Local & Munl. (1895) Department.

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[Despatch Abstract.]

Inspection Notes.

Recording, with remarks, the Sanitary Commissioner's ----
on the Coonoor Municipality.

BACK PAPERS.

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

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Sanct of 1895

6TH MAY 1895, No. 800 M., LOCAL AND MUNICIPAL.

GOVERNMENT OF MADRAS.

LOCAL AND MUNICIPAL DEPARTMENT.

READ—the following paper :—

Inspection Notes of the Sanitary Commissioner for Madras.

NILGIRI DISTRICT.

COONOOR MUNICIPALITY.

Inspected 1st and 2nd October 1894.

Population per Census of { 1881 4,778
1891 6,049

Site.—The town is within a valley of a concave form, situated at a height of 5,761 feet above the level of the sea.

2. *Dwellings.*—(*a*) The usual type of house is of stone. The rooms are exceedingly small, and ventilation is usually bad. The residences of Europeans are situated beyond the native town, and look down upon it from higher positions, at the edge of the great concavity in which the town is situated.

(*b*) The Sanitary Commissioner and his Deputy have, year after year, pointed to the obstacle afforded to correct perflation by the considerable overgrowth of wattle and gum trees in the neighbourhood. Under the advice of Surgeon-Lieutenant-Colonel Lancaster, the municipality have lately made considerable improvement in this direction, and I was shown several patches from which the wood has been systematically felled. It is, however, stated that the Forest Department resents any attempt to further reduce the extent of growth in the neighbourhood. It seems to me that it would not only be to the sanitary interest of the neighbourhood that the trees should be thinned but also to that of the Forest Department itself. Crowded so closely as these trees are, it seems impossible that their full nutrition can be secured. As this is a technical point, I perhaps exceed my functions in pointing to this probability; nevertheless, it would however be well, in the interests of the public, that the question be considered by the superior officers of the Forest Department. What is required is, not that the trees should be promiscuously felled, but that they should be judiciously thinned. In the neighbourhood of the library and the Protestant graveyard the air is undoubtedly kept in a state of stagnation by the present condition of the Town shola.

(*c*) The chattram near the ghât road is much used by foot-passengers on their way to Ootacamund. The flooring is of rammed earth and is subject to being much contaminated with the debris of food, cooking water and the like—there being no separate place for cooking. This chattram should be paved with cement-pointed stone. It would be well to erect a small addition, say, of corrugated iron, in which cooking could proceed, instead of permitting this in the common dwelling room. This should not be regarded solely in the light of providing these passengers with comfort, but as a question affecting the sanitary safety of the municipality. It cannot be safe to have men—for example, the crowd of Moplahs who arrive from Malabar yearly—subjected to the risk of infection which the appearance of a case of cholera on an earthen, as contrasted with an impervious, floor would particularly favour.

3. *Roads.*—(*a*) The roads are retained in good order. The total length is 30¾ miles, of which 13⅝ miles are metalled. The expenditure under this head in so small a municipality is necessarily heavy, and it seems but a legitimate aspiration that aid in the matter should be given either by the district board or Government.

(*b*) *Butcher street* drain, which formerly received much sewage and was an insanitary spot, is now in much better order, as a result of this being intercepted by the new drainage system; but it is still susceptible of considerable improvement. Its section is unequal, and there is a tendency for rubbish brought down by rainfall to lodge here and there. Its section should be made more uniform; its banks should be furnished with a stone revetment in the part included in the water-spread, whilst the banks should be well turfed.

4. *Water-supply.*—(*a*) The water-supply is of a very primitive nature. Three channels—the Vannarpet, the Yeddapalli, and the Ootapady—are continued open, and exposed to all the risk of contamination usual within an inhabited area during distribution throughout the municipal limits. Tracing up the first-named channel to its source, it is found that native houses are built on its banks, and that, irrespective of trivial additions from dung-heaps and cultivated gardens on its way, the surface washings of the Vannarpet village—the residence of the dhobies—is launched direct into it; although here and there inefficient efforts by the municipality to divert the surface drainage are to be seen. The municipality has at present under consideration the introduction of a water-scheme; nevertheless, I think, in consideration of the small expenditure likely to be brought about, that it would be advisable in the meantime to attempt to secure a better measure of protection for the water by piping it whilst passing Vannarpet. The Yeddapalli channel approaches the town through Sim's Park, and thence passes through the European graveyard on the way through Davidson's Hotel, Peach Cottage and so forth down to the town main bazaar. In the graveyard the channel is open, but is formed of brick plastered with cement. Examination of this channel shows, however, it must be a very poor structure to trust to in passing through so dangerous an area; here and there cracks in the cement plastering are evident.

(*b*) The graves are above the level of the channel and within twenty feet of it, so that during rainfall, irrespective of sub-soil oozing in ordinary times, the contamination of the water ought to be *possible*. A mere brick in lime mortar channel plastered with cement is an unfit structure to trust to in such a situation. This portion of the channel should be diverted at once from the graveyard, and the water be run in pipes past this point.

(*c*) The Yeddapalli water runs behind the main bazaar in what is practically a gutter or road drain. The fœcal matter of dogs was found at frequent intervals along this bank, thus opening the inhabitants to the risk of hydatid disease derived from ova shed by an intestinal parasite of this animal. Signs of human contamination were found in the shape of chewed quids of betel-nut and orange-peel, and I was informed that it is not infrequent for the inhabitants to squat across the channel and defœcate within it. The channel ends by delivering into a cistern, which has no tap provided for it; the consequence is that on persons above temporarily diverting the stream, water fails to reach this spot. It would be an easy matter to arrange the cistern with a balance valve so as to allow the water to fill to a certain point, thus storing a proportion, and then permit its outflow. I consider it is urgently necessary that the municipality should arrange to receive the water of this portion of the supply-channel in pipes, and that this should not be deferred in reference to the future water-supply.

(*d*) The Ootapady channel supplies about a dozen European houses with water for inferior domestic offices, the Ootapady and the chucklers' villages. In passing Ootapady the channel is covered and thus is afforded a measure of protection in passing this very dirty locality, but both above this point close to the village and on the road to Coonoor—judging by the fœcal matter found at intervals—it is the custom of foot-passengers to Ooty to make the sides of the channel the site for early morning easement.

(*e*) A branch from this channel is taken to the chucklers' village, and is used by the people in drawing from a pool in the midst of their habitations. It would prove an inexpensive and sanitarily advantageous alteration to build up the point at which the branch channel crosses the main road for the supply of this village, so as to secure that the water is taken only from the cistern, instead of after being contaminated in the village. If the cistern were built up to the level of the channel, no waste would occur, as at present.

(*f*) Near the Ghât road, the Vannarpet stream passes the town, and, although obviously contaminated by surface drainage and the direct addition of filth, was till recently much used for drinking-water. Under the advice of Surgeon-Lieutenant-Colonel Lancaster, however, the public have been warned by tom-tom against using this source; this, apparently, has had the effect of causing this source to be less used than formerly.

(*g*) From the above description, it will be seen that Coonoor is urgently in need of a correct public water-supply system, and that it is incumbent upon the council, if it would preserve the town's fair fame as a health resort, to make an endeavour in this direction.

(*h*) The Sanitary Engineer has laid before the council a water-supply scheme, but this the council declined to undertake on financial grounds. As the existence of Coonoor must depend upon its capability of showing a clean bill of health, I would urge upon the councillors the desirability of re-considering their decision. If, for example, they cannot find funds to introduce a supply with a complete distribution, they might undertake to build a cistern allowing, say, only two days' storage, and thence run a main to any convenient point in the town, arranging for supply only on this one line instead of right through the town. This would at least ensure that persons willing to take the trouble to proceed some distance for pure water can make certain of securing it devoid of gross contamination such as at present exists.

(*i*) The Sanitary Engineer has pointed out that the supply of Coonoor is feasible from two sources—the river Arvenghat and the Yeddapalli stream. Whilst recognizing that the former source would be the best both in regard to protection from contamination and as to quantity, he considers that it would be necessary to make a bund 100 feet high to secure a reservoir and discharge thence at the requisite height. Hence, he has given the preference to the Yeddapalli stream. I have traced the latter up to its source. At Yeddapalli, the stream is within a portion of the water-shed of the village; from this point, at intervals, the surface water is received from scattered inhabited areas and from cultivated lands. The latter are exclusively tea-lands. It is urged with reference to the cultivation of tea on the water-shed that night-soil is not used, and rarely any other form of manure than decomposing leaves and occasionally cowdung. Such an area should, however, not be lightly chosen. Granting that, at the present moment, the contamination brought about by cultivation is not great, it does not follow that, after the municipality has undertaken a scheme, that condition will always remain so. It is not impossible, in view of increased facilities offered by the railway, that these now scattered dwellings on the water-shed will be increased; and, again, might not the tea-planter find that growing vegetables for the Madras market with night-soil as manure would pay him better than tea-planting? It seems to me that within twenty years much change in these directions might be found in Coonoor. I would, therefore, advise that the question of obtaining water from the Arvenghat stream be further entered into. It seems to me if a turbine were employed to pump the water up to the required level that a bund (at least of such dimensions as 100 feet) would not be required. Even this stream is by no means free from the chances of contamination by human dwellings, but there is nothing corresponding to the large cultivated area found in the Yeddapalli stream within its water-shed. Should this suggestion not prove feasible, and the municipality decide to adopt the Yeddapalli stream as the source for their supply, the water certainly ought to receive more treatment than contemplated in the design of the Sanitary Engineer, namely, simple sedimentation. The water from so suspicious an area should be filtered before delivery, and I would suggest that polarite and sand be employed as the filtration media.

5. *Sewerage.*—(*a*) A scheme for the sewerage of the town was carried out by the Sanitary Engineering Department in 1892. It is on the "open principle." Open cement concrete drains run along the sides of streets, and these discharge into sewers for ultimate disposal in the ghât stream—an arrangement that must be watched as to its sanitary results with care. Several of the minor drains are formed of glazed stoneware, egg-shaped drains in one piece. The specimens of the latter seen by me were laid direct upon the natural soil, and not only had no backing but were devoid of pointing at the joints. Soakage of the soil around these drains must therefore occur. In future extensions, it should be seen that these drains are laid upon lime concrete or have a backing of puddled clay. The house connections are of a peculiar character. The point of discharge from the house is frequently 3 or 4 feet from the public drain; the junction is therefore effected by closed brick structures square in section, of these, and, at times, greater lengths. The natural sequel of the adoption of such a form has been that the outlets have been from time to time blocked, and, to remedy matters, holes have been made in the tops. This form not only renders cleansing difficult, but, as no trap exists, air passing over the foul surface must enter within the houses, or escape at the opening in the back court yard, near the doors and windows where the inlet is usually placed. I advise that the whole of these be opened at the top, so as to permit of the passing of a current of air without so great certainty of its passing within the house being evident.

(*b*) Having possessed itself of a drainage scheme, the municipality has apparently not realized that suitable alterations in the interests of sanitation can be enforced as to the form of drain used, under section 214. The ordinary type of drain passes below the flooring of the houses, and the conduit being irregular and of pervious brick, saturation of the floor must occur. As a result, I believe the chances are that a heavy proportion of the sewage of Coonoor is still disposed of by saturation of the soil beneath the houses.

In passing beneath the houses, these channels should either be of iron or of glazed stoneware embedded in concrete; or, where this mode is suitable, should be of cement-lined, open channels.

(*c*) The municipality should apply to the Sanitary Engineer for advice as to drain-cleaning implements and instructions as to their use. The sanitary inspector has so far, in the absence of instructions, excogitated a system of his own for cleansing the pipes, namely, passing a bamboo through with a rope attached. There are certain points in the drain which receive surplus water from the drinking-water channels; both in these instances and in spots where it is possible by small alteration to bring the water of these channels up to a certain point, I think it would be of advantage if small Doulton's 6″ stoneware flushing automatic tanks were placed, so as to give the drains and pipes the benefit of a flushing action, instead of the mere dilution of contents brought about by accommodation of the regular flow. The municipality should not lose sight of the fact, in regard to future financial arrangements, that the adoption of the sewerage scheme has been but partial.

6. *Conservancy.*—(*a*) There are 49 corrugated-iron dust-bins. The municipality supports its own bullocks; they are in good condition. The plant at disposal is sufficient for night-soil (provided no urine is received in carts) and for rubbish also. There has always existed difficulty as to the disposal of night-soil, on account of no suitable land being at the disposal of the municipality. It has been the practice till last year to take it to a covered brick pan below Barlow's road, and there mix it with rubbish ashes to form poudrette. The procedure was however a source of nuisance, much complained of by residents. Last year, the bidding for the night-soil was so poor that the municipality was willing to accept the offer made by a planter for the sum of Rs. 800 to take both rubbish and night-soil; it being understood the municipality should pay the cost of transport. Sanitarily, this arrangement of transporting these products outside municipal limits serves its purpose well; but, economically, the bargain is not good. I think it would pay the municipality to take up a convenient plot of ground under the Land Acquisition Act, and there make poudrette for sale to planters upon the Poona system. A description of the method followed will be found in the Proceedings of the Sanitary Commissioner for the first quarter of 1894 (extract attached.)

(*b*) Corrugated-iron latrines are in use; but they are usually very offensive. The method of ventilation employed is generally very poor. The latter condition is said to be contributed to by the necessity to secure privacy; but I think the subject should be carefully considered. It is probable that privacy can be duly subserved, and yet the roofs at least can be lifted sufficiently to secure more air change and the action of sun in the interior. This result would be aided if a greater interval between the floor and the side walls could be given. In certain of the latrines, wooden seats are used. This is decidedly objectionable. Such seats cannot fail, in consideration of the position assumed by natives, to be fouled. In others, an attempt has been made to substitute the wooden platforms by stone blocks. This is a better system, but unless the stone is very smoothly cut, the decomposing urine and occasionally fœcal matter will adhere to the exposed surfaces. I think the municipality would do well to purchase from Burn and Co., Calcutta, or from the Basel Mission, Mangalore, glazed stoneware seats specially prepared by these firms for use by natives. These are very strong structures, and it need not be feared they would be likely to suffer unless subjected to unusually coarse treatment in transit. In saying this, I wish the council to understand that the risk such as experienced in importing to a hill station glazed stoneware pipes need not be considered analogous. In the old latrine No. 5 outside the market, there is no drain in front of the seats, with the result that urine soaks into the floor, and only finds its exit by reaching the end of the slope of the foot-path. It is so offensive that natives evidently prefer to defecate immediately outside. If the municipality wish to work their latrines so that they shall be freely resorted to and be really inoffensive, they should erect a hut for a male and female toty at each latrine, and direct them to be always in attendance. Dry-earth should then be employed. The latrine at Vannarpet is far too small for requirements, and is, moreover, so placed that during rainfall the surface washings flow direct into the stream at the spot where dhobies wash.

7. *Market.*—(*a*) The mutton bazaar has a good stone pavement; butchers are allowed to expose their meat on old boxes that are filthy and wooden blocks of which the same must be said. The boxes should be removed, and exposure for sale be permitted only upon steel hooks kept carefully cleansed, or (for temporary deposit) upon polished Cuddapah slabs or iron tables. These conditions also exist in the beef bazaar, which labours under the further disability of not being provided with a stone pavement, as in the case of the mutton bazaar. Water-supply is available near the municipal office. This should be extended and water should be pumped into a cistern on the spot; whence, by means of pipes and taps, it could be distributed over the market for flushing and other purposes. Under existing arrangements, it is probable that such little water as is really used here is brought from the Vannarpet stream, which at this point is very foul.

(*b*) Dogs were found straying into the mutton market. This should not be allowed. In connection with parasitic diseases of man, dogs being allowed to wander near meat are a source of danger.

(*c*) The market area requires a drain to intercept the storm water from the high ground near it. It is said to be now frequently flooded and in a state of mud. This condition will no doubt be improved by macadamizing the enclosure as intended by the municipality, but even this will not secure what is required unless an intercepting drain be made so as to cut off the storm water reaching it from the higher ground. Proper steps should be formed for the approach and the bank should be neatly sloped and turfed; plain wire fencing being placed so as to leave only the sanctioned openings. In this manner, the turf bank could at all times be retained in a neat condition, instead of the irregular state now found. A further improvement would be to insist upon all carts being placed upon the neighbouring open ground near the stream, instead of within the market enclosure. If a bandypett were formed here with shelter for the animals and for the drivers, the venture might pay the municipality well upon their making the usual charge *per diem*.

8. *Slaughter-house.*—This is a well-built structure affording accommodation both for the slaughter of cattle and sheep. The method of water supply is, however, open to improvement. The water reaches the spot by a pipe which is taken from a stream

at a considerable height, yet it is dropped into a cistern and thence at the low level of the latter is made available by a single short pipe and tap for the slaughter-houses. It should be arranged that the water be distributed to the various parts of the slaughter-house at as good a head as procurable; especially should it be aimed at getting sufficient pressure to flush the whole place out with a hose, instead, as at present, it being necessary to gradually flood the whole place before cleansing can take place. Offal is exposed for sale upon boards that are dirty and cannot be retained, from their nature, otherwise than in a more or less filthy condition. These boards should be replaced by polished Cuddapah slabs, or, failing this, by tables of iron kept in a scrupulously cleanly condition.

9. *Vaccination.*—(*a*) Of forty-six children of from one to ten years of age, eleven were found unprotected and three had suffered from small-pox. On the whole, although there is room for improvement, vaccination is well conducted in this municipality. The following table shows the results secured under the compulsory clauses :—

Name of Municipality.	Total births during preceding six months, *i.e.*, fom July to December.	Number vaccinated successfully.	Number vaccinated unsuccessfully for the first time.	Number vaccinated a second time because first operation proved unsuccessful.		Postponed under medical certificate at the end of six months.	Died.	Left the town.	Unaccounted for.	Percentage of successful vaccinations to total births.	Prosecutions for failing to accept vaccination during the year up to date.		
				Successful.	Unsuccessful.						Number of suits filed.	Number of cases disposed of by Magistrate.	Number of convictions.
Coonoor ..	124	92	2	..	..	6	16	8	..	74·19	3	3	3

(*b*) Glycerine paste is employed. This is purchased weekly from the Nilgiri Local Fund Board, and is finished within two to three days of arrival. The following shows the number actually operated upon, with rate of vaccine success :—

—	Glycerine Paste.			
	Successful.	Unsuccessful.	Unknown.	Percentage of success.
Primary vaccination	409	20	5	94·2
Re-vaccination	53	9	..	85·4

(*c*) Attendance of persons for vaccination and subsequent examination as to results is not enforced by the municipality, the consequence being the vaccinator has to spend much unnecessary time in wandering about looking for cases. This should not be; the attendance both for operation and examination at the municipal depôt should be enforced, unless the persons are in a position to pay for the attendance of the vaccinator at their own dwellings. In this manner, the vaccinator would have more time at his disposal to search for the whereabouts of cases that would otherwise be returned as "unaccounted for." Endeavours should be made to assemble a large number of children on each vaccination day, so as to perform a number of operations at the same time and thus leave as much time as possible at his disposal for searching for such cases. Instead of weekly vaccination, therefore, once a fortnight or once each three weeks would suffice.

(*d*) The vaccinator's list of births was not continued beyond July—a matter of laziness that should be punished by fine.

10. *Registration.*—(*a*) One registrar on Rs. 15 is employed. Persons are directed to attend at the office for registration. There is only one board—that on the municipal office—notifying the conditions required under the Act. Several boards of this character should be distributed in various parts of the town, affixed upon or near important buildings. On a birth being registered, no notification to the guardian is issued as to vaccination being compulsory on the infant attaining six months of age. This should be arranged for.

(*b*) The following are the statistics obtained during the current and preceding years :—

Years.	Ratio of births per mille of estimated population.	Ratio of deaths per mille of estimated population.	Percentage of deaths from						Ratio of deaths of infants under one year of age per mille of registered births in the preceding year.	Ratio per mille of deaths of infants between one and five years of age to population of that age.
			Cholera.	Small-pox.	Fevers.	Dysentery and Diarrhœa.	Injuries.	Other Causes.		
1891 ..	34·4	29·0	5·6	2·2	22·9	14·0	..	55·3	173·3	82·4
1892 ..	32·6	35·5	0·5	1·3	44·2	15·2	..	38·8	217·0	117·3
1893 ..	35·3	29·8	1·6	..	30·6	17·6	0·5	49·7	218·4	118·7
1894 ..	38·1	32·6	3·1	..	30·4	19·3	..	47·2	263·2	100·3

11 *Sanitary Administration.*—(*a*) There is much failure as to retention of cleanliness in the narrow lanes and behind dwellings in the parts of the town occupied by natives. Sullage water without arrangements for disposal, fœcal matter and rubbish are to be met with. I consider this is greatly due to the fact that work of this nature requires close personal supervision by a sanitary staff. Now, Coonoor so far has, for the accomplishment of the various duties that fall to sanitary inspectors, but a single employee. I do not see that it can be expected of this man that he shall, unaided, supervise the working of the conservancy staff and yet retain so close an inspection of the condition of dwellings that errors shall at once be *promptly* dealt with—the only way of managing with justice and efficient sanitary results this requirement. Apparently, he has not at his disposal even one peon to whom certain of his duties might be delegated.

(*b*) The municipality seems so hard pressed for funds that it would seem of no utility to recommend, as I believe is requisite, that a second European sanitary inspector aided by a good staff of peons be entertained. But, as a compromise, I would advise that three peons, say, one duffadar on Rs. 12 and two peons on Rs. 10 and Rs. 8, respectively, be entertained, and placed solely at the disposal of the sanitary inspector to aid him in the execution of his various duties.

(*c*) No licenses have been issued for cattle yards or for ten head of cattle under section 188. Neither dhobies nor bakers are licensed.

(*d*) In consideration of the fact that Ootapady is the village whence the milk supply of the town is procured and is also the place where cholera first usually makes its appearance, it is desirable that this village be supplied with latrines—none of which it has at present—and a sufficient conservancy staff. Behind the dwellings, and therefore within the watershed of the Ootapady water channel—the protected portion near the village notwithstanding—I found the ground in a most disgusting state of filth from the presence of fœcal matter. Each house should be rigorously inspected here, and the cattle yards and surroundings should, in the interests of the general public of Coonoor, be retained in a state of cleanliness.

(*e*) It is also desirable that vigorous measures, that have been successfully applied by Mr. Hamnett, C.I.E., in Ootacamund, should be also enforced here in regard to dhobies. Under section 188, this Chairman has insisted upon dhobies retaining the clothing of customers in special sheds forming no part of a dwelling-house. If this can have been effected in Ooty, in spite of vigorous opposition from the dhobies, it ought also to be feasible in Coonoor.

(*f*) With very little expenditure at Vannarpet, it should be possible to divert the drainage of the village from the part of the stream in which the dhobies wash, and to so arrange that at this point dhobies shall each receive water that has not been already contaminated in the washing of clothing by others.

12. *Graveyards.*—(*a*) As has been already pointed out to the municipality by the District Sanitary officer, the European Protestant graveyard is in an undesirable position in the vicinity of a place attended for worship and is moreover fast becoming overcrowded. Under these circumstances, it would be advisable for the municipality to select a site elsewhere and further removed from dwellings.

(*b*) The Hindu, Muhammadan and Native Christian burial-grounds are scattered along the ravine which runs near Vannarpet. The graves are arranged according to the fancy of the various burial parties in all directions. The result is that great waste of ground is proceeding. It would be advisable that the municipality stop this in time and insist upon ground being taken up in correct order. There is much undesirable overgrowth of vegetation throughout these graveyards, which should be removed. The only way to secure discipline in this respect is to put in force section 242 by licensing vettians, and to inform the men that unless they adhere to orders as to positions selected for burials and report promptly all cases of burial, their licenses would be removed.

FORT ST. GEORGE,
27*th November* 1894.

(Signed) W. G. KING, Surg.-Lt.-Col.,
Ag. Sanitary Commissioner for Madras.

No. 337.

Submitted to Government through the Collector of Nilgiris with the following remarks adopted by the municipal council at its meeting held on the 7th February 1895:—

2. *Dwellings.*—(*a*) The type of house occupied by natives in Coonoor is the same as that occupied by them in all parts of India. The rooms may possibly be smaller in dimension than those in the plains, but this is on account of the colder climate.

(*b*) The matter of thinning the sholas in the vicinity of the town has been attended to by the Forest Department, which has carried out all the proposals of the council.

(*c*) In the opinion of the present Medical officer, in which the council concurs, a stone pavement for the chattram is unnecessary, but a concrete floor will be provided for. A cooking shed will also, as proposed, be erected.

3. (*b*) *Butcher Street Drain.*—The matter of the drain will be attended to as soon as funds will permit. The council's experience of turfed banks is that they are a waste of money, as they never last.

4. (*a*) *Water-supply.*—The council quite recognizes the advisability of a piped water-supply and will, with regard to that part of Vannarpet (not Vannampadi) stream that passes through the village, when funds admit, pipe it.

(*b*) The Yeddapalli stream branches at Sim's Park, one portion goes to supply the main bazaar direct, the other portion referred to by the Sanitary Commissioner goes through the churchyard and supplies but a few houses; this branch it would be impossible to divert; the channel through the churchyard is of sound and strong masonry and any cracks observable are merely on the surface and will be repaired for the sake of appearances. An estimate will, however, be prepared for piping this part of the channel.

(*c*) The water-channel here referred to does run along the road side, but the piping of this would be a more expensive undertaking than the council can afford. The contamination in the shape of betel-quids and orange-peel cannot be prevented. Taps cannot be arranged for the cisterns. These at present have open outlets which permit of a continuous flow of fresh water through them.

(*e*) The proposed cistern for the Chucklers' village will have the attention of the council.

(*h*) The council is at present considering a scheme whereby the main part of the bazaar may be provided with a supply—rather limited—of pure spring water for drinking purposes. It is proposed that this supply be brought from a spring that rises near the Hill Grove Hotel.

(*i*) The council considers that in the event of the town having a piped water-supply, it would be advisable to make use of the Yeddapalli stream and not the Arvenghat.

5. *Sewerage.*—(*a*) The laying of the open'egg-shaped drains was undertaken and carried out by the Sanitary Engineer to Government, the council not having a voice in the matter beyond protesting at the way the work was done: *vide* concluding part of paragraph 30 of the administration report of this municipality for 1892–93, embodied in G.O., dated 31st July 1893, No. 984 M. In future, extensions undertaken by the council will be carried out as proposed by the Sanitary Commissioner.

6. *Conservancy.*—(*a*) The council hopes that during the next official year, as it has notified its intention for delivering night soil free, the amount realized by its sale will result in a considerable increase above that of last year.

(*b*) The remarks of the Sanitary Commissioner will be borne in mind when any more latrines are erected. In only one of the existing latrines are there wooden seats; these were put up according to the Sanitary Engineer's plan, but will be removed and stone seats substituted.

7. *Market.*—(*a*) Orders have been issued by the Chairman that in future all meat is to be suspended on hooks. The beef butchers' stalls will be paved with stones as soon as practicable.

(*b*) All dogs that stray into the market or slaughter-house are destroyed by poison, and during the present official year over 200 have thus perished.

(*c*) The market area has lately been put into thorough order and is all that can be desired.

8. *Slaughter-house.*—The remarks of the Sanitary Commissioner will have the attention of the council.

9. (*c*) *and* (*d*).—These notes on vaccination will be communicated to the Medical officer under whose orders all vaccine operations are carried out.

10. *Registration.*—(*a*) The suggestions made in this paragraph are being carried out.

11. *Sanitary Administration.*—(*a*) *and* (*b*) Sanction for an additional staff for sanitary purposes has been applied for to Government and the amounts of their salaries provided in the budget for the ensuing year.

(*c*) There are no cattle-yards in the town containing ten head of cattle. Bakers are licensed, and the licensing of dhobies is under consideration.

(*d*) The Sanitary Commissioner has been misinformed as to cholera making its first appearance in Ottupatrai. Last year for the first time some cases appeared in this village which were reported as cholera cases, but these the Medical officer considered doubtful: *vide* paragraph 43 of the annual administration report of this municipality for 1893–94 embodied in G.O., dated 6th July 1894, No. 861 M. Provision has been made in the budget for the ensuing year to build a latrine at this village and to employ a scavenger for cleaning it.

COONOOR,
8*th February* 1895.

(Signed) J. A. MARJORIBANKS,
Chairman.

To the Chief Secretary to Government
(through the Collector of Nilgiris).

Forwarded.

(Signed) J. D. REES,
Collector.

8*th March* 1895.

ORDER—dated 6th May 1895, No. 800 M., Local and Municipal.

Recorded.

2. The remarks of the Sanitary Commissioner on the defects in the drainage scheme of the town, and especially those in paragraph 5 (*b*) of the report, should have the

early attention of the council ; as also should the suggestions in paragraphs 11 and 12 regarding the controlling of dhobies and the selection of more suitable burial-grounds. In other respects the state of affairs reported is fairly satisfactory.

3. The Chairman's attention will be drawn to the provisions of G.O., dated 23rd December 1893, No. 1765 M. He should have followed the procedure prescribed therein, and should have forwarded a copy of the resolution of the council on the notes.

4. With regard to the statement made in (b), paragraph 7, of the Chairman's endorsement, he will report the poison used and the precautions taken in administering it.

(True Extract.)

Chief Secretary.

To the Chairman, Municipal Council, Coonoor.
" Collector of Nilgiris.
" Sanitary Commissioner.
" Sanitary Engineer.
Editors' Table.

Ezd. A. Baitt.

Govt. of {1895} Madras.

LOCAL AND MUNICIPAL.

Issued

Recd. *Encl.*

G.O., 6th May 1895, No. 800 M.

MAY.

Inspection Notes.

Recording, with remarks, the Deputy Sanitary Commissioner's — on the Coonoor Municipality.

GOVERNMENT OF MADRAS.

LOCAL AND MUNICIPAL DEPARTMENT.

Read—the following paper :—

Inspection Notes of the Sanitary Commissioner for Madras.

NILGIRI DISTRICT.

Coonoor Municipality.

Inspected 1st and 2nd October 1894.

Population per Census of { 1881 4,778
1891 6,049

Site.—The town is within a valley of a concave form, situated at a height of 5,761 feet above the level of the sea.

2. *Dwellings.*—(*a*) The usual type of house is of stone. The rooms are exceedingly small, and ventilation is usually bad. The residences of Europeans are situated beyond the native town, and look down upon it from higher positions, at the edge of the great concavity in which the town is situated.

(*b*) The Sanitary Commissioner and his Deputy have, year after year, pointed to the obstacle afforded to correct perflation by the considerable overgrowth of wattle and gum trees in the neighbourhood. Under the advice of Surgeon-Lieutenant-Colonel Lancaster, the municipality have lately made considerable improvement in this direction, and I was shown several patches from which the wood has been systematically felled. It is, however, stated that the Forest Department resents any attempt to further reduce the extent of growth in the neighbourhood. It seems to me that it would not only be to the sanitary interest of the neighbourhood that the trees should be thinned but also to that of the Forest Department itself. Crowded so closely as these trees are, it seems impossible that their full nutrition can be secured. As this is a technical point, I perhaps exceed my functions in pointing to this probability; nevertheless, it would however be well, in the interests of the public, that the question be considered by the superior officers of the Forest Department. What is required is, not that the trees should be promiscuously felled, but that they should be judiciously thinned. In the neighbourhood of the library and the Protestant graveyard the air is undoubtedly kept in a state of stagnation by the present condition of the Town shola.

(*c*) The chattram near the ghât road is much used by foot-passengers on their way to Ootacamund. The flooring is of rammed earth and is subject to being much contaminated with the debris of food, cooking water and the like—there being no separate place for cooking. This chattram should be paved with cement-pointed stone. It would be well to erect a small addition, say, of corrugated iron, in which cooking could proceed, instead of permitting this in the common dwelling room. This should not be regarded solely in the light of providing these passengers with comfort, but as a question affecting the sanitary safety of the municipality. It cannot be safe to have men—for example, the crowd of Moplahs who arrive from Malabar yearly—subjected to the risk of infection which the appearance of a case of cholera on an earthen, as contrasted with an impervious, floor would particularly favour.

3. *Roads.*—(*a*) The roads are retained in good order. The total length is 30¾ miles, of which 13⅝ miles are metalled. The expenditure under this head in so small a municipality is necessarily heavy, and it seems but a legitimate aspiration that aid in the matter should be given either by the district board or Government.

(*b*) *Butcher street* drain, which formerly received much sewage and was an insanitary spot, is now in much better order, as a result of this being intercepted by the new drainage system; but it is still susceptible of considerable improvement. Its section is unequal, and there is a tendency for rubbish brought down by rainfall to lodge here and there. Its section should be made more uniform; its banks should be furnished with a stone revetment in the part included in the water-spread, whilst the banks should be well turfed.

4. *Water-supply.*—(*a*) The water-supply is of a very primitive nature. Three channels—the Vannarpet, the Yeddapalli, and the Ootapady—are continued open, and exposed to all the risk of contamination usual within an inhabited area during distribution throughout the municipal limits. Tracing up the first-named channel to its source, it is found that native houses are built on its banks, and that, irrespective of trivial additions from dung-heaps and cultivated gardens on its way, the surface washings of the Vannarpet village—the residence of the dhobies—is launched direct into it; although here and there inefficient efforts by the municipality to divert the surface drainage are to be seen. The municipality has at present under consideration the introduction of a water-scheme; nevertheless, I think, in consideration of the small expenditure likely to be brought about, that it would be advisable in the meantime to attempt to secure a better measure of protection for the water by piping it whilst passing Vannarpet. The Yeddapalli channel approaches the town through Sim's Park, and thence passes through the European graveyard on the way through Davidson's Hotel, Peach Cottage and so forth down to the town main bazaar. In the graveyard the channel is open, but is formed of brick plastered with cement. Examination of this channel shows, however, it must be a very poor structure to trust to in passing through so dangerous an area; here and there cracks in the cement plastering are evident.

(*b*) The graves are above the level of the channel and within twenty feet of it, so that during rainfall, irrespective of sub-soil oozing in ordinary times, the contamination of the water ought to be *possible*. A mere brick in lime mortar channel plastered with cement is an unfit structure to trust to in such a situation. This portion of the channel should be diverted at once from the graveyard, and the water be run in pipes past this point.

(*c*) The Yeddapalli water runs behind the main bazaar in what is practically a gutter or road drain. The fœcal matter of dogs was found at frequent intervals along this bank, thus opening the inhabitants to the risk of hydatid disease derived from ova shed by an intestinal parasite of this animal. Signs of human contamination were found in the shape of chewed quids of betel-nut and orange-peel, and I was informed that it is not infrequent for the inhabitants to squat across the channel and defœcate within it. The channel ends by delivering into a cistern, which has no tap provided for it; the consequence is that on persons above temporarily diverting the stream, water fails to reach this spot. It would be an easy matter to arrange the cistern with a balance valve so as to allow the water to fill to a certain point, thus storing a proportion, and then permit its outflow. I consider it is urgently necessary that the municipality should arrange to receive the water of this portion of the supply-channel in pipes, and that this should not be deferred in reference to the future water-supply.

(*d*) The Ootapady channel supplies about a dozen European houses with water for inferior domestic offices, the Ootapady and the chucklers' villages. In passing Ootapady the channel is covered and thus is afforded a measure of protection in passing this very dirty locality, but both above this point close to the village and on the road to Coonoor—judging by the fœcal matter found at intervals—it is the custom of foot-passengers to Ooty to make the sides of the channel the site for early morning easement.

(*e*) A branch from this channel is taken to the chucklers' village, and is used by the people in drawing from a pool in the midst of their habitations. It would prove an inexpensive and sanitarily advantageous alteration to build up the point at which the branch channel crosses the main road for the supply of this village, so as to secure that the water is taken only from the cistern, instead of after being contaminated in the village. If the cistern were built up to the level of the channel, no waste would occur, as at present.

(*f*) Near the Ghât road, the Vannarpet stream passes the town, and, although obviously contaminated by surface drainage and the direct addition of filth, was till recently much used for drinking-water. Under the advice of Surgeon-Lieutenant-Colonel Lancaster, however, the public have been warned by tom-tom against using this source; this, apparently, has had the effect of causing this source to be less used than formerly.

(*g*) From the above description, it will be seen that Coonoor is urgently in need of a correct public water-supply system, and that it is incumbent upon the council, if it would preserve the town's fair fame as a health resort, to make an endeavour in this direction.

(*h*) The Sanitary Engineer has laid before the council a water-supply scheme, but this the council declined to undertake on financial grounds. As the existence of Coonoor must depend upon its capability of showing a clean bill of health, I would urge upon the councillors the desirability of re-considering their decision. If, for example, they cannot find funds to introduce a supply with a complete distribution, they might undertake to build a cistern allowing, say, only two days' storage, and thence run a main to any convenient point in the town, arranging for supply only on this one line instead of right through the town. This would at least ensure that persons willing to take the trouble to proceed some distance for pure water can make certain of securing it devoid of gross contamination such as at present exists.

(*i*) The Sanitary Engineer has pointed out that the supply of Coonoor is feasible from two sources—the river Arvenghat and the Yeddapalli stream. Whilst recognizing that the former source would be the best both in regard to protection from contamination and as to quantity, he considers that it would be necessary to make a bund 100 feet high to secure a reservoir and discharge thence at the requisite height. Hence, he has given the preference to the Yeddapalli stream. I have traced the latter up to its source. At Yeddapalli, the stream is within a portion of the water-shed of the village; from this point, at intervals, the surface water is received from scattered inhabited areas and from cultivated lands. The latter are exclusively tea-lands. It is urged with reference to the cultivation of tea on the water-shed that night-soil is not used, and rarely any other form of manure than decomposing leaves and occasionally cowdung. Such an area should, however, not be lightly chosen. Granting that, at the present moment, the contamination brought about by cultivation is not great, it does not follow that, after the municipality has undertaken a scheme, that condition will always remain so. It is not impossible, in view of increased facilities offered by the railway, that these now scattered dwellings on the water-shed will be increased; and, again, might not the tea-planter find that growing vegetables for the Madras market with night-soil as manure would pay him better than tea-planting? It seems to me that within twenty years much change in these directions might be found in Coonoor. I would, therefore, advise that the question of obtaining water from the Arvenghat stream be further entered into. It seems to me if a turbine were employed to pump the water up to the required level that a bund (at least of such dimensions as 100 feet) would not be required. Even this stream is by no means free from the chances of contamination by human dwellings, but there is nothing corresponding to the large cultivated area found in the Yeddapalli stream within its water-shed. Should this suggestion not prove feasible, and the municipality decide to adopt the Yeddapalli stream as the source for their supply, the water certainly ought to receive more treatment than contemplated in the design of the Sanitary Engineer, namely, simple sedimentation. The water from so suspicious an area should be filtered before delivery, and I would suggest that polarite and sand be employed as the filtration media.

5. *Sewerage.*—(*a*) A scheme for the sewerage of the town was carried out by the Sanitary Engineering Department in 1892. It is on the "open principle." Open cement concrete drains run along the sides of streets, and these discharge into sewers for ultimate disposal in the ghât stream—an arrangement that must be watched as to its sanitary results with care. Several of the minor drains are formed of glazed stoneware, egg-shaped drains in one piece. The specimens of the latter seen by me were laid direct upon the natural soil, and not only had no backing but were devoid of pointing at the joints. Soakage of the soil around these drains must therefore occur. In future extensions, it should be seen that these drains are laid upon lime concrete or have a backing of puddled clay. The house connections are of a peculiar character. The point of discharge from the house is frequently 3 or 4 feet from the public drain; the junction is therefore effected by closed brick structures square in section, of these, and, at times, greater lengths. The natural sequel of the adoption of such a form has been that the outlets have been from time to time blocked, and, to remedy matters, holes have been made in the tops. This form not only renders cleansing difficult, but, as no trap exists, air passing over the foul surface must enter within the houses, or escape at the opening in the back court yard, near the doors and windows where the inlet is usually placed. I advise that the whole of these be opened at the top, so as to permit of the passing of a current of air without so great certainty of its passing within the house being evident.

(*b*) Having possessed itself of a drainage scheme, the municipality has apparently not realized that suitable alterations in the interests of sanitation can be enforced as to the form of drain used, under section 214. The ordinary type of drain passes below the flooring of the houses, and the conduit being irregular and of pervious brick, saturation of the floor must occur. As a result, I believe the chances are that a heavy proportion of the sewage of Coonoor is still disposed of by saturation of the soil beneath the houses.

In passing beneath the houses, these channels should either be of iron or of glazed stoneware embedded in concrete; or, where this mode is suitable, should be of cement-lined, open channels.

(*c*) The municipality should apply to the Sanitary Engineer for advice as to drain-cleaning implements and instructions as to their use. The sanitary inspector has so far, in the absence of instructions, excogitated a system of his own for cleansing the pipes, namely, passing a bamboo through with a rope attached. There are certain points in the drain which receive surplus water from the drinking-water channels; both in these instances and in spots where it is possible by small alteration to bring the water of these channels up to a certain point, I think it would be of advantage if small Doulton's 6″ stoneware flushing automatic tanks were placed, so as to give the drains and pipes the benefit of a flushing action, instead of the mere dilution of contents brought about by accommodation of the regular flow. The municipality should not lose sight of the fact, in regard to future financial arrangements, that the adoption of the sewerage scheme has been but partial.

6. *Conservancy.*—(*a*) There are 49 corrugated-iron dust-bins. The municipality supports its own bullocks; they are in good condition. The plant at disposal is sufficient for night-soil (provided no urine is received in carts) and for rubbish also. There has always existed difficulty as to the disposal of night-soil, on account of no suitable land being at the disposal of the municipality. It has been the practice till last year to take it to a covered brick pan below Barlow's road, and there mix it with rubbish ashes to form poudrette. The procedure was however a source of nuisance, much complained of by residents. Last year, the bidding for the night-soil was so poor that the municipality was willing to accept the offer made by a planter for the sum of Rs. 800 to take both rubbish and night-soil; it being understood the municipality should pay the cost of transport. Sanitarily, this arrangement of transporting these products outside municipal limits serves its purpose well; but, economically, the bargain is not good. I think it would pay the municipality to take up a convenient plot of ground under the Land Acquisition Act, and there make poudrette for sale to planters upon the Poona system. A description of the method followed will be found in the Proceedings of the Sanitary Commissioner for the first quarter of 1894 (extract attached.)

(*b*) Corrugated-iron latrines are in use; but they are usually very offensive. The method of ventilation employed is generally very poor. The latter condition is said to be contributed to by the necessity to secure privacy; but I think the subject should be carefully considered. It is probable that privacy can be duly subserved, and yet the roofs at least can be lifted sufficiently to secure more air change and the action of sun in the interior. This result would be aided if a greater interval between the floor and the side walls could be given. In certain of the latrines, wooden seats are used. This is decidedly objectionable. Such seats cannot fail, in consideration of the position assumed by natives, to be fouled. In others, an attempt has been made to substitute the wooden platforms by stone blocks. This is a better system, but unless the stone is very smoothly cut, the decomposing urine and occasionally fœcal matter will adhere to the exposed surfaces. I think the municipality would do well to purchase from Burn and Co., Calcutta, or from the Basel Mission, Mangalore, glazed stoneware seats specially prepared by these firms for use by natives. These are very strong structures, and it need not be feared they would be likely to suffer unless subjected to unusually coarse treatment in transit. In saying this, I wish the council to understand that the risk such as experienced in importing to a hill station glazed stoneware pipes need not be considered analogous. In the old latrine No. 5 outside the market, there is no drain in front of the seats, with the result that urine soaks into the floor, and only finds its exit by reaching the end of the slope of the foot-path. It is so offensive that natives evidently prefer to defecate immediately outside. If the municipality wish to work their latrines so that they shall be freely resorted to and be really inoffensive, they should erect a hut for a male and female toty at each latrine, and direct them to be always in attendance. Dry-earth should then be employed. The latrine at Vannarpet is far too small for requirements, and is, moreover, so placed that during rainfall the surface washings flow direct into the stream at the spot where dhobies wash.

7. *Market.*—(*a*) The mutton bazaar has a good stone pavement; butchers are allowed to expose their meat on old boxes that are filthy and wooden blocks of which the same must be said. The boxes should be removed, and exposure for sale be permitted only upon steel hooks kept carefully cleansed, or (for temporary deposit) upon polished Cuddapah slabs or iron tables. These conditions also exist in the beef bazaar, which labours under the further disability of not being provided with a stone pavement, as in the case of the mutton bazaar. Water-supply is available near the municipal office. This should be extended and water should be pumped into a cistern on the spot; whence, by means of pipes and taps, it could be distributed over the market for flushing and other purposes. Under existing arrangements, it is probable that such little water as is really used here is brought from the Vannarpet stream, which at this point is very foul.

(*b*) Dogs were found straying into the mutton market. This should not be allowed. In connection with parasitic diseases of man, dogs being allowed to wander near meat are a source of danger.

(*c*) The market area requires a drain to intercept the storm water from the high ground near it. It is said to be now frequently flooded and in a state of mud. This condition will no doubt be improved by macadamizing the enclosure as intended by the municipality, but even this will not secure what is required unless an intercepting drain be made so as to cut off the storm water reaching it from the higher ground. Proper steps should be formed for the approach and the bank should be neatly sloped and turfed; plain wire fencing being placed so as to leave only the sanctioned openings. In this manner, the turf bank could at all times be retained in a neat condition, instead of the irregular state now found. A further improvement would be to insist upon all carts being placed upon the neighbouring open ground near the stream, instead of within the market enclosure. If a bandyshett were formed here with shelter for the animals and for the drivers, the venture might pay the municipality well upon their making the usual charge *per diem*.

8. *Slaughter-house.*—This is a well-built structure affording accommodation both for the slaughter of cattle and sheep. The method of water supply is, however, open to improvement. The water reaches the spot by a pipe which is taken from a stream

at a considerable height, yet it is dropped into a cistern and thence at the low level of the latter is made available by a single short pipe and tap for the slaughter-houses. It should be arranged that the water be distributed to the various parts of the slaughter-house at as good a head as procurable; especially should it be aimed at getting sufficient pressure to flush the whole place out with a hose, instead, as at present, it being necessary to gradually flood the whole place before cleansing can take place. Offal is exposed for sale upon boards that are dirty and cannot be retained, from their nature, otherwise than in a more or less filthy condition. These boards should be replaced by polished Cuddapah slabs, or, failing this, by tables of iron kept in a scrupulously cleanly condition.

9. *Vaccination.*—(*a*) Of forty-six children of from one to ten years of age, eleven were found unprotected and three had suffered from small-pox. On the whole, although there is room for improvement, vaccination is well conducted in this municipality. The following table shows the results secured under the compulsory clauses :—

Name of Municipality.	Total births during preceding six months, i.e., fom July to December.	Number vaccinated successfully.	Number vaccinated unsuccessfully for the first time.	Number vaccinated a second time because first operation proved unsuccessful.		Postponed under medical certificate at the end of six months.	Died.	Left the town.	Unaccounted for.	Percentage of successful vaccinations to total births.	Prosecutions for failing to accept vaccination during the year up to date.		
				Successful.	Unsuccessful.						Number of suits filed.	Number of cases disposed of by Magistrate.	Number of convictions.
Coonoor ..	124	92	2	..	..	6	16	8	..	74·19	3	3	3

(*b*) Glycerine paste is employed. This is purchased weekly from the Nilgiri Local Fund Board, and is finished within two to three days of arrival. The following shows the number actually operated upon, with rate of vaccine success :—

—	Glycerine Paste.			
	Successful.	Unsuccessful.	Unknown.	Percentage of success.
Primary vaccination	409	20	5	94·2
Re-vaccination	53	9	..	85·4

(*c*) Attendance of persons for vaccination and subsequent examination as to results is not enforced by the municipality, the consequence being the vaccinator has to spend much unnecessary time in wandering about looking for cases. This should not be; the attendance both for operation and examination at the municipal depôt should be enforced, unless the persons are in a position to pay for the attendance of the vaccinator at their own dwellings. In this manner, the vaccinator would have more time at his disposal to search for the whereabouts of cases that would otherwise be returned as "unaccounted for." Endeavours should be made to assemble a large number of children on each vaccination day, so as to perform a number of operations at the same time and thus leave as much time as possible at his disposal for searching for such cases. Instead of weekly vaccination, therefore, once a fortnight or once each three weeks would suffice.

(*d*) The vaccinator's list of births was not continued beyond July—a matter of laziness that should be punished by fine.

10. *Registration.*—(*a*) One registrar on Rs. 15 is employed. Persons are directed to attend at the office for registration There is only one board—that on the municipal office—notifying the conditions required under the Act. Several boards of this character should be distributed in various parts of the town, affixed upon or near important buildings. On a birth being registered, no notification to the guardian is issued as to vaccination being compulsory on the infant attaining six months of age. This should be arranged for.

(*b*) The following are the statistics obtained during the current and preceding years :—

Years.	Ratio of births per mille of estimated population.	Ratio of deaths per mille of estimated population.	Percentage of deaths from						Ratio of deaths of infants under one year of age per mille of registered births in the preceding year.	Ratio per mille of deaths of infants between one and five years of age to population of that age.
			Cholera.	Small-pox.	Fevers.	Dysentary and Diarrhœa.	Injuries.	Other Causes.		
1891 ..	34·4	29·0	5·6	2·2	22·9	14·0	..	55·3	173·3	82·4
1892 ..	32·6	35·5	0·5	1·3	44·2	15·2	..	38·8	217·0	117·3
1893 ..	35·3	29·8	1·6	..	30·6	17·6	0·5	49·7	218·4	118·7
1894 ..	38·1	32·6	3·1	..	30·4	19·3	..	47·2	263·2	100·3

11 *Sanitary Administration.*—(*a*) There is much failure as to retention of cleanliness in the narrow lanes and behind dwellings in the parts of the town occupied by natives. Sullage water without arrangements for disposal, fœcal matter and rubbish are to be met with. I consider this is greatly due to the fact that work of this nature requires close personal supervision by a sanitary staff. Now, Coonoor so far has, for the accomplishment of the various duties that fall to sanitary inspectors, but a single employee. I do not see that it can be expected of this man that he shall, unaided, supervise the working of the conservancy staff and yet retain so close an inspection of the condition of dwellings that errors shall at once be *promptly* dealt with—the only way of managing with justice and efficient sanitary results this requirement. Apparently, he has not at his disposal even one peon to whom certain of his duties might be delegated.

(*b*) The municipality seems so hard pressed for funds that it would seem of no utility to recommend, as I believe is requisite, that a second European sanitary inspector aided by a good staff of peons be entertained. But, as a compromise, I would advise that three peons, say, one duffadar on Rs. 12 and two peons on Rs. 10 and Rs. 8, respectively, be entertained, and placed solely at the disposal of the sanitary inspector to aid him in the execution of his various duties.

(*c*) No licenses have been issued for cattle yards or for ten head of cattle under section 188. Neither dhobies nor bakers are licensed.

(*d*) In consideration of the fact that Ootapady is the village whence the milk supply of the town is procured and is also the place where cholera first usually makes its appearance, it is desirable that this village be supplied with latrines—none of which it has at present—and a sufficient conservancy staff. Behind the dwellings, and therefore within the watershed of the Ootapady water channel—the protected portion near the village notwithstanding—I found the ground in a most disgusting state of filth from the presence of fœcal matter. Each house should be rigorously inspected here, and the cattle yards and surroundings should, in the interests of the general public of Coonoor, be retained in a state of cleanliness.

(*e*) It is also desirable that vigorous measures, that have been successfully applied by Mr. Hamnett, C.I.E., in Ootacamund, should be also enforced here in regard to dhobies. Under section 188, this Chairman has insisted upon dhobies retaining the clothing of customers in special sheds forming no part of a dwelling-house. If this can have been effected in Ooty, in spite of vigorous opposition from the dhobies, it ought also to be feasible in Coonoor.

(*f*) With very little expenditure at Vannarpet, it should be possible to divert the drainage of the village from the part of the stream in which the dhobies wash, and to so arrange that at this point dhobies shall each receive water that has not been already contaminated in the washing of clothing by others.

12. *Graveyards.*—(*a*) As has been already pointed out to the municipality by the District Sanitary officer, the European Protestant graveyard is in an undesirable position in the vicinity of a place attended for worship and is moreover fast becoming overcrowded. Under these circumstances, it would be advisable for the municipality to select a site elsewhere and further removed from dwellings.

(*b*) The Hindu, Muhammadan and Native Christian burial-grounds are scattered along the ravine which runs near Vannarpet. The graves are arranged according to the fancy of the various burial parties in all directions. The result is that great waste of ground is proceeding. It would be advisable that the municipality stop this in time and insist upon ground being taken up in correct order. There is much undesirable overgrowth of vegetation throughout these graveyards, which should be removed. The only way to secure discipline in this respect is to put in force section 242 by licensing vettians, and to inform the men that unless they adhere to orders as to positions selected for burials and report promptly all cases of burial, their licenses would be removed.

FORT ST. GEORGE,
27*th November* 1894.

(Signed) W. G. KING, Surg.-Lt.-Col.,
Ag. Sanitary Commissioner for Madras.

No. 337.

Submitted to Government through the Collector of Nilgiris with the following remarks adopted by the municipal council at its meeting held on the 7th February 1895:—

2. *Dwellings.*—(*a*) The type of house occupied by natives in Coonoor is the same as that occupied by them in all parts of India. The rooms may possibly be smaller in dimension than those in the plains, but this is on account of the colder climate.

(*b*) The matter of thinning the sholas in the vicinity of the town has been attended to by the Forest Department, which has carried out all the proposals of the council.

(*c*) In the opinion of the present Medical officer, in which the council concurs, a stone pavement for the chattram is unnecessary, but a concrete floor will be provided for. A cooking shed will also, as proposed, be erected.

3. (*b*) *Butcher Street Drain.*—The matter of the drain will be attended to as soon as funds will permit. The council's experience of turfed banks is that they are a waste of money, as they never last.

4. (*a*) *Water-supply.*—The council quite recognizes the advisability of a piped water-supply and will, with regard to that part of Vannarpet (not Vannampadi) stream that passes through the village, when funds admit, pipe it.

(*b*) The Yeddapalli stream branches at Sim's Park, one portion goes to supply the main bazaar direct, the other portion referred to by the Sanitary Commissioner goes through the churchyard and supplies but a few houses; this branch it would be impossible to divert; the channel through the churchyard is of sound and strong masonry and any cracks observable are merely on the surface and will be repaired for the sake of appearances. An estimate will, however, be prepared for piping this part of the channel.

(*c*) The water-channel here referred to does run along the road side, but the piping of this would be a more expensive undertaking than the council can afford. The contamination in the shape of betel-quids and orange-peel cannot be prevented. Taps cannot be arranged for the cisterns. These at present have open outlets which permit of a continuous flow of fresh water through them.

(*e*) The proposed cistern for the Chucklers' village will have the attention of the council.

(*h*) The council is at present considering a scheme whereby the main part of the bazaar may be provided with a supply—rather limited—of pure spring water for drinking purposes. It is proposed that this supply be brought from a spring that rises near the Hill Grove Hotel.

(*i*) The council considers that in the event of the town having a piped water-supply, it would be advisable to make use of the Yeddapalli stream and not the Arvenghat.

5. *Sewerage.*—(*a*) The laying of the open'egg-shaped drains was undertaken and carried out by the Sanitary Engineer to Government, the council not having a voice in the matter beyond protesting at the way the work was done: *vide* concluding part of paragraph 30 of the administration report of this municipality for 1892–93, embodied in G.O., dated 31st July 1893, No. 984 M. In future, extensions undertaken by the council will be carried out as proposed by the Sanitary Commissioner.

6. *Conservancy.*—(*a*) The council hopes that during the next official year, as it has notified its intention for delivering night soil free, the amount realized by its sale will result in a considerable increase above that of last year.

(*b*) The remarks of the Sanitary Commissioner will be borne in mind when any more latrines are erected. In only one of the existing latrines are there wooden seats; these were put up according to the Sanitary Engineer's plan, but will be removed and stone seats substituted.

7. *Market.*—(*a*) Orders have been issued by the Chairman that in future all meat is to be suspended on hooks. The beef butchers' stalls will be paved with stones as soon as practicable.

(*b*) All dogs that stray into the market or slaughter-house are destroyed by poison, and during the present official year over 200 have thus perished.

(*c*) The market area has lately been put into thorough order and is all that can be desired.

8. *Slaughter-house.*—The remarks of the Sanitary Commissioner will have the attention of the council.

9. (*c*) *and* (*d*).—These notes on vaccination will be communicated to the Medical officer under whose orders all vaccine operations are carried out.

10. *Registration.*—(*a*) The suggestions made in this paragraph are being carried out.

11. *Sanitary Administration.*—(*a*) *and* (*b*) Sanction for an additional staff for sanitary purposes has been applied for to Government and the amounts of their salaries provided in the budget for the ensuing year.

(*c*) There are no cattle-yards in the town containing ten head of cattle. Bakers are licensed, and the licensing of dhobies is under consideration.

(*d*) The Sanitary Commissioner has been misinformed as to cholera making its first appearance in Ottupatrai. Last year for the first time some cases appeared in this village which were reported as cholera cases, but these the Medical officer considered doubtful: *vide* paragraph 43 of the annual administration report of this municipality for 1893–94 embodied in G.O., dated 6th July 1894, No. 861 M. Provision has been made in the budget for the ensuing year to build a latrine at this village and to employ a scavenger for cleaning it.

COONOOR,
8*th February* 1895.

(Signed) J. A. MARJORIBANKS,
Chairman.

To the Chief Secretary to Government
(through the Collector of Nilgiris).

Forwarded.

8*th March* 1895.

(Signed) J. D. REES,
Collector.

C.S.
P.S.

Order.

Recorded with the following remarks:—

(1) Steps should be taken to remedy the defects pointed out by the Sanitary Commissioner in the drainage works of the town.

(2) The Sanitary Commissioner's remarks in the concluding portion of para. 6 (b) of his notes regarding the Vannarpet latrine should receive early attention.

(3) The action which the Municipal Council proposes to take on Dr. King's suggestion that a Beauty-pettah should be opened in connection with the Market, and on his remarks regarding the grave-yards in the town should be reported.

(4) The Chairman's remarks on the inspection notes should have been noted on the left-hand margin of the notes, as required in para. 2 of G.O. dated 23rd December 1893, No. 1765. M, and a copy of the municipal Council's resolution should have been submitted to Government.

V.R.
7/9/95

To The Chairman, M.C. Cannanore.
" Collector of Malabar.
" Sanitary Commissioner.
Do — Engineer.
Editors' Table.

1 with order

[G/24.]

Land M. DEPARTMENT.

Papers to be read in Proceedings:—

Again G.O., dated	189 , No.	
Again G.O , dated	189 , No.	
Current No.	of 189 , dated	from
Current No	of 1895, dated 8.2.95	from the Chairman Municipal Council Cannanore

ORDER.

Recorded.

2. The remarks of the Sanitary Commissioner on the defects in the drainage scheme of the town and especially those in para 5 (b) of the report should have the early attention of the Council; as also should the suggestions in paras 11 and 12 regarding the licensing controlling of shobies and the selection of more suitable burial grounds. In other respects the state of affairs reported is fairly satisfactory.

3. The Chairman's attention will be drawn to the provisions of G.O dated 23rd December 1893 No 1765 M. He should have followed the procedure prescribed therein and should have forwarded a copy of the resolution of the Council on the notes.

Note
The inspection took place in October last. It seems unnecessary to call for further reports now. Correspond with the Chairman and the Collector about the market & give final order
CS
27.IV.

CS
27.IV.

2/5/94

4 With regard to the statement made in para 7 of the Chairman's letter he will report the person who has encroached on the Municipal Compound & the action taken by him

To The Chairman Municipal Council Cannanore
The Collector of Malabar
The Sanitary Commissioner
Engineer
Editors Table

JN
2/5/95

Sanitary Commissioner's inspection notes Coonoor Municipality

C.S.
P.S.

GOVERNMENT OF MADRAS.

LOCAL AND MUNICIPAL DEPARTMENT.

READ—the following paper:—

Inspection Notes of the Sanitary Commissioner for Madras.

NILGIRI DISTRICT.

COONOOR MUNICIPALITY.

Inspected 1st and 2nd October 1894.

Population per Census of { 1881 4,778
1891 6,049

Site.—The town is within a valley of a concave form, situated at a height of 5,761 feet above the level of the sea.

2. *Dwellings.*—(*a*) The usual type of house is of stone. The rooms are exceedingly small, and ventilation is usually bad. The residences of Europeans are situated beyond the native town, and look down upon it from higher positions, at the edge of the great concavity in which the town is situated.

(*b*) The Sanitary Commissioner and his Deputy have, year after year, pointed to the obstacle afforded to correct perflation by the considerable overgrowth of wattle and gum trees in the neighbourhood. Under the advice of Surgeon-Lieutenant-Colonel Lancaster, the municipality have lately made considerable improvement in this direction, and I was shown several patches from which the wood has been systematically felled. It is, however, stated that the Forest Department resents any attempt to further reduce the extent of growth in the neighbourhood. It seems to me that it would not only be to the sanitary interest of the neighbourhood that the trees should be thinned but also to that of the Forest Department itself. Crowded so closely as these trees are, it seems impossible that their full nutrition can be secured. As this is a technical point, I perhaps exceed my functions in pointing to this probability; nevertheless, it would however be well, in the interests of the public, that the question be considered by the superior officers of the Forest Department. What is required is, not that the trees should be promiscuously felled, but that they should be judiciously thinned. In the neighbourhood of the library and the Protestant graveyard the air is undoubtedly kept in a state of stagnation by the present condition of the Town shola.

(*c*) The chattram near the ghât road is much used by foot-passengers on their way to Ootacamund. The flooring is of rammed earth and is subject to being much contaminated with the debris of food, cooking water and the like—there being no separate place for cooking. This chattram should be paved with cement-pointed stone. It would be well to erect a small addition, say, of corrugated iron, in which cooking could proceed, instead of permitting this in the common dwelling room. This should not be regarded solely in the light of providing these passengers with comfort, but as a question affecting the sanitary safety of the municipality. It cannot be safe to have men—for example, the crowd of Moplahs who arrive from Malabar yearly—subjected to the risk of infection which the appearance of a case of cholera on an earthen, as contrasted with an impervious, floor would particularly favour.

3. *Roads.*—(*a*) The roads are retained in good order. The total length is 30¾ miles, of which 13⅝ miles are metalled. The expenditure under this head in so small a municipality is necessarily heavy, and it seems but a legitimate aspiration that aid in the matter should be given either by the district board or Government.

(*b*) *Butcher street* drain, which formerly received much sewage and was an insanitary spot, is now in much better order, as a result of this being intercepted by the new drainage system; but it is still susceptible of considerable improvement. Its section is unequal, and there is a tendency for rubbish brought down by rainfall to lodge here and there. Its section should be made more uniform; its banks should be furnished with a stone revetment in the part included in the water-spread, whilst the banks should be well turfed.

4. *Water-supply.*—(*a*) The water-supply is of a very primitive nature. Three channels—the Vannarpet, the Yeddapalli, and the Ootapady—are continued open, and exposed to all the risk of contamination usual within an inhabited area during distribution throughout the municipal limits. Tracing up the first-named channel to its source, it is found that native houses are built on its banks, and that, irrespective of trivial additions from dung-heaps and cultivated gardens on its way, the surface washings of the Vannarpet village—the residence of the dhobies—is launched direct into it; although here and there inefficient efforts by the municipality to divert the surface drainage are to be seen. The municipality has at present under consideration the introduction of a water-scheme; nevertheless, I think, in consideration of the small expenditure likely to be brought about, that it would be advisable in the meantime to attempt to secure a better measure of protection for the water by piping it whilst passing Vannarpet. The Yeddapalli channel approaches the town through Sim's Park, and thence passes through the European graveyard on the way through Davidson's Hotel, Peach Cottage and so forth down to the town main bazaar. In the graveyard the channel is open, but is formed of brick plastered with cement. Examination of this channel shows, however, it must be a very poor structure to trust to in passing through so dangerous an area; here and there cracks in the cement plastering are evident.

(*b*) The graves are above the level of the channel and within twenty feet of it, so that during rainfall, irrespective of sub-soil oozing in ordinary times, the contamination of the water ought to be *possible*. A mere brick in lime mortar channel plastered with cement is an unfit structure to trust to in such a situation. This portion of the channel should be diverted at once from the graveyard, and the water be run in pipes past this point.

(*c*) The Yeddapalli water runs behind the main bazaar in what is practically a gutter or road drain. The fœcal matter of dogs was found at frequent intervals along this bank, thus opening the inhabitants to the risk of hydatid disease derived from ova shed by an intestinal parasite of this animal. Signs of human contamination were found in the shape of chewed quids of betel-nut and orange-peel, and I was informed that it is not infrequent for the inhabitants to squat across the channel and defœcate within it. The channel ends by delivering into a cistern, which has no tap provided for it; the consequence is that on persons above temporarily diverting the stream, water fails to reach this spot. It would be an easy matter to arrange the cistern with a balance valve so as to allow the water to fill to a certain point, thus storing a proportion, and then permit its outflow. I consider it is urgently necessary that the municipality should arrange to receive the water of this portion of the supply-channel in pipes, and that this should not be deferred in reference to the future water-supply.

(*d*) The Ootapady channel supplies about a dozen European houses with water for inferior domestic offices, the Ootapady and the chucklers' villages. In passing Ootapady the channel is covered and thus is afforded a measure of protection in passing this very dirty locality, but both above this point close to the village and on the road to Coonoor—judging by the fœcal matter found at intervals—it is the custom of foot-passengers to Ooty to make the sides of the channel the site for early morning easement.

(*e*) A branch from this channel is taken to the chucklers' village, and is used by the people in drawing from a pool in the midst of their habitations. It would prove an inexpensive and sanitarily advantageous alteration to build up the point at which the branch channel crosses the main road for the supply of this village, so as to secure that the water is taken only from the cistern, instead of after being contaminated in the village. If the cistern were built up to the level of the channel, no waste would occur, as at present.

(*f*) Near the Ghât road, the Vannarpet stream passes the town, and, although obviously contaminated by surface drainage and the direct addition of filth, was till recently much used for drinking-water. Under the advice of Surgeon-Lieutenant-Colonel Lancaster, however, the public have been warned by tom-tom against using this source; this, apparently, has had the effect of causing this source to be less used than formerly.

(*g*) From the above description, it will be seen that Coonoor is urgently in need of a correct public water-supply system, and that it is incumbent upon the council, if it would preserve the town's fair fame as a health resort, to make an endeavour in this direction.

(*h*) The Sanitary Engineer has laid before the council a water-supply scheme, but this the council declined to undertake on financial grounds. As the existence of Coonoor must depend upon its capability of showing a clean bill of health, I would urge upon the councillors the desirability of re-considering their decision. If, for example, they cannot find funds to introduce a supply with a complete distribution, they might undertake to build a cistern allowing, say, only two days' storage, and thence run a main to any convenient point in the town, arranging for supply only on this one line instead of right through the town. This would at least ensure that persons willing to take the trouble to proceed some distance for pure water can make certain of securing it devoid of gross contamination such as at present exists.

(*i*) The Sanitary Engineer has pointed out that the supply of Coonoor is feasible from two sources—the river Arvenghat and the Yeddapalli stream. Whilst recognizing that the former source would be the best both in regard to protection from contamination and as to quantity, he considers that it would be necessary to make a bund 100 feet high to secure a reservoir and discharge thence at the requisite height. Hence, he has given the preference to the Yeddapalli stream. I have traced the latter up to its source. At Yeddapalli, the stream is within a portion of the water-shed of the village; from this point, at intervals, the surface water is received from scattered inhabited areas and from cultivated lands. The latter are exclusively tea-lands. It is urged with reference to the cultivation of tea on the water-shed that night-soil is not used, and rarely any other form of manure than decomposing leaves and occasionally cowdung. Such an area should, however, not be lightly chosen. Granting that, at the present moment, the contamination brought about by cultivation is not great, it does not follow that, after the municipality has undertaken a scheme, that condition will always remain so. It is not impossible, in view of increased facilities offered by the railway, that these now scattered dwellings on the water-shed will be increased; and, again, might not the tea-planter find that growing vegetables for the Madras market with night-soil as manure would pay him better than tea-planting? It seems to me that within twenty years much change in these directions might be found in Coonoor. I would, therefore, advise that the question of obtaining water from the Arvenghat stream be further entered into. It seems to me if a turbine were employed to pump the water up to the required level that a bund (at least of such dimensions as 100 feet) would not be required. Even this stream is by no means free from the chances of contamination by human dwellings, but there is nothing corresponding to the large cultivated area found in the Yeddapalli stream within its water-shed. Should this suggestion not prove feasible, and the municipality decide to adopt the Yeddapalli stream as the source for their supply, the water certainly ought to receive more treatment than contemplated in the design of the Sanitary Engineer, namely, simple sedimentation. The water from so suspicious an area should be filtered before delivery, and I would suggest that polarite and sand be employed as the filtration media.

5. *Sewerage.*—(*a*) A scheme for the sewerage of the town was carried out by the Sanitary Engineering Department in 1892. It is on the "open principle." Open cement concrete drains run along the sides of streets, and these discharge into sewers for ultimate disposal in the ghât stream—an arrangement that must be watched as to its sanitary results with care. Several of the minor drains are formed of glazed stoneware, egg-shaped drains in one piece. The specimens of the latter seen by me were laid direct upon the natural soil, and not only had no backing but were devoid of pointing at the joints. Soakage of the soil around these drains must therefore occur. In future extensions, it should be seen that these drains are laid upon lime concrete or have a backing of puddled clay. The house connections are of a peculiar character. The point of discharge from the house is frequently 3 or 4 feet from the public drain; the junction is therefore effected by closed brick structures square in section, of these, and, at times, greater lengths. The natural sequel of the adoption of such a form has been that the outlets have been from time to time blocked, and, to remedy matters, holes have been made in the tops. This form not only renders cleansing difficult, but, as no trap exists, air passing over the foul surface must enter within the houses, or escape at the opening in the back court yard, near the doors and windows where the inlet is usually placed. I advise that the whole of these be opened at the top, so as to permit of the passing of a current of air without so great certainty of its passing within the house being evident.

(*b*) Having possessed itself of a drainage scheme, the municipality has apparently not realized that suitable alterations in the interests of sanitation can be enforced as to the form of drain used, under section 214. The ordinary type of drain passes below the flooring of the houses, and the conduit being irregular and of pervious brick, saturation of the floor must occur. As a result, I believe the chances are that a heavy proportion of the sewage of Coonoor is still disposed of by saturation of the soil beneath the houses.

In passing beneath the houses, these channels should either be of iron or of glazed stoneware embedded in concrete; or, where this mode is suitable, should be of cement-lined, open channels.

(*c*) The municipality should apply to the Sanitary Engineer for advice as to drain-cleaning implements and instructions as to their use. The sanitary inspector has so far, in the absence of instructions, excogitated a system of his own for cleansing the pipes, namely, passing a bamboo through with a rope attached. There are certain points in the drain which receive surplus water from the drinking-water channels; both in these instances and in spots where it is possible by small alteration to bring the water of these channels up to a certain point, I think it would be of advantage if small Doulton's 6″ stoneware flushing automatic tanks were placed, so as to give the drains and pipes the benefit of a flushing action, instead of the mere dilution of contents brought about by accommodation of the regular flow. The municipality should not lose sight of the fact, in regard to future financial arrangements, that the adoption of the sewerage scheme has been but partial.

6. *Conservancy.*—(*a*) There are 49 corrugated-iron dust-bins. The municipality supports its own bullocks; they are in good condition. The plant at disposal is sufficient for night-soil (provided no urine is received in carts) and for rubbish also. There has always existed difficulty as to the disposal of night-soil, on account of no suitable land being at the disposal of the municipality. It has been the practice till last year to take it to a covered brick pan below Barlow's road, and there mix it with rubbish ashes to form poudrette. The procedure was however a source of nuisance, much complained of by residents. Last year, the bidding for the night-soil was so poor that the municipality was willing to accept the offer made by a planter for the sum of Rs. 800 to take both rubbish and night-soil; it being understood the municipality should pay the cost of transport. Sanitarily, this arrangement of transporting these products outside municipal limits serves its purpose well; but, economically, the bargain is not good. I think it would pay the municipality to take up a convenient plot of ground under the Land Acquisition Act, and there make poudrette for sale to planters upon the Poona system. A description of the method followed will be found in the Proceedings of the Sanitary Commissioner for the first quarter of 1894 (extract attached.)

(*b*) Corrugated-iron latrines are in use; but they are usually very offensive. The method of ventilation employed is generally very poor. The latter condition is said to be contributed to by the necessity to secure privacy; but I think the subject should be carefully considered. It is probable that privacy can be duly subserved, and yet the roofs at least can be lifted sufficiently to secure more air change and the action of sun in the interior. This result would be aided if a greater interval between the floor and the side walls could be given. In certain of the latrines, wooden seats are used. This is decidedly objectionable. Such seats cannot fail, in consideration of the position assumed by natives, to be fouled. In others, an attempt has been made to substitute the wooden platforms by stone blocks. This is a better system, but unless the stone is very smoothly cut, the decomposing urine and occasionally fœcal matter will adhere to the exposed surfaces. I think the municipality would do well to purchase from Burn and Co., Calcutta, or from the Basel Mission, Mangalore, glazed stoneware seats specially prepared by these firms for use by natives. These are very strong structures, and it need not be feared they would be likely to suffer unless subjected to unusually coarse treatment in transit. In saying this, I wish the council to understand that the risk such as experienced in importing to a hill station glazed stoneware pipes need not be considered analogous. In the old latrine No. 5 outside the market, there is no drain in front of the seats, with the result that urine soaks into the floor, and only finds its exit by reaching the end of the slope of the foot-path. It is so offensive that natives evidently prefer to defecate immediately outside. If the municipality wish to work their latrines so that they shall be freely resorted to and be really inoffensive, they should erect a hut for a male and female toty at each latrine, and direct them to be always in attendance. Dry-earth should then be employed. The latrine at Vannarpet is far too small for requirements, and is, moreover, so placed that during rainfall the surface washings flow direct into the stream at the spot where dhobies wash.

7. *Market.*—(*a*) The mutton bazaar has a good stone pavement; butchers are allowed to expose their meat on old boxes that are filthy and wooden blocks of which the same must be said. The boxes should be removed, and exposure for sale be permitted only upon steel hooks kept carefully cleansed, or (for temporary deposit) upon polished Cuddapah slabs or iron tables. These conditions also exist in the beef bazaar, which labours under the further disability of not being provided with a stone pavement, as in the case of the mutton bazaar. Water-supply is available near the municipal office. This should be extended and water should be pumped into a cistern on the spot; whence, by means of pipes and taps, it could be distributed over the market for flushing and other purposes. Under existing arrangements, it is probable that such little water as is really used here is brought from the Vannarpet stream, which at this point is very foul.

(*b*) Dogs were found straying into the mutton market. This should not be allowed. In connection with parasitic diseases of man, dogs being allowed to wander near meat are a source of danger.

(*c*) The market area requires a drain to intercept the storm water from the high ground near it. It is said to be now frequently flooded and in a state of mud. This condition will no doubt be improved by macadamizing the enclosure as intended by the municipality, but even this will not secure what is required unless an intercepting drain be made so as to cut off the storm water reaching it from the higher ground. Proper steps should be formed for the approach and the bank should be neatly sloped and turfed; plain wire fencing being placed so as to leave only the sanctioned openings. In this manner, the turf bank could at all times be retained in a neat condition, instead of the irregular state now found. A further improvement would be to insist upon all carts being placed upon the neighbouring open ground near the stream, instead of within the market enclosure. If a bandypett were formed here with shelter for the animals and for the drivers, the venture might pay the municipality well upon their making the usual charge *per diem*.

8. *Slaughter-house.*—This is a well-built structure affording accommodation both for the slaughter of cattle and sheep. The method of water-supply is, however, open to improvement. The water reaches the spot by a pipe which is taken from a stream

at a considerable height, yet it is dropped into a cistern and thence at the low level of the latter is made available by a single short pipe and tap for the slaughter-houses. It should be arranged that the water be distributed to the various parts of the slaughter-house at as good a head as procurable; especially should it be aimed at getting sufficient pressure to flush the whole place out with a hose, instead, as at present, it being necessary to gradually flood the whole place before cleansing can take place. Offal is exposed for sale upon boards that are dirty and cannot be retained, from their nature, otherwise than in a more or less filthy condition. These boards should be replaced by polished Cuddapah slabs, or, failing this, by tables of iron kept in a scrupulously cleanly condition.

9. *Vaccination.*—(*a*) Of forty-six children of from one to ten years of age, eleven were found unprotected and three had suffered from small-pox. On the whole, although there is room for improvement, vaccination is well conducted in this municipality. The following table shows the results secured under the compulsory clauses :—

Name of Municipality.	Total births during preceding six months, *i.e.*, from July to December.	Number vaccinated successfully.	Number vaccinated unsuccessfully for the first time.	Number vaccinated a second time because first operation proved unsuccessful.		Postponed under medical certificate at the end of six months.	Died.	Left the town.	Unaccounted for.	Percentage of successful vaccinations to total births.	Prosecutions for failing to accept vaccination during the year up to date.		
				Successful.	Unsuccessful.						Number of suits filed.	Number of cases disposed of by Magistrate.	Number of convictions.
Coonoor ..	124	92	2	..	..	6	16	8	..	74·19	3	3	3

(*b*) Glycerine paste is employed. This is purchased weekly from the Nílgiri Local Fund Board, and is finished within two to three days of arrival. The following shows the number actually operated upon, with rate of vaccine success :—

	Glycerine Paste.			
	Successful.	Unsuccessful.	Unknown.	Percentage of success.
Primary vaccination	409	20	5	94·2
Re-vaccination	53	9	..	85·4

(*c*) Attendance of persons for vaccination and subsequent examination as to results is not enforced by the municipality, the consequence being the vaccinator has to spend much unnecessary time in wandering about looking for cases. This should not be; the attendance both for operation and examination at the municipal depôt should be enforced, unless the persons are in a position to pay for the attendance of the vaccinator at their own dwellings. In this manner, the vaccinator would have more time at his disposal to search for the whereabouts of cases that would otherwise be returned as "unaccounted for." Endeavours should be made to assemble a large number of children on each vaccination day, so as to perform a number of operations at the same time and thus leave as much time as possible at his disposal for searching for such cases. Instead of weekly vaccination, therefore, once a fortnight or once each three weeks would suffice.

(*d*) The vaccinator's list of births was not continued beyond July—a matter of laziness that should be punished by fine.

10. *Registration.*—(*a*) One registrar on Rs. 15 is employed. Persons are directed to attend at the office for registration. There is only one board—that on the municipal office—notifying the conditions required under the Act. Several boards of this character should be distributed in various parts of the town, affixed upon or near important buildings. On a birth being registered, no notification to the guardian is issued as to vaccination being compulsory on the infant attaining six months of age. This should be arranged for.

(*b*) The following are the statistics obtained during the current and preceding years :—

Years.	Ratio of births per mille of estimated population.	Ratio of deaths per mille of estimated population.	Percentage of deaths from						Ratio of deaths of infants under one year of age per mille of registered births in the preceding year.	Ratio per mille of deaths of infants between one and five years of age to population of that age.
			Cholera.	Small-pox.	Fevers.	Dysentery and Diarrhœa.	Injuries.	Other Causes.		
1891 ..	34·4	29·0	5·6	2·2	22·9	14·0	..	55·3	173·3	82·4
1892 ..	32·6	35·5	0·5	1·3	44·2	15·2	..	38·8	217·0	117·3
1893 ..	35·3	29·8	1·6	..	30·6	17·6	0·5	49·7	218·4	118·7
1894 ..	38·1	32·6	3·1	..	30·4	19·3	..	47·2	263·2	100·3

11 *Sanitary Administration.*—(*a*) There is much failure as to retention of cleanliness in the narrow lanes and behind dwellings in the parts of the town occupied by natives. Sullage water without arrangements for disposal, fœcal matter and rubbish are to be met with. I consider this is greatly due to the fact that work of this nature requires close personal supervision by a sanitary staff. Now, Coonoor so far has, for the accomplishment of the various duties that fall to sanitary inspectors, but a single employee. I do not see that it can be expected of this man that he shall, unaided, supervise the working of the conservancy staff and yet retain so close an inspection of the condition of dwellings that errors shall at once be *promptly* dealt with—the only way of managing with justice and efficient sanitary results this requirement. Apparently, he has not at his disposal even one peon to whom certain of his duties might be delegated.

(*b*) The municipality seems so hard pressed for funds that it would seem of no utility to recommend, as I believe is requisite, that a second European sanitary inspector aided by a good staff of peons be entertained. But, as a compromise, I would advise that three peons, say, one duffadar on Rs. 12 and two peons on Rs. 10 and Rs. 8, respectively, be entertained, and placed solely at the disposal of the sanitary inspector to aid him in the execution of his various duties.

(*c*) No licenses have been issued for cattle yards or for ten head of cattle under section 188. Neither dhobies nor bakers are licensed.

(*d*) In consideration of the fact that Ootapady is the village whence the milk supply of the town is procured and is also the place where cholera first usually makes its appearance, it is desirable that this village be supplied with latrines—none of which it has at present—and a sufficient conservancy staff. Behind the dwellings, and therefore within the watershed of the Ootapady water channel—the protected portion near the village notwithstanding—I found the ground in a most disgusting state of filth from the presence of fœcal matter. Each house should be rigorously inspected here, and the cattle yards and surroundings should, in the interests of the general public of Coonoor, be retained in a state of cleanliness.

(*e*) It is also desirable that vigorous measures, that have been successfully applied by Mr. Hamnett, C.I.E., in Ootacamund, should be also enforced here in regard to dhobies. Under section 188, this Chairman has insisted upon dhobies retaining the clothing of customers in special sheds forming no part of a dwelling-house. If this can have been effected in Ooty, in spite of vigorous opposition from the dhobies, it ought also to be feasible in Coonoor.

(*f*) With very little expenditure at Vannarpet, it should be possible to divert the drainage of the village from the part of the stream in which the dhobies wash, and to so arrange that at this point dhobies shall each receive water that has not been already contaminated in the washing of clothing by others.

12. *Graveyards.*—(*a*) As has been already pointed out to the municipality by the District Sanitary officer, the European Protestant graveyard is in an undesirable position in the vicinity of a place attended for worship and is moreover fast becoming overcrowded. Under these circumstances, it would be advisable for the municipality to select a site elsewhere and further removed from dwellings.

(*b*) The Hindu, Muhammadan and Native Christian burial-grounds are scattered along the ravine which runs near Vannarpet. The graves are arranged according to the fancy of the various burial parties in all directions. The result is that great waste of ground is proceeding. It would be advisable that the municipality stop this in time and insist upon ground being taken up in correct order. There is much undesirable overgrowth of vegetation throughout these graveyards, which should be removed. The only way to secure discipline in this respect is to put in force section 242 by licensing vettians, and to inform the men that unless they adhere to orders as to positions selected for burials and report promptly all cases of burial, their licenses would be removed.

FORT ST. GEORGE,
27*th November* 1894.

(Signed) W. G. KING, Surg.-Lt.-Col.,
Ag. Sanitary Commissioner for Madras.

No. 337.

Submitted to Government through the Collector of Nilgiris with the following remarks adopted by the municipal council at its meeting held on the 7th February 1895:—

2. *Dwellings.*—(*a*) The type of house occupied by natives in Coonoor is the same as that occupied by them in all parts of India. The rooms may possibly be smaller in dimension than those in the plains, but this is on account of the colder climate.

(*b*) The matter of thinning the sholas in the vicinity of the town has been attended to by the Forest Department, which has carried out all the proposals of the council.

(*c*) In the opinion of the present Medical officer, in which the council concurs, a stone pavement for the chattram is unnecessary, but a concrete floor will be provided for. A cooking shed will also, as proposed, be erected.

3. (*b*) *Butcher Street Drain.*—The matter of the drain will be attended to as soon as funds will permit. The council's experience of turfed banks is that they are a waste of money, as they never last.

4. (*a*) *Water-supply.*—The council quite recognizes the advisability of a piped water-supply and will, with regard to that part of Vannarpet (not Vannampadi) stream that passes through the village, when funds admit, pipe it.

(*b*) The Yeddapalli stream branches at Sim's Park, one portion goes to supply the main bazaar direct, the other portion referred to by the Sanitary Commissioner goes through the churchyard and supplies but a few houses; this branch it would be impossible to divert; the channel through the churchyard is of sound and strong masonry and any cracks observable are merely on the surface and will be repaired for the sake of appearances. An estimate will, however, be prepared for piping this part of the channel.

(*c*) The water-channel here referred to does run along the road side, but the piping of this would be a more expensive undertaking than the council can afford. The contamination in the shape of betel-quids and orange-peel cannot be prevented. Taps cannot be arranged for the cisterns. These at present have open outlets which permit of a continuous flow of fresh water through them.

(*e*) The proposed cistern for the Chucklers' village will have the attention of the council.

(*h*) The council is at present considering a scheme whereby the main part of the bazaar may be provided with a supply—rather limited—of pure spring water for drinking purposes. It is proposed that this supply be brought from a spring that rises near the Hill Grove Hotel.

(*i*) The council considers that in the event of the town having a piped water-supply, it would be advisable to make use of the Yeddapalli stream and not the Arvenghat.

5. *Sewerage.*—(*a*) The laying of the open'egg-shaped drains was undertaken and carried out by the Sanitary Engineer to Government, the council not having a voice in the matter beyond protesting at the way the work was done: *vide* concluding part of paragraph 30 of the administration report of this municipality for 1892–93, embodied in G.O., dated 31st July 1893, No. 984 M. In future, extensions undertaken by the council will be carried out as proposed by the Sanitary Commissioner.

6. *Conservancy.*—(*a*) The council hopes that during the next official year, as it has notified its intention for delivering night soil free, the amount realized by its sale will result in a considerable increase above that of last year.

(*b*) The remarks of the Sanitary Commissioner will be borne in mind when any more latrines are erected. In only one of the existing latrines are there wooden seats; these were put up according to the Sanitary Engineer's plan, but will be removed and stone seats substituted.

7. *Market.*—(*a*) Orders have been issued by the Chairman that in future all meat is to be suspended on hooks. The beef butchers' stalls will be paved with stones as soon as practicable.

(*b*) All dogs that stray into the market or slaughter-house are destroyed by poison, and during the present official year over 200 have thus perished.

(*c*) The market area has lately been put into thorough order and is all that can be desired.

8. *Slaughter-house.*—The remarks of the Sanitary Commissioner will have the attention of the council.

9. (*c*) *and* (*d*).—These notes on vaccination will be communicated to the Medical officer under whose orders all vaccine operations are carried out.

10. *Registration.*—(*a*) The suggestions made in this paragraph are being carried out.

11. *Sanitary Administration.*—(*a*) *and* (*b*) Sanction for an additional staff for sanitary purposes has been applied for to Government and the amounts of their salaries provided in the budget for the ensuing year.

(*c*) There are no cattle-yards in the town containing ten head of cattle. Bakers are licensed, and the licensing of dhobies is under consideration.

(*d*) The Sanitary Commissioner has been misinformed as to cholera making its first appearance in Ottupatrai. Last year for the first time some cases appeared in this village which were reported as cholera cases, but these the Medical officer considered doubtful: *vide* paragraph 43 of the annual administration report of this municipality for 1893–94 embodied in G.O., dated 6th July 1894, No. 861 M. Provision has been made in the budget for the ensuing year to build a latrine at this village and to employ a scavenger for cleaning it.

COONOOR,
8*th February* 1895.

(Signed) J. A. MARJORIBANKS,
Chairman.

To the Chief Secretary to Government
(through the Collector of Nilgiris).

Forwarded.

(Signed) J. D. REES,
Collector.

8*th March* 1895.

ORDER—dated 6th May 1895, No. 800 M., Local and Municipal.

Recorded.

2. The remarks of the Sanitary Commissioner on the defects in the drainage scheme of the town, and especially those in paragraph 5 (*b*) of the report, should have the

early attention of the council ; as also should the suggestions in paragraphs 11 and 12 regarding the controlling of dhobies and the selection of more suitable burial-grounds. In other respects the state of affairs reported is fairly satisfactory.

3. The Chairman's attention will be drawn to the provisions of G.O., dated 23rd December 1893, No. 1765 M. He should have followed the procedure prescribed therein, and should have forwarded a copy of the resolution of the council on the notes.

4. With regard to the statement made in paragraph 7 (*b*), of the Chairman's endorsement, he will report the poison used and the precautions taken in administering it.

(True Extract.)

J. F. PRICE,
Chief Secretary.

To the Chairman, Municipal Council, Coonoor.
„ Collector of Nilgiris.
„ Sanitary Commissioner.
„ Sanitary Engineer.
Editors' Table.

Exd. A. Raitt.

Govt. of {1895} Madras.

LOCAL AND MUNICIPAL.

Issued

Recd. *Encl.*

G.O., 6th May 1895, No. 800 M.

MAY.

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