

MADRAS RECORD OFFICE.

Government of Madras.

Public

DEPARTMENT.

G.O. No.

1328

Press
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Dated

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19-1870

Not to be folded or roughly handled

20th October 1870.

No. 181. Read the following Memorandum from the Sanitary Commissioner, dated Cochin, 3rd October 1870:—

The Sanitary Commissioner has the honour to forward, for the information of Government, copy of letter, addressed to the President of the Municipalities in the Tanjore District, on the results of his sanitary inspection of the town.

From the Sanitary Commissioner for Madras, to the President of the Municipalities in the Tanjore District, dated Cochin, 3rd October 1870, No. 37.

I have the honour to submit through you, for the information of the several Municipal Associations in the Tanjore District, a few observations which I made after an inspection of the several towns.

2. May I beg that you will have the goodness to thank the Vice-Presidents and Members of the Municipalities for the assistance they so readily afforded me in my inspections.

3. I shall be glad to receive, for record in my office, tracings of the survey maps of each town when they have been completed.

TANJORE

The sanitary arrangements of the Municipality of Tanjore must be considered, first of all, in relation to the large population residing within the walls of the old fort, and, secondly, as regards the districts outside the fort.

PORT

WATER SUPPLY.—The water supply of the fort is mainly dependent on a large masonry reservoir, constructed at great cost several hundred years ago, and situated within the smaller fort. The water which supplies this reservoir is obtained from rainfall over an area of red lateritic soil, which rainfall, in the first instance, is impounded in a reservoir or settling tank outside the fort ditch, and from thence is conveyed in a masonry conduit across the fort ditch into the large Shevagunga tank within the lesser fort. From this point, masonry conduits arise which lead to, and supply smaller tanks within, the heart of the town. Many wells exist within the town, some of which yield tolerably good water, but the chief part of them give only brackish water, or water that has been contaminated by sewage and surface pollution.

As regards the water supply within the fort, it seems to me that the attention of the Commissioners might well be directed to the repair and improvement of the hydraulic works already in existence.

The settling tank outside the fort, I would suggest, might be put into good order so as to allow of more water being retained in it, and the large Shevagunga tank within the fort would, doubtless, also hold a larger quantity if the bottom of it was puddled with clay, so as to prevent leakage in the dry weather. The water of the Shevagunga tank, though always muddy or milky in colour, is held in high repute by the people who use it. It is, notwithstanding its objectionable appearance, comparatively free of organic matter, and is quite wholesome. If a properly constructed filtering bed was formed, the water might be freed of much of its earthly impurities.

The labour expended by the townspeople in going to, and from, the Shevagunga tank for water, from all parts of the fort, is very great. A stream of women and children may be seen thus employed, all day and nearly all night long. It seems to me that there would be no real difficulty in raising and distributing the water through the town by means of iron pipes and street hydrants, and that it would be a great boon to the people if they could have good water brought close to their houses in all the main streets, without having to send so far for it. With regard to the practicability of a system of filtration and distribution, Captain Montgomerie, R.E., will, doubtless, be able to advise the Commissioners, and I need hardly add that any reasonable outlay, for the improvement of the water supply of the population within the fort, would be money well-expended.

MAYAVARAM.

The town of Mayaveram is but little more than a collection of villages, in which the streets and houses are widely separated by gardens, or land full of trees and clumps of bamboos. The soil is sandy and porous, water lying very near to the surface, during the months when the Cauvery river is in flood.

ROADS.—The roads, for the most part, are wide and well planted with trees, and the Municipality, at great labour and cost, has succeeded in metalling some of the more important streets with brick and slag, no other material being available. The streets are kept clean.

WATER SUPPLY.—The river Cauvery, which, in this spot, has dwindled to an insignificant stream, is the main source of supply of drinking water. There are numerous tanks scattered over the town, which are filled from the river when in flood.

The supply is ample, and, in the dry season, good water can be obtained by digging holes in the sandy bed of the river. The quality of the supply is excellent. All that is needed to keep the water pure is due conservation of the river banks and of the several tanks set apart for drinking purposes.

CONSERVANCY.—There are no public latrines in the town, but temporary erections are put up at the season when the great festival of the year is held. The people, as a rule, resort to the backyards which are unusually large and densely wooded with fruit and other trees. Considering the peculiarities of the town in this respect, and that the abundant vegetable life is quite adequate to the decomposition and absorption of all that is noxious in human refuse, I am not prepared to recommend any change in this country, though the mode of carrying it out might be improved. In the first place, surface defilement of the backyards should be avoided, and the refuse should be buried when it might find its way to the roots of trees and plants in the neighbourhood.

TRENCH SYSTEM.—A few latrines on the trench system should be also provided for those parts of the town in which the people are cramped for space in their garden grounds.

CONSERVANCY OF RIVER BANK.—The banks of the Cauvery, where overgrown with jungle and vegetation, are much defiled with ordure, and, as the people use the river water so largely for drinking, I would recommend an establishment of watching peons to prevent the people from resorting thither. Should this be done, there will be the more need of establishing trench latrines in suitable spots.

VACCINATION.—The vaccinator employed by the Municipality did not seem to be doing his full amount of work. His monthly average of cases was between 30 and 40. I would suggest, for the consideration of the Municipality, whether better and more work might not be obtained by paying so much for each case of successful vaccination, than by giving a regular salary, irrespective of the amount of work performed. A fee of four annas for each successful case, the fact being certified to by the Dresser of the Dispensary, would be sufficient to induce the vaccinator to use greater exertion in the increase of his emoluments. As the average monthly vaccinations are less than 40, and the monthly pay of the vaccinator is Rupees 10, it is obvious that the Municipality is now paying more than four annas for each vaccine operation, without any trustworthy verification of the results. The method I propose, therefore, would, in the long run, be more economical and more effective than the present system of paying a fixed salary. If vaccinators were pecuniarily interested in hunting up all unvaccinated persons, I believe that, so far as Municipalities are concerned, small-pox might very soon be banished from the limits of Municipal towns.

In a population of 17,000 persons, reckoning the normal birth rate to be about three per cent., there would be rather more than 500 persons to be vaccinated every year. But, for some years to come, it is reasonable to suppose that a vaccinator would be able to find more than 500 subjects annually for operation, as a considerable number of the present population must necessarily be unprotected by vaccination, and the neglect of past years would require to be made good before the vaccine operations would be limited by the number of births. I seriously recommend to all Municipal Associations the experimental trial of this system of "payment by results" as the best mode of protecting their communities from the ravages of small-pox.

The tanks in the larger fort, which are fed from the Shevagunga tank, are used chiefly for washing purposes. The water in all of them is surcharged with organic matter, and unfit for drinking purposes. These tanks have never been emptied, there being no means at present of emptying them out, as they lie below the level of the fort ditch. The Commissioners contemplate procuring a steam pump to empty and clean these reservoirs, and the proposal has my approval. While empty, it would be well to have the bottoms of the reservoirs puddled to keep out the subsoil drainage, which in an old town, as Tanjore, is certain to be more or less impure.

DRAINAGE.—Much money has been laid out by the late Rajah of Tanjore in the drainage of the town, and the sewers, though faulty in shape, are tolerably efficient in the removal of waste water. The silt traps at the ends of the sewers appear to be more effective in the liberation of offensive gasses than in anything else. No use is at present made of the sewage, but it would be well for the Commissioners to consider the practicability of utilizing it in the culture of grass in a convenient spot outside the fort.

CONSERVANCY.—As regards the conservancy of the streets and public latrines within the fort, there is nothing to find fault with; but here, as in most other towns, no effort has yet been made to introduce an effectual system of removal of night soil from private houses.

The Commissioners, I am glad to learn, have under their consideration a plan of house conservancy to be effected by municipal scavengers. In the carrying out of such a scheme, it will, I think, be necessary to insist on each householder maintaining a movable receptacle for the household excreta, and contributing a share of the extra expense which the measure will entail on the Municipality. Large sums are now expended in carrying away street sweepings, while, practically, every house in the fort has a privy which is either never cleaned at all, or at irregular intervals only.

The daily removal of night soil, manure, &c., from private houses, as well as from the public latrines, is a crying want of the fort portion of the Municipality. The houses are so crowded and the backyards, as a rule, so limited in space, that no measures of conservancy, which leave out of sight the consideration of these questions, can do any good in the way of improving public health.

There are no gardens in the backyards in which filth might be utilized, and, this being so, there can be no doubt as to the absolute need of organizing a system of daily removal to the outside of the town.

My opinion having been sought as to the benefits, in a sanitary point of view, of levelling the town walls, I may state that a few broad openings in the walls, opposite the main streets, would be sufficient for due ventilation of the town. Tanjore, as regards malarial diseases, has been considered a healthy town, and it may, perhaps, in some degree, owe some of its salubrity to the protection which the wall affords. It would be well, I think, to exercise caution in the demolition of the old fortifications, especially as the work would be a very costly one, and as there are more important sanitary measures, such as water supply and drainage, on which the surplus municipal revenues might be profitably expended. The subject of opening out cross streets, in the densely-crowded parts of the fort, will, doubtless, commend itself to the attention of the Commissioners as opportunities offer.

MUNICIPAL DIVISIONS OUTSIDE THE FORT.—The districts of Munnamchavady and Karathatan-goddy, outside the fort, derive their supply of water, the former from deep wells sunk into the decomposing felspar rock, and the latter mainly from the river and tanks fed by the river during its freshes in the south-west monsoon. Nothing can be done apparently for the improvement of the water supply of these districts, beyond the clearing and conservancy of tanks and deepening of wells in the dry season. As regards the districts outside the fort, I think the trench system of latrines is better suited to the habits and condition of the people than any other system. A separate Memorandum on the application of the system is enclosed.

VACCINATION.—In regard to municipal vaccinators, I recommend the "payment-by-results" system for Tanjore, as for all other Municipalities in the district.

On the whole, I am satisfied that much improvement in the condition of the town of Tanjore has resulted from the labours of the Municipality. With the water supply and the house conservancy of the fort put on a better footing, I think the town might favourably compare with any in Southern India in its sanitary arrangements.

Considering the means available for sanitary works, I think the Municipality of Mayaveram has done fairly well. The income is small, and the people mostly poor, and beyond attention to the water supply, conservancy, and vaccination there is not much scope for improvement.

MANARGOODY.

ROADS.—The town of Manargoody is noticeable for its broad and spacious streets, which are laid out at right angles, with ample garden space between the rows of houses. It is connected with the Railway station of Needamungalum, nine miles distant, by a well-made road. A few of the main streets of the town have been metalled by the Municipality, but the greater length of roadway is unmetalled. The town occupies a site not exactly within the delta of the Cauvery, but on the southern border of the delta, the river Pamannecar (a branch of the Cauvery) running on the northern and eastern boundaries of the town.

WATER SUPPLY.—The river before named is the principal source of supply of drinking water. In the hot months the bed is dry, but water is obtainable by digging a few feet in the river bed. The town possesses also numerous tanks, one of which is, with the exception of the big tank at Madura, the finest work of the kind in Southern India. Some of these tanks are dependent on the local rainfall over the rising ground to the south of the town, and their supply is consequently uncertain. To remedy this, the Municipality are about to construct a channel taken off from the river about eleven miles above the town, at a level high enough to fill all the town tanks during the periodical freshes. This work, if economically executed, appears to be well-adapted to meet all difficulties connected with defective water supply.

DRAINAGE.—The house drainage, as a rule, is carried to the rear of houses, not into the streets. There are no street drains of any importance. The surface drainage of the streets by side channels might be improved.

LATRINES.—No latrines have been constructed. The people use their gardens and backyards, or resort to fields. It would be well, I think, to establish the trench system, if suitable sites could be obtained, especially in the parts of the town frequented by the weaver class, where the population is denser than elsewhere. It is due to the Municipal authorities, however, to state that the absence of latrines was not allowed to be an excuse for the accumulation of filth in the streets or public places. The general conservancy of the streets is good.

VACCINATION.—There does not appear, from the return of establishments furnished to me, to be a separate vaccinator for the Municipality. If one does not exist, I recommend the entertainment of such a person, on an engagement to pay four annas for every successful case.

MIDWIVES.—Native Surgeon T. Mootosawmy Moodelly, the Vice-President of the Municipal Association, has devoted much time and attention to the training of native women in the art of midwifery. At the time of my visit, a class of four women (of the barber caste) were under instruction. They were examined in my presence, and, so far as I could judge, they had been well taught and had enough of intelligence to profit by their teaching. The employment of such women in towns and Municipalities ought to lessen the dangers of child-birth, and to prevent much waste of human life.

COMPLAINT OF THE WEAVERS.—At Manargoody a large number of the weavers of the town waited upon me to complain of the incidence of the house-tax, which, for the first time, had been imposed during the present year. They stated that about 400 of their class had deserted the town, and taken up their abode in neighbouring villages, on account of their inability to pay the tax. There were certainly a considerable number of empty houses in the weavers' quarters of the town. I referred the complainants to the Commissioners.

COMBACONUM.

ROADS.—The construction of metalled roads, in this town, has been effected at a great cost, on account of the laterite having to be brought by rail from Tanjore to Needamungalum, and from

thence in carts over a sandy track, a distance of fifteen miles to the town. Notwithstanding these drawbacks, many of the principal roads have been metalled. The streets, on the whole, are kept clean and in good order.

DRAINAGE.—Any system of surface drainage, it is stated, would be very difficult of application in this town, the level of which is low in regard to the Arselar and Cauvery rivers which flow on either side of the town. During the freshes in the rivers, water lies everywhere very near to the surface. The soil being a sandy alluvial, the rise and fall of subsoil water appears to be entirely dependent on the water level of the rivers and irrigation channels. Some of the streets require side-drains to carry off the rainfall.

CONSERVANCY.—The dry refuse of the town is removed daily in carts; but here, as in most other towns, nothing has yet been done to inaugurate a system of collection and removal of night soil from private dwellings. The town is populous, and, in some parts, the houses are rather crowded; so that the practice of using the backyards as privies, is likely to do more harm than in a town like Mayaveram, in which the population is scattered over a wider area.

LATRINES.—The covered latrines erected by the Municipality are very well built, and are appreciated by the people. A little extra vigilance on the part of the Sanitary Inspectors in seeing that these places of resort are kept clean would not be out of place. The Coimbatore latrines are, I think, built on a better model than the one adopted at Combaconum, and I would suggest that the Commissioners procure plans of the former, and decide how far they may be suitable to the conditions of their town. The trench system might be tried, experimentally, in the outskirts of the town, if suitable land for the purpose can be obtained.

WATER SUPPLY.—The rivers which flow on either side of the town are the chief sources of supply of drinking water. Numerous tanks exist, some in connexion with temples, and others under the charge of the Municipality. The tanks are filled annually from the rivers, and the water supply is everywhere plentiful.

Burning grounds exist along the Cauvery banks; but it does not seem probable, from examination of their sites, that they do much harm.

The river water is always preferred to that from tanks or wells, and, in the flood season, it is undoubtedly very pure; but, as the streams begin to diminish, there is danger of pollution from local defilement of the banks and river beds. A systematic system of conservancy of the channel banks within municipal limits should be maintained.

VACCINATION.—The system advocated for Mayaveram of "payment by results" is applicable also to the condition of Combaconum. With a population of nearly 30,000 persons, there should be nearly 1000 subjects for vaccination in each year, which, at four annas per case, would cost Rupees 250 per annum, instead of Rupees 120 now paid to the Municipal Vaccinator. The extra money would be well laid out, if it gave to the residents the protection from small-pox they have a right to expect. It cannot be expected that a vaccinator, on Rupees 10 per mensem, will labour so diligently at his calling as to enable the Municipality to state that the population is adequately protected against the incursion of a small-pox epidemic. I beg, therefore, to recommend this subject to the consideration of the Commissioners.

MIDWIFE.—One of the native midwives trained at Manargoody has, I am glad to see, been entertained by the Municipality of Combaconum. The presence of such a woman will, doubtless, be appreciated by the inhabitants.

POLICE HOSPITAL.—In the course of my inspection, I was shown a new and commodious building erected by, and at the cost of, the Municipality, for the use of the sick of the Town Police. The charges for medicines and medical attendance are, I understand, defrayed out of municipal revenues. As this practice is unknown in any other Municipality I have visited, I note it here with the view of the question being determined by Government, whether provision for the sick of the Town Police is, or is not, a legitimate charge on municipal revenues.

CONCLUSION.—It gives me much pleasure to add, in conclusion, that I found the town as a whole clean. The streets and bye lanes were well swept, and there was an absence of nuisance, to the eye and nose, very creditable to the gentlemen who take an active part in the administration of

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municipal affairs. The public health, at the period of my visit, appeared to be good, there being an absence of all epidemic disease. The cholera season in Combaconum is coincident with the appearance of the north-east monsoon, but the disease does not appear to be an annual visitor of the town. Increased vigilance in regard to the purity of drinking water, and a better system of house conservancy, will, it is hoped, in conjunction with other provisions, go far to improve the salubrity of the town.

NEGAPATAM.

ROADS.—This Municipality embraces two distinct towns, viz., Negapatam and Nagore. In the inspection made by me, I observed that the two towns had been connected by an excellent metalled road, and that road-making in both towns had progressed to a considerable extent; but, owing to the absence of local material for road-making, and the impossibility of obtaining it at a nearer point than Tanjore, the work has been effected at a very considerable expenditure of municipal funds. The two towns now possess more than twelve miles of metalled roads.

WATER SUPPLY.—The water supply both of Negapatam and Nagore is dependent chiefly on branches of the Cauvery which debouch into the sea at Nagore and Negapatam. From these rivers, the numerous tanks within the town are annually filled, and the tank water is principally resorted to for drinking purposes. The wells in Negapatam yield chiefly salt water; but there are a few which yield water of good quality. The tank water, when properly conserved, is sufficiently pure for domestic use, but, in regard to many of the tanks, the Municipal Commissioners have no power over them; some being private property, and others attached to temples. All that I would suggest to the Commission, in regard to water supply, is that as many of the tanks as possible should be gradually brought under their own control, and that certain sources of supply should be set apart for drinking, and others for bathing, washing of clothes, and for the use of cattle, &c.

CONSERVANCY.—In lieu of street drains or gutters a curious system exists in the town of Negapatam, viz., the use of brick cesspools sunk in the public streets and intended for the reception of the house drainage. These receptacles allow the fluid refuse to percolate into the basements of the dwelling-houses, while solid matters are retained in the cesspools and, from time to time, removed. This system of house drainage, I imagine, is a relic of the Dutch occupation of the town: for I find it nowhere else in this particular form. The system is, I think, a faulty one for towns within the tropics. Its evil effects are visible in the dampness and saline moisture which permeate the basements of the houses.

DRAINAGE.—As regards any system of town drainage, I apprehend there may be difficulties owing to the low level and flatness of the site on which the town stands; but this is a point which the Municipal Commissioners should endeavour to obtain a trustworthy opinion about, from an Engineer acquainted with drainage questions. If it be possible to construct surface drains, so that these cesspools may be closed and the sewage directed towards the sea, I think it would be a decided improvement on the present system. The system, however, whatever its demerits may be, is less offensive to the senses than the open "brick-in-caunam" sewers with which our Madras streets are lined.

As in most other towns, the introduction of an effective system of removal of night soil from private houses has not been attempted. The means of effecting this reform, I beg to commend to the consideration of the Municipality.

In G. O., No. 965, of the 2nd August 1870, I have been requested to advise the Commissioners of Negapatam in regard to the best system of public latrines. One latrine has been already constructed in Negapatam for the employment of the dry-earth system, and, although the model is unobjectionable, I would recommend in lieu of it the adoption of the form of latrine used at Coimbatore as in every way better suited to the purpose. For the outskirts of the town, the trench system (*vide separate Memorandum*) seems to be well suited, especially in places where the soil is adapted for cultivation. For a description of the Coimbatore latrine, I may refer to G. O., No. 1012, of the 12th August 1870, in the Public Department, and the Commissioners of that town will, doubtless, be glad to afford any details in regard to construction if they are asked.

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20th October 1870. 7

The attention of the Commissioners of Negapatam has, I am aware, been directed to the importance of preserving the sea face of the town, near the quay and timber yards, free of obstacles to thorough ventilation. The portion of the town behind the street facing the railway station is densely crowded with dirty huts which have been built, apparently without any system or order. No remedy, short of the demolition and rebuilding of this portion of the town, will make the locality healthy. The work of improvement must, of necessity, be slow and costly; but, as the Commissioners are fully alive to the need of remedying this defect, I need not dwell upon it. Altogether, I am satisfied that a great deal of good has been done, both in Nagore and Negapatam, since the Municipality has been formed. Improvements must necessarily be gradual where the work to be done is great, and the municipal income limited.

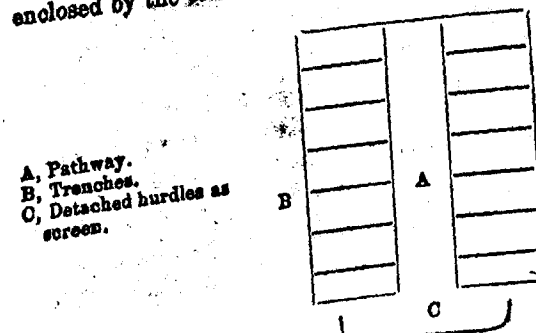
(Signed) W. R. CORNISH, F.R.C.S.,
Sanitary Commissioner.

Memorandum on the application of the trench system of Latrines for Municipalities.

The adoption of the trench system of latrines is practicable in all Municipalities where there may be cultivated land, or land adapted for cultivation near at hand, and where the Municipal Commissioners may be able to effect arrangements, with the owner or cultivator for the use of the land, for the purpose in view.

2. In convenient situations, one or more acres of land (according to the number of persons to be accommodated) may be leased for a term, and used as follows.

3. A portion of the land, not more than ten yards in length by four in breadth, should be enclosed by the ordinary bamboo hurdles, in which cattle are penned, leaving a screened opening at one end, as in the marginal ground plan. The



centre of the enclosed space, about two or three feet in width, should be preserved as a clean pathway, and on either side shallow trenches about one foot deep and one wide, with a space of twelve inches between the trenches, are to be opened out, as required, taking care that the trenches used one day are covered up by the sweepers the next, and that no more trenches are opened in one day than can be fairly made use of in the next twenty-four hours. As a rule, the faecal deposits in a trench should not occupy more than three inches of its depth, and the earth taken out should be replaced day by day on the excreta.

4. The hurdles used in this process should be substantially made, and ought to last for a long time if painted with coal tar. They should stand from five to six feet from the ground, and be tolerably thickly plaited to secure privacy.

5. When the whole area within the enclosure has been trenched and manured in the manner described above, the hurdles on three sides of the enclosure should be shifted to a clean piece of ground, and the process repeated as before. When a strip of the field, in its whole length, has been used in this way, it should be allowed to rest for two or three months when it may be ploughed up, or turned over with the mamoty, and cultivated in the usual way.

6. Separate strips of land in the same field may be set apart for the use of males and females, respectively. The actual quantity of land necessary for a latrine of this kind must depend on the population resorting to it. After each crop, whatever its nature may be, the land may be again trenched and manured as before. A short experience will soon allow each Municipality to judge of the quantity of land needed for the latrine accommodation.

7. If any effluvia whatever is perceived in this process, there is some fault in the management. The persons in charge of the latrines should be held responsible for attention to the details of the plan, especially in having only a limited number of trenches open at one time, and in having them filled up day by day as used, and especially in seeing that no deposits accumulate on the surface.

8. The advantages of this system of conservancy, in places where land is available for hire, are—

1st.—Saving of cost of removal of excreta.

2nd.—Saving of cost in construction of permanent latrines.

3rd.—The intimate mixture of night soil with the earth in quantity, as nature intended, renders it harmless, and the land so used, if cultivated, will absorb everything that may be hurtful. Even the water supply from such land will not be deteriorated, provided that the land be regularly and carefully cultivated.

4th.—It is an object of great importance for Municipalities to demonstrate to cultivators the actual value of human refuse in agriculture. Every year rubbish depôts are becoming more and more filled, and the question of the fit disposal of town refuse is constantly coming up for consideration. The trench system of latrines, and the cultivation of the ground under municipal control, seem at present to offer a partial means of meeting the difficulty.

An extension of the system of cultivation under municipal control may be practicable also in regard to the disposal of town sweepings.

(Signed) W. R. CORNISH, F.R.C.S.,
Sanitary Commissioner.

No. 132.

ORDER THEREON, 20th October 1870, No. 1328.

The Government commend the suggestions of the Sanitary Commissioner to the consideration of the several Municipalities of the Tanjore District.

(True Extract.)

Chief Secretary.

To the President of the Municipal Commissions in Tanjore.
„ Sanitary Commissioner.

Exd. J. Wright.

Govt. of Madras.

PUBLIC.

To

THE PRESIDENT OF THE
MUNICIPAL COMMISSION,
Tanjore.
&c., &c., &c.

Dated October, 20th.

Recd.

Encl.

** G. O., 20th October 1870, No. 1328.*

OCTOBER.
Nos.131-132.

Passing orders on the report of the Sanitary Commissioner for Madras, on the results of his recent inspection of the Municipalities of the Tanjore District.

29-2-7 ✓

From

Sanitary Commission

The Sanitary Commission
has the honor to forward for the
information of Government copy
addressed to the President
of Municipalities in the
District, on the results of
sanitary inspections of the town

of Sanitary Comm.

10th October 1870

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