safely said to have been formed of medical experts (Bristowe, Humphrey, Hutchinson and Ballard):—

"It is conclusively proved that it is possible for syphilis to be communicated on vaccination from a vaccine vesicle on a syphilitic person, notwithstanding that the operation be performed with the utmost care to avoid the admixture with blood."

The fate of Dr. Cory who *in corpore vili* put his belief that syphilis was not so transmissible cannot be unknown to the Army Sanitary Commission. That syphilis is in certain tracts of the country extremely common, should of itself form an all-sufficient reason for preference of animal lymph. I need hardly also point to the fact that by use of animal lymph the serious objection as taking lymph from low caste children for those of better caste has been surmounted. But even if these advantages did not exist, it is manifest that in pursuing vaccination with animal lymph an enormous advantage is obtainable in being able at very short notice to supply large quantities of lymph in the presence of an epidemic. As to the use of preserved animal lymph,

I am certain the Army Sanitary Commission can produce no evidence to show that, so far as protection is concerned, it acts one iota less perfectly than when fresh is employed. That a low percentage of successful operations is likely to follow the use of lymph imperfectly prepared is unquestionable, and the matter has not been without attention from Government. As to "messing with vaccine lymph mixed with glycerine," although I personally happen to believe that glycerine is not the best medium for use in this country, and that consequently the low percentage of success is contributed to by use of this medium, it is well to remember that Dr. Copeman in recent researches has shown that both with glycerine and lanoline when used as preservative media there results death of extraneous organisms; so that, when properly prepared and protected animal-lymph preserved by either lanoline or glycerine is used, there is offered a safeguard against inoculation with the streptococcus of erysipelas that ought not to be lightly ignored. Necessarily, animal-lymph vaccination is more costly than when humanized lymph is employed if calves have to be paid for as is the case in this Presidency; but, having some time back had occasion to enter into the comparative cost of work fulfilled by the Vaccination department of other Presidencies and Provinces, I can safely say that, having regard to the one factor of cost of labour of the nature required, the making of any comparison as to expenditure is futile. Finally, I would point out that the Army Sanitary Commission's advocacy of arm-to-arm vaccination is in strange contrast with the following opinion given after prolonged and tedious investigation for several years by the late Royal Commission on Vaccination (Final Report, paragraph 437), and in consequence of which, the Local Government Board of England contemplates applying for special powers from Parliament:—

"We put the use of calf-lymph in the forefront, because, as we have said, this would afford an absolute security against the communication of syphilis. Though we believe the risk of such communication to be extremely small where humanized lymph is employed we cannot but recognize the fact that, however slight the risk, the idea of encountering even such a risk is naturally regarded by a parent with abhorrence. We think therefore that parents should not be required to submit their children to vaccination by means of any but calf-lymph, but this should not preclude the use of humanized lymph in case they so desire."

"So long as the State, with a view to the public interest, compels the vaccination of children, so long even as it employs public money in promoting and encouraging the practice, we think it is under an obligation to provide that the means of obtaining calf-lymph for the purpose of vaccination should be within the reach of all. We have no hesitation, therefore, in recommending that steps should be taken to secure this result."

10. "We would add that the birth-rate in municipal towns, as given at page 26 of the report, is 33.2 per thousand of population, as compared with only 27.4 in rural villages; and seeing that the mortality amongst infants is greatly in excess of that of persons of over one year, it follows that a high birth-rate means a high death-rate" (vide paragraph 18 of the memorandum).

The Army Sanitary Commission here has apparently forgotten the fact that this source of error is excluded in the method of calculation adopted by this office, namely, that of reckoning the death-rate per mille upon the births registered.

11. "Of the total number of deaths registered, no fewer than 312,583 or 46.5 per cent. were returned under the head of other diseases. This is merely equivalent to saying that the agencies entrusted with the registration of deaths and their causes do not possess the knowledge which would enable them to differentiate diseases with much approach to accuracy" (vide paragraph 19 of the memorandum).

The object of this remark is not understood. It is presumable that the Army Sanitary Commission who criticize efforts in this country are perfectly well aware that otherwise than in certain limited areas, even were Government prepared to pay for an elaborate registration of births and deaths department, it would be impossible for the next half a century to look for a state of affairs in which diseases could be differentiated with accuracy.

12. "The Sanitary Commissioner in paragraph 15 of his report gives the rate as calculated on the 'estimated' population of the Presidency. Whilst registration in Madras is still so unreliable, such refinements in calculating ratios seem to be somewhat premature and to tend as much to produce confusion as to increase accuracy" (vide paragraph 5 of the memorandum).

This remark comes strangely from the Commission who, but in the preceding paragraph, avail themselves of a calculation made in this office as to what the natural increase of the population should be to show the extent of possible error in registration. In my memorandum embodied in G.O., No. 2132 L., dated 12th November 1896, I have discussed this matter fully, and I would but add that if registration be so very bad and untrustworthy as stated by the Commission, it would seem but reasonable that the only approach to accuracy available, namely, by use of the intercensal rate, should be relied upon. It is freely conceded that the census operations on the two last occasions were conducted with great care, and to fail therefore to utilize the information so obtained at great expense seems to me most injudicious. For example, if the "estimated population" were not used for calculation, it would be easy enough to show that registration is undergoing improvement year by year simply on account of the increased total of registration of events; whereas, an appeal to ratios calculated on the estimated population at once prevents this illusion. I may add that when subjected to this test, the fact that registration has undergone improvement in 1894-95 is nevertheless evident.

13. "Supposing that the registered number of births is correct, which is far from being the case, not one in three of the children under one year of age has been vaccinated" (vide paragraph 13 of the memorandum).

In making this estimate, the Army Sanitary Commission ignores the fact that infants die freely within the first year of life. Presuming the death-rate was 160·6 per mille of registered births, as reported at paragraph 27 of my report for 1894, the following numbers would have been available for vaccination if the operation was effected as usual in this country—the plea being weakly physique of native infants—when six months of age was attained:—

Estimated number of registered births of 1893 that reached the age of six months during 1894—515,820.

Estimated number of births registered in 1894 that reached the age of six months during that year—429,366.

Therefore total number of infants available for vaccination during 1894 was 831,194, of which 296,016 or 35·6 per cent. of the total were operated on. So that at the worst, if possibilities be taken into account, the truth was that not less but more than one in three was vaccinated, namely, 1 in 2·8 of all cases available. I do not think this is a contemptible result seeing that compulsory vaccination is in force only in municipalities.

14. "An abstract of sanitary estimate of villages fills 21 pages. After the communication to the executive officer of the district to which they refer, any practical purpose which the remarks contained in the abstract would be likely to serve we would think had already been fulfilled. The inclusion of the abstract in the report adds greatly to the bulk of the latter, without any corresponding addition, so far as we can judge, to its usefulness. It is only needful to cast the eye along the columns headed Drainage, for example, to enable one to measure the value of the information furnished. Almost without exception, the remarks under this head begins, 'No system,' or, 'Drainage natural,' for page after page with monotonous repetition" (vide paragraph 24 of the memorandum).

I quite agree with the Army Sanitary Commission that this is an absolutely useless production. Nevertheless it is one produced in my office with great toil year after year to satisfy the Army Sanitary Commission, which specially required it (vide Proceedings of the Board of Revenue, No. 2330, dated 23rd October 1886).

15. "On like grounds, we would venture to suggest that appendix D might be omitted from future reports" (vide paragraph 24 of the memorandum).

There never was any intention to repeat this appendix. It was inserted with the object of drawing the attention of Government to the gross sanitary errors in, and the ridiculously small expenditure incurred per head on, fairs and festivals—the most fruitful source of disease—spread in this Presidency. I ingenuously hoped that by such an array of facts I should have the aid of the Army Sanitary Commission in

securing a reform. If in this I have been disappointed, the appendix at least fulfilled what I required of it without that aid. It drew the attention of Government to a most important subject, and, as a result, it informed local bodies in its review of my report for 1894, that is, that "his (Sanitary Commissioner's) remarks regarding the insufficiency of the provision generally made for sanitary arrangements at these festivals and the wastefulness of expenditure on lighting and similar luxuries in unions, in which the Government fully concurs, will be communicated to local boards for attention." As a sequel, a very vast improvement in the sanitary management of fairs and festivals has been effected. Hence, though decidedly monotonous, the appendix D was not without marked utility, and I respectfully maintain that my judgment in using it was not wrong.

16. "It can surely serve no useful purpose to fill up a report with statements which nobody thinks of looking at" (vide paragraph 24 of the memorandum).

Whilst I plead guilty as to appendix D, I maintain that the "statements nobody looks at" are in almost all cases due to orders received from Government at the instance of the Army Sanitary Commission, and although I would not wish to assert that my humble protest first drew attention to the fact that the report contains statements of the nature indicated, still I claim that this protest was originally made in paragraph 113 of my report in the following words:—

"It seems to me possible that certain of the forms directed by Government to be used in this report might be usefully abolished or modified in view of the fact that the same information is repeated in terms that but vary slightly."

Indeed, in consequence of this statement Government, after reviewing my report, called upon me to state what portions could be dispensed with in future, and this has resulted (G.O., No. 2085 L., dated 31st October 1895) in a very sensible reduction.

17. "The report is rendered unnecessarily bulky by the inclusion of maps, abstract statements, and appendices, which might, we think, have been omitted without sensibly impairing its usefulness" (vide paragraph 25 of the memorandum).

The following list of Government Orders, the majority of which have been issued on the initiative of the Army Sanitary Commission, show the authority on which these "maps, abstract statements, and appendices" have been included:—

G.O., No. 1239 L., dated 25th May 1892—(comparative statement of mortuary and meteorological results).

" No. 2139 L., dated 27th September 1893—(diagrams showing rainfall, &c.).

" " 852, dated 30th July 1872.

" " 1695, Public, dated 12th August 1886.

" " 1725 " " 28th November 1878.

" " 97, Financial, dated 21st January 1879.

" " 2085 L., dated 31st October 1895.

18. It is the duty of this office to attempt to profit by any remarks that may fall from the Army Sanitary Commission in reference to its annual report, and it is customary to rely upon its valuable support in forwarding sanitary improvements where Government has not considered the necessity for these as sufficiently well proved on the *ipse dixit* of its local adviser. But, it seems to me that this line of treatment has been forgotten by the Army Sanitary Commission in its present review. Beyond a most captious criticism of the defects of registration—well known and freely acknowledged—which runs more or less throughout the whole review, nothing of the slightest import is forthcoming. As for

* As a fact, village servants are used, but instead of reporting to the police, who do not exist in certain villages, they do so to the karnam.

recommendations, two only are made; one requires that a system * quite unsuitable for this Presidency as to employment of watchmen for registration should be introduced, and the second demands an absolutely retrograde step as to vaccination. It seems to me that, whilst there is undoubtedly danger that "statements which nobody reads" may be included under the advice of the Army Sanitary Commission, there is also danger that criticism of this office reports may be overdone. In the first place, I am by no means a free agent as to what shall, or shall not, be discussed in my report as shown in the preceding paragraph, and not having a choice of weapons, I may be fairly considered at a disadvantage. But when thus handicapped,

my endeavours are subject to criticism by the Government of Madras, then by the Government of India, and lastly by the Army Sanitary Commission. As a result, whilst the Government of India held that my "report appears (to the Government of India) to be a satisfactory record of progress accomplished under an active and practical Sanitary Commissioner," I am led to understand that the Army Sanitary Commission is annoyed at "elaborate" attempts to gather a little grain from the midst of the chaff presented to me for compilation.

(Signed) W. G. KING, M.B., C.M., D.P.H.,
Sanitary Commissioner for Madras.

ORDER—No. 1997 L., dated 15th October 1897.

The memorandum of the Army Sanitary Commission, received with the first of the letters read above, will be communicated to the officers concerned.

2. With reference to paragraph 3 of the memorandum above referred to, it is observed that the diagrams showing the birth and death rates per mille per annum, with rainfall and prices of food during 1894, compared with 1892 and 1893 and with the average of the ten years ending 1891, have been prepared by the Sanitary Commissioner in accordance with the wishes expressed by the Commission, in paragraph 1 of its memorandum on the Sanitary Commissioner's report for 1891, and that the table immediately following these diagrams was given by the Sanitary Commissioner for the first time in his report for 1893. As the Commission now prefers the table to the diagrams, the Sanitary Commissioner will be requested to discontinue the latter in his future reports.

3. Adverting to the Sanitary Commissioner's remarks in paragraphs 3 and 4 of his memorandum, it will be pointed out to him that the registration of vital statistics is admittedly so inaccurate that, unless there is a very large or extraordinary departure from the usual figures, it is unsafe to draw conclusions from moderate divergences.

4. The suggestion made by the Commission in paragraph 4 that the system of registration in force in some of the other provinces in India might, with advantage, be adopted in Madras, does not commend itself to Government. It is, moreover, observed, as pointed out by the Sanitary Commissioner in paragraph 6 of his memorandum, that the methods of registration adopted in this Presidency, which, under recent orders of Government have undergone further improvement, were not objected to by the Commission itself in its memorandum on the Sanitary Report for 1893.

5. Adverting to the remarks of the Commission in paragraph 5 regarding the calculation of the birth and death rates on the estimated population of the Presidency, His Excellency the Governor in Council considers that, as the rate of increase in the population is fairly well known, a calculation on the estimated population is likely to be more significant than one on the population of the census of 1891 so far as that factor is concerned. His Excellency is also of opinion that, although the registered birth and death rates are not so accurate as they should be, it must, nevertheless, be in the right direction, as registration is improving, to take the rates on the corrected population.

6. Statement D giving an abstract of the information furnished by the sanitary officers as to the presumed mode of the introduction and spread of cholera in their respective districts, to which the Commission takes exception in paragraph 10, has already been omitted from the report for 1895, the Sanitary Commissioner having been informed that it would be sufficient if the information contained in the statement is recorded in his office and a brief note made in the annual report of any important facts elicited.

7. The remark of this Government regarding re-vaccination, commented on by the Commission in paragraph 12, had reference to the total number of successful re-vaccinations in 1894-95 as compared with that in the previous year (61,937 against 56,372, as will be seen from paragraph 5 of the vaccination report) and not to the proportion of total re-vaccinations reported to have been successful in 1894-95.

8. The discrepancy noticed by the Commission at the end of paragraph 13 in regard to the number of children under one year of age successfully vaccinated is explained by the fact that statement No. I, page 23 of the report, does not include vaccinations by medical subordinates in charge of hospitals and dispensaries, which are shown in statement No. III-B, page 44. The number given in the review by this Government includes these and excludes vaccinations in military cantonments.

9. With regard to the remarks of the Commission in paragraph 16 regarding vaccination with animal lymph, His Excellency in Council entirely concurs with Dr. King in the observations he has made in paragraph 9 of his memorandum.

In letters, Nos. 10 and 59, dated, respectively, 6th and 11th June 1889, the Government of India, while reviewing the General Local Fund and Municipal reports for 1887-88, directed this Government to push forward animal vaccination with the ultimate object of prohibiting vaccination from the human subject. In a subsequent letter, No. 3—198, dated 29th June 1889, that Government, in forwarding copies of a report prepared by Surgeon-Major Barclay on the condition of vaccination with animal lymph in Europe and parts of India, gave strong expression to the opinion that the work of vaccination with animal lymph should be vigorously encouraged, arrangements being made for the provision of such a supply of animal lymph as would enable the vaccine establishment to dispense with the lymph obtained from the human subject. These views were in entire accord with the opinion of this Government, which was well aware of the strong objections entertained by large numbers of the native population to the use of human lymph, and it has accordingly done all it can to extend the use of animal lymph. The subject of reducing the comparatively high cost of vaccination has for some time been engaging the attention of Government.

10. With reference to its remarks in paragraphs 24 and 25, the attention of the Commission will be drawn to paragraphs 16 and 17 of Dr. King's memorandum, from which it will be seen that the statements, maps and appendices to which exception is now taken by the Commission were, in almost all cases, prescribed from time to time by Government on the recommendation of the Commission itself and that on a suggestion made by Dr. King the Government has since issued orders resulting in the material reduction of the length of the sanitary report.

11. The Government fully concurs with Dr. King in his remarks in paragraph 18 of his memorandum.

12. The abstracts of sanitary reports and of sanitary estimates of villages and the appendix D, referred to by the Commission in paragraph 24, have already been ordered to be discontinued.

13. The following despatch will be addressed to the Right Honourable the Secretary of State for India.

(True Extract.)

To the Sanitary Commissioner.

- „ the Sanitary Board.
- „ the Sanitary Engineer.
- „ the Surgeon-General.
- „ all Presidents of district Boards.
- „ all Chairmen of Municipal Councils.
- „ all Collectors.
- „ the President, Municipal Commission, Madras.
- „ the Public Department.
- „ the Revenue Department.

Secretary to Government.

ENDORSEMENT—No. 1997A L., dated 15th October 1897.

Copy to the Government of India, Home Department.

G. S. FORBES,
Secretary to Government.

Encl. W. D. Moss.

MEMORANDUM by the Army Sanitary Commission on the Report of the
Sanitary Commissioner of Madras for 1894.

As estimated by the death-rate, the year 1894 was one of average healthiness. In paragraph 22 of his Report, the Sanitary Commissioner gives a table showing the recorded number of deaths in the Presidency for each of the last 14 years. The year 1894 has recorded against it 672,668 deaths, giving a ratio, per thousand of (estimated) population, of 19.0. Six of the fourteen years had a higher, and seven a lower, ratio.

2. The Sanitary Commissioner confines his remarks on the meteorological features of the year to the subject of the rainfall. Taken for the Presidency as a whole, this was less than in the preceding year by 7.68 inches, but was only 1.95 inches below the average of the previous ten years. In the year under report, 43.25 inches fell, as compared with 50.93 in the preceding year, and with an average of 45.20 for the previous ten years. The rainfall is given for each district according to north-east and south-west monsoon periods, each embracing four months; and for an inter-monsoon period embracing the remaining four months. Although the deficiency varied in the different districts, "in no instance did the failure of either monsoon in any of the districts amount to receipt of less than two-thirds of their respective decennial averages."

3. The tendency of prices of food was downwards, whilst that of wages during the last half of the year was upwards; but there was "no fluctuation of the prices of food grains sufficient to justify the ascribing of any connection between these and the birth and death rates." These same birth and death rates are, in some districts, however, so obviously at variance with what must be the actual rates, that any conclusions drawn from data of which they form a part would only tend to mislead. Take, for example, Ganjam, the first district in the Statement showing the influence of Prices of Food upon the birth and death rates in each district of the Madras Presidency. The birth-rate for 1894 was 18.5, and the death-rate 12.2. We need have no hesitation in doubling both without risk of exceeding the actual rates. A diagram is given for each of the 22 districts, showing the birth and death rates per mille per annum with rainfall and prices of food (rice) during 1894, compared with 1892 and 1893, and with the average of the ten years ending 1891. These tables certainly show at a glance the information they are intended to convey, but they do much to swell the bulk of the report; whilst the same information is repeated in a sufficiently clear table which covers only three and part of a fourth of the pages following. In the elaborate Statement, pp. 16—19, giving for comparison the mortuary and meteorological statistics of the different districts comprised in the Madras Presidency, together with the prices current of the chief food grains for 1894 and five years preceding it, required by the Government of India, it is seen that, whilst in almost every district the price of food was cheaper than during the preceding year, there was increased mortality in 13 of the 22 districts. As a matter of fact, this probably only means that registration of deaths was somewhat more carefully attended to in these districts during 1894 than during the preceding year. Until some approximation to an accurate record of deaths has been secured, it would be unsafe to rest conclusions on the relation shown by the figures to exist between number of deaths and prices of food.

4. *Vital statistics.*—Although, according to the Census of 1891, the population of the Presidency numbered 35,630,440, the population

numbers used throughout the report as a basis for calculating ratios, were 33,733,121, the difference representing the population of certain *zamindari* tracts where no arrangements have been made for registration. The natural increase of the population, that is to say, the number of births in excess of the number of deaths since 1891, is, according to the registers, only 789,570. But if the increase of the population between the Census of 1881 and the Census of 1891 be divided by the number of years intervening between them, an average increment for each of those ten years is arrived at. If this average annual increment is multiplied by the number of years since the Census of 1891, it is found to amount to 1,914,512, or greatly more than twice the excess of births over deaths registered in the same period. "This," as the Sanitary Commissioner says, "if, indeed, proof of a well-acknowledged fact were requisite, demonstrates how poor are existing registration arrangements." If the births omitted from the registers in the municipal towns alone are estimated in this way, they would number no fewer than 77,221 since the Census of 1891. As Dr. King remarks, if registration results alone were trusted to, it would appear that in many municipal towns the inhabitants were dying out. Yet, quoting from the Government review of the Sanitary Commissioner's report, "in only 31 out of 55 district municipal towns were penalties inflicted for failure to register births or deaths—a fact which shows that much neglect is still displayed by municipal councils throughout the Presidency, notwithstanding the repeated orders of Government in the matter in regard to this important branch of the administration." Important, registration assuredly is in regard to sanitary progress; for without an approximately accurate record of births and deaths neither the consequences of the neglect of sanitation nor the effect of improvement can be determined with an approach to precision: all is more or less guess work. Madras might do worse than adopt the system of registration in force in some of the other provinces of India. In these latter, a small pass-book is given to each of the village watchmen, and in this are entered the births and deaths occurring in the watchman's beat. Unfortunately, few of the watchmen can read or write; so that they are obliged to trust to their memories until they have gone to the police station and got the clerk to enter, on their verbal report, the births and deaths both in the watchmen's pass-books and in the police registers. Needless to say, this arrangement is not perfect; but it is greatly better, judging from results, than the system, or want of system, prevailing in Madras. In the one case, approximately correct figures are obtained; in the other, it is largely a waste of time to work out elaborate calculations from data so palpably at variance with the actual facts.

5. The registered number of *Births* in 1894 was 933,059, and was 27.7 per thousand of the census population, against 27.0 in 1893. The Sanitary Commissioner, in paragraph 15 of his report, gives the rate as calculated on the "estimated" population of the Presidency. Whilst registration in Madras is still so unreliable, such refinements in calculating ratios seem to be somewhat premature, and to tend as much to produce confusion as to increase accuracy. As bearing on the fecundity of the inhabitants of certain tracts, Dr. King gives some interesting results obtained by him in the Kurnool district. In Pattikonda, a non-malarious locality, he found that the average number of children born to each male in a married life extending from 1 to 20 years was 4.9, and that, out of 100 children born, 79 were alive at the end of three years. On the other hand, in Dhone and Cumbum, malarious places, only 1.87 in the former, and 2.19 in the latter, were born under the same conditions as in Pattikonda; whilst in Dhone half of the number born died before they reached their third year, and 61 in every hundred in Cumbum. To malaria, in part at least, and not altogether to defective registration, is due the decrease of population in Cuddapah.

6. Of *Deaths*, 672,668 were registered throughout the Presidency, giving a ratio of 20.0 per thousand of census population. The deaths exceeded those for 1893 by 22,886, and, regarding this increase, the following somewhat caustic remark is made in the Government review of the report:—"As there was no food scarcity or great epidemic during the year to cause this increase, it is probably to be accounted for by increased energy on the part of the officers entrusted with the duty of preparing the returns." In the rural towns of Chingleput the death-rate recorded is 7.7, and in Salem 9.0 per thousand of population. In the rural villages of Ganjam the rate is 12.3, and in those of Malabar 14.6. As Dr. King says, these figures would imply that the inhabitants of Ganjam enjoyed a mean life duration of 81.3 years.

7. The average death-rate amongst children under one year of age was 160.6 per thousand of registered births. In Bengal, during the same year, it was 212.22, and in the North-Western Provinces 270.7. It is highly improbable that infant mortality should be so much less in Madras than in these other two provinces. Here, again, defective registration is doubtless the true explanation of the difference. In the city of Madras the rate was 267.7, and for all the municipalities combined, 216.0. The higher rates in municipalities are attributed to better registration generally, and in certain towns to the sewage-sodden state of the soil, and the high level of the sub-soil water. The average death-rate in rural villages was 19.2 as compared with 30.0 for municipalities. This is probably equivalent to saying that registration is considerably better attended to in the latter than in the former.

8. *General history of chief diseases*.—"Altogether," writes the Sanitary Commissioner, "43,427 souls perished of *cholera*—a preventible disease—during the year 1894." It has become customary to write of cholera as a preventible disease; and yet, as a matter of the recurring experience of every year, we find no sensible reduction either in the frequency of its outbreaks or in the number of its victims. This may only testify to the inefficiency of the means hitherto taken to prevent it. Dr. King is supported by statistics and experience when he claims, as one of the conditions favouring its development, density of population. But in addition to density, where this prevails, he finds favouring factors in a domestic water-supply derived from irrigation channels common to several villages and open to faecal pollution. In Tanjore, Tinnivelly, and Trichinopoly, 4.5, 3.7, and 3.5 per mille of the population died from cholera. In the first of these the population per square mile is 601. Except Madras, no other district has a density of population equal to this.

9. We need not follow Dr. King through his explanations regarding the growth of the cholera microbe, or the conditions which he supposes likely to be favourable or inimical to its development and spread. Whatever may be his theories, he has had too much practical acquaintance with the disease itself to allow himself to be guided solely by the teachings of the laboratory bacteriologist. He writes,—“The bacteriologist of the day is apt to regard propagation as limited by methods he can verify within his laboratory,” and he adds,—“Whilst undoubtedly the most common cause of cholera spread is by contamination of water supplies, it certainly is not sufficient to say that either transport by flies or by water will alone account for the preference of cholera to reside in one part of the Presidency during one monsoon, and, comparatively speaking, to forsake it during another.” This definite expression of his views, founded on personal observation, shows that Dr. King, as a practical man, has not failed to note in the behaviour of the disease phenomena of which the doctrines of the theorist afford no satisfactory explanation.

10. Statement D gives an Abstract of information furnished by Sanitary Officers as to the presumed mode of introduction and spread of cholera

in their respective districts. Much of this information is not the result of personal observation but has been obtained at second hand. The Abstract takes up four pages of small print, and might, we think, have been omitted from the report without impairing its usefulness.

// *Small-pox and vaccination.*—The Report on Vaccination for the year 1894-95 is published separately from the Sanitary Report. In the review of the vaccination report by the Secretary to the Government of India, it is truly remarked that "the report is crowded with an accumulation of statistics extending over 17½ pages, which are merely a reproduction of the figures incorporated in the prescribed statements appended to it."

// During the year 1894-95 the total number of primary successful vaccinations was 1,002,430; and the number of those said to have been successfully re-vaccinated was 60,650. The percentage of successful cases among the primarily vaccinated was 93·4, and amongst those re-vaccinated 80·6. The latter percentage is surprising. Yet, in the review of the report by the Government of Madras, re-vaccination is considered to "have advanced but slowly," and it is hoped that better results will be secured next year.

// If the price of an article is a fair test of its value, vaccination in Madras takes a high place. Each successful case of vaccination cost 3 annas and 5 pie. It may be useful to contrast this with the cost of vaccination in the North-Western Provinces, in which each successful case cost 1 anna and 11 pie. The successful cases of primary vaccination recorded are equal to 28·0 per thousand of the population of the Presidency, whilst the registered number of births is equal to 27·7 per thousand. It appears, therefore, if the birth and vaccinated returns can be trusted, that vaccination has more than overtaken the birth-rate. If such were the fact, we might not unreasonably look for a low small-pox mortality, together with a low percentage of successful cases of re-vaccination. But, on the contrary, we find the average annual number of deaths from small-pox during the preceding five years to have been 33,964, and that 80 per cent. of the re-vaccinations have been successful. The explanation of these anomalies is easily found. Of the 1,002,434 primary cases of successful vaccination, only 293,540 were of children under one year of age; whilst the recorded number of births in 1894 was 933,059. Supposing that the registered number of births is correct, which is far from being the case, not one in three of the children under one year of age has been vaccinated. There is a difference between the number of children under one year of age successfully vaccinated, as given above, and the number given in the Madras Government review of the vaccination report. In the latter, this is stated to be 296,016. The number given in authorized Statement No. I. p. 28, is that which we have adopted.

// In addition to the low percentage of infants vaccinated, and the somewhat low percentage of successful operations, there are other causes which would help to account for the continued prevalence of small-pox in the Madras Presidency. The Inspector of Vaccination made a special tour in the Malabar district, and found that the reports of verification made by the Deputy Inspectors were, in many cases, absolutely untrustworthy. During the year four Deputies were suspended, and fifteen were fined for various offences. The subordinate staff of the Department would appear from those facts not to be so efficient as it might be.

// We might expect to find the municipalities of the Presidency taking the lead in promoting the spread of vaccination. Whatever opinions may be held as to cholera being a preventible disease, no one not a fanatical anti-vaccinationist doubts that vaccination is an effectual antidote against small-pox. Yet, we find in the case of a large number of municipalities that the authorities have practically ignored the orders of Government regarding the carrying out of compulsory vaccination.

"Municipal councillors appear hitherto to have considered that their responsibilities as regards vaccination ended with a reference to the magistrate, or a postponement on medical certificate."

// After reading in the report on vaccination in the North-Western Provinces for 1894-95 that "the results of arm-to-arm vaccination in these provinces are now almost altogether successful," we may be excused from expressing some astonishment at finding in the 8th paragraph of the Madras Government review, an injunction against the use of vaccine lymph obtained from the human subject. "Every effort should be made to discontinue the use of human lymph." In the Madras Presidency, preserved lymph is largely used. No fewer than 642,296 persons were vaccinated with lymph preserved with glycerine. It is, we think, no matter for surprise that of these only 89·2 proved successful cases of vaccination. This messing with vaccine lymph mixed with glycerine is evidently not only an expensive procedure, but disappointing in its results. Altogether, vaccination in the Madras Presidency seems to us to be capable of improvement. We have endeavoured to indicate some of the directions which improvement might take.

// Of deaths from *Fever*, 270,456 were registered during 1894, or 8·0 per thousand of census population, as compared with 7·7 during 1893. The death-rate from this cause varied from 20·2 in Cuddapah, to 2·3 in Tanjore, and 3·1 in Anantapur.

// To *Dysentery and Diarrhoea* were attributed 24,801 deaths. In municipal circles these diseases caused 11·7 per cent. of the deaths from all causes, as compared with 2·9 per cent. in rural circles. The Sanitary Commissioner is of opinion that this high death-rate from these diseases in towns is due to insanitary conditions, such as absence of drainage and a consequent sewage-sodden state of the soil, together with a high level of the sub-soil water. We would add that the birth-rate in municipal towns, as given at page 26 of the report, is 33·2 per thousand of population, as compared with only 27·4 in rural villages; and seeing that the mortality amongst infants is greatly in excess of that of persons of over one year, it follows that a high birth-rate means a high death-rate.

// Of the total number of deaths registered, no fewer than 312,583, or 46·5 per cent. were returned under the head of *Other Diseases*. This is merely equivalent to saying that the agencies entrusted with the registration of deaths and their causes do not possess the knowledge which would enable them to differentiate diseases with much approach to accuracy.

// Dr. King has included in his report a geographical map of disease distribution. As yet the map is of a somewhat rudimentary nature, but in time, as information regarding the localization of disease accumulates, it is to be revised and improved. The Government of Madras consider that the map forms an interesting and valuable addition to the report.

// *Sanitary works.*—It will convey some idea of the backward state of some of the municipal towns if we quote the Sanitary Commissioner's remarks on conservancy. "Notwithstanding," he says, "the fact that some of the most populous towns have ranked as municipalities for nearly thirty years, certain of them still lack the first essentials in the matter of decency and public health, namely, reliable systems of night-soil collection and removal. One of the best examples of this condition of affairs is Madura, the second largest town in the Madras Presidency, having a population of 87,428." In this second largest town of the Presidency, only 10 latrines exist; whilst to remove from the town daily a total of 872·5 cubic feet of human excreta, there are but 18 carts having a cubic capacity of 261 feet.

// The advantages of establishing sewage farms have been urged on such of the municipalities as possess facilities for working such farms

with a fair chance of success. From several of the municipal bodies promises have been received that the question would be attended to; but, so far, the number of sewage farms continues the same as last year. The only three towns which have established them are Madras, Negapatam, and Tanjore.

23 Water-supply and drainage schemes seem to be making progress. In 36 of the 55 district municipal towns, surveys have been made by the Sanitary Engineer to Government, and 16 water-supply and 7 drainage schemes prepared. Up to the end of 1894, however, only three had their water-supply and drainage schemes completed. But besides these, six more water-supply schemes and one drainage scheme had been commenced, whilst others had received sanction. It cannot be said, therefore, that the municipalities show a disinclination to move with the times.

24 A bulky Abstract of Sanitary Reports has been included in the Sanitary Commissioner's Report. As pointed out by the Secretary to the Government of India, the Statements, pp. 73-84 and 106-111 have been submitted in the form which has been abolished by paragraph 5 of Home Department Resolution, No. ^{10-Sanitary}₂₈₂₋₉₄, dated 23rd December 1893. An *Abstract of Sanitary Estimate of Villages* fills 21 pages. After the communication to the Executive Officer of the district to which they refer, any practical purpose which the remarks contained in the Abstract would be likely to serve we would think had already been fulfilled. The inclusion of the Abstract in the Report adds greatly to the bulk of the latter, without any corresponding addition, so far as we can judge, to its usefulness. It is only needful to cast the eye along the columns headed *Drainage*, for example, to enable one to measure the value of the information furnished. Almost without exception the remarks under this head begin, "No system," or, "drainage natural," for page after page with monotonous repetition. On like grounds, we would venture to suggest that Appendix D might be omitted from future reports. This is an Abstract of Fairs and Festivals held in the Madras Presidencies during the year 1894. It covers 21 pages. It is doubtful if even the Sanitary Commissioner himself always reads the tedious comments with which some of these statements are stuffed. If, for instance, we turn to pages 215, 217, and 219, we find that, from near the foot of the first of these, on to near the foot of the last, all the remarks which should have been entered under the heading "Principal Sanitary defects in Drainage" have been transposed and entered under the heading "Principal Sanitary defects in Water-supply," and *vice versa*. In neither the review by the Government of India, nor in that by the Government of Madras, is this very obvious mistake noticed; and yet, if the remarks had been even glanced at by the Sanitary Commissioner or those who reviewed his report, the mistake could hardly have escaped detection. It can surely serve no useful purpose to fill up a report with statements which nobody thinks of looking at.

25 To sum up the foregoing:—The year 1894 was one of average healthiness. The rainfall was less than that of the preceding year by 7.68 inches, but only 1.95 inches below the previous ten-year average. Food prices tended downwards and wages upwards. The recorded birth-rate was 27.7, and the death-rate 20.0 per thousand of population. Such ratios merely show how backward registration still continues to be in the Madras Presidency. Cholera accounted for 43,427 deaths during the year, and small-pox for 11,207. The number of persons vaccinated exceeded the number of registered births; but less than a third of the children under one year of age were successfully vaccinated. Upwards of 80,000 persons were re-vaccinated, and 80 per cent. of these cases were returned as having proved successful; yet, in the Government review re-vaccination is considered to have advanced but slowly. The cost of each successful case of vaccination was 3 annas and 5 pie, as

compared with 1 anna and 11 pie in the North-Western Provinces. As regards the number of infants vaccinated, the description and quality of vaccine lymph used, the efficiency of the departmental establishment, and the cost of each successful case of vaccination, there is much room for improvement. Most of the municipal towns are in a very backward condition as regards their conservancy arrangements; whilst only three have as yet had their water-supply and drainage schemes completed. In other towns, similar schemes have been commenced. The Report is rendered unnecessarily bulky by the inclusion of maps, abstract statements, and appendices, which might, we think, have been omitted without sensibly impairing its usefulness.

14th October 1896.

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