Local & Munl. (1896) Department.

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DATED 4th May 1896

[Despatch Abstract.]

Inspection Notes.

Recording, with remarks, the Sanitary Commissioner's

---- on the Vizianagram Municipality.

BACK PAPERS.

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

FURTHER PAPERS.

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

438

Extract from the Proceedings of the Municipal Council. Vizianagaram at a meeting held on Saturday the 15th February 1896-

Present

1- M. R. Ry. V. Venkatrayasastri garu. B. A. Chairman

2- " Ch. Ramamurti Pantulu garu. Councillor

3 - K. V. Krishnarau Pantulu garu, "

4 - K. Venkanna Pantulu garu "

5 Mohomed Badshah Sahib garu "

6 M. R. Ry G. Baulakrishnamma garu -

I- Laid on the table the Inspection Notes of the Sanitary Commissioner, Madras on his inspection of this municipality on 29th - 31st July 1895 and the Chairman's replies thereon

The draft replies are approved by the Council - The Council thankfully accepts the offer of a loan of Rs 3000 without interest made by the Manager of the Samastanam for the purchase of a steam engine, steam pump & a tank fitted with tubo & c for the use of Ayyakonam -

× × ×

(Signed) V. Venkatrayasastri
Chairman, M. C

(True Extract)

Vizianagaram
25 February 96

V. Venkatrayasastri
Chairman M - C

Lmc 8,8801

Received 7.7.20-1895.

108

Inspection Notes of the Sanitary Commissioner, Madras.

Vizagapatam District.

Vizianagram Municipality.

Inspected 29th to 31st July 1895.

Population as per Census of 1891:-

Males ____ 14,882

Females ___ 15,999

Total 30,881

Sewerage. (a) The majority of the sewage enters a large tank - the Pedda Cheruvu. Whilst fairly full, the processes of chemical and biological change appear to be undergone inoffensively, but, in the hot season, the stenches evolved are unbearable. A scheme drawn up by the Sanitary Engineer's Department is now under consideration. It contemplates protection of the tank by the use of an intercepting sewer. But, until this large scheme is

is effected, it is manifest that something might be done. It seems to me the conditions could largely be met by the use of sewage filters.

(b) With admirable energy, whilst I was at Vizianagram the Municipal Chairman carried out my suggestion & making an experimental filter near the Cattle market. By adhering to this principle, and effecting it under engineering advice at the various points of entrance of sewage, it ought to be possible to allow nothing to enter beyond a practically pure filtrate. Here is the account of the Chairman of the Municipal Council Vizagapatam, who also erected on my advice a sewage filter

The sewage filter at Dába gardens has been improved later on by the construction of a masonry cistern measuring and is working well as has already been reported to the Sanitary Commissioner

3 Aug 96

filter of the same pattern:-

"The quantity of sewage "daily dealt with is "about 7,200 gallons. The "filtrate is clear and "looks like pure water. "At first, i.e. a few days "after the filter began "to work, the filtrate "tasted brackish; now "it is not so."

(c) In regard to the sewage from houses, I invited the Chairman to sanction the making of filter of a size that would permit the dealing with it on the spot instead of permitting it to soak in the surroundings. Kerosene oil drums were then fitted up as I directed (vide margin). The effect secured is then stated by the Chairman.

"The domestic sewage "filter made when you were here is working excellently

"excellently well. I have
"seen the filter myself
"and found the district,
"sewage that is let into
"it coming out so pure
"that the water will be
"accepted for drinking
"by any human being
"who has not previously
"known that it was
"filtered sewage."

9

Thirty iron sewage filters of the design recommended by the Sanitary Commissioner were made & they have been introduced in two streets in Lunta peta - The results of their working is as satisfactory as has been reported to the Sanitary Commissioner. More are in course of Construction and they will be gradually introduced into the town as far as practicable.

They will cost the M C about R6000 per annum to keep up I dont know when the money is to come from.

MSW
9.3.86

(d) I consider this simple mode offers an infinitely better method of disposal in this climate than cesspools, except where the latter can be made of the best material, and be worked with odourless pumps — lifting into air tight carts. All the solid matter, and part of the matter in solution must be arrested by the biological action of this filter, and instead of stinking sewage to soak in the ground surface all that is found is a clear and odourless water, which by reason of its not clogging the pores of the soil, or offering a greasy scum, rapidly evaporates or soaks in the ground. That it does not meet all sanitary ends is indubitable

indubitable, but con-
sidering its cost - about
Rs 1-2 to Rs 1-8 - I think
it offers considerable
advantages where
poverty of inhabitants
presents difficulty.

(e) Much of the sewage
nominally collected
in the area drained
towards the Pedda Cheruvu
really never reaches
it, not only on account
of the defective character
of the surface drains
but because for a con-
siderable distance
covered sewers are
employed, which per-
mit of the sewage
permeating the soil.
Any scheme for im-
provement of the
condition of the Pedda
Cheruvu ought to take
cognizance of this matter.

(f). In the South West,
two sewage drains
make their exit from
the

The Head Manager of the
Lanmotamum has made
arrangements for carrying
off this sewage to a
distant place into the
paddy fields -

These arrangements are still incomplt
Rp
4.3.96

Notices have been issued to
the inhabitants of the street to
divert their drainage into
the municipal side drains in
front - The Council will insist
upon effecting the remedy suggested
by the Sanitary Commissioner
within the near future -

As the Sanitary Commissioner
does not seem to have approved
of the locality as being fit for opening
a sewage farm of the kind that has
been under the contemplation of the
Council, it is seeking to find a
better locality as it is very anxious
to dispose of the town sewage by

the Maharajahs Palace.
In the case of one, it
would be possible to
run the sewage on to
a small filter, and in
the other to a plot of
ground for grass or
other cultivation.

(g) The Fort street, which
lines the Fort moat
on one side, passes
its sewage and sur-
face drainage from
anything but cleanly
yards directly into the moat.
This could without much
difficulty be remedied,
by sucking the slope
of the backyards towards
the front, where it could
be received in the
street drain.

(h) The Chairman has
a scheme for diverting
the sewage from the
Fort and the Aya Kommem
to a plot that will serve
as a sewage farm. Un-
fortunately, the ground
available

available is constantly
water-logged by irrigation
of the whole surroundings;
so that, unless the
Municipality could
afford to raise the
ground, or stop irrigation,
the disposal of the
sewage at this site
would be surrounded
with difficulties. Probably,
the easiest way ~~of~~
~~the difficulty~~ would be
to cultivate during the
part of the year that
no irrigation is hur-
-ried a plot of ground
for grass or other crop,
and during the re-
-mainder of the year
to direct it to the use of a
large sewage filter.
The Maharanee Pettah
drain which would form
part of this scheme
is undoubtedly a
great and constant
source of nuisance.
Its condition could
however

opening such a farm - The
District Sanitary officer has
been addressed to advise the
Council in selecting one of a
number of localities now in
its view - The scheme will
no doubt be worked under
the advice and as far as
practicable under the supervision
of the District Sanitary Officer -
The scheme will, it is hoped
become an accomplished
fact in the course of the next
official year.

The Sanitary Board will
be addressed to furnish
an

an estimate for constructing
a half-tile glazed drain
in Maharanipeta as recommend-
-ed by the Sanitary Commissioner.
The work will be undertaken in
the course of the next official
year.

greatly im-
-proved by the use of
half tile glazed drains
(obtainable at Messrs
Burn & Co, Calcutta) of a
size that would ac-
-commodate the sewage
only. At present, much
of the stench is caused
by the fact that no
regular flow can be
maintained, on ac-
-count of the small
amount of sewage
withdrawn in a section
of drain that would
admit of enormous
quantities of surface
water

2. Water supply. (a) Bovchmaris
tank. This is supplied by surface
water from a fairly trustworthy
area. The lower feeding channel
has been passed through a tom-
a railway cutting. So far as
can be judged by mere in-
-spection, I should say that
the new channel supplied
by the Railway does not cor-
-respond in area with that
formerly

formerly in use, with the consequence that the tank fails to receive so large a supply as hitherto. The Municipality should have the area of the channel ascertained, and, if my surmise be correct, the Railway can rightfully be required to make matters correct.

(b) Close to the bund, there is a well-built masonry well. The Municipality should endeavour to encourage the people to resort to this, instead of to the surface water, as the supply must be much less contaminated. Were this well supplied with a pump for elevating the water to a cistern provided with taps and placed upon the bund, the people in this area of the town would have the advantage of procuring correctly protected and safe water. To ascertain what this proposal would cost, it would be necessary for the Municipality to state what the yield of the well is.

The Railway authorities have been addressed on the matter and their reply awaited

It is evident that the municipality can not afford to provide the well with a pump as recommended by the Sanitary Commissioner. The public were however, invited to subscribe and raise a fund for the purpose and the Council trusts that its efforts in this direction may be attended with success.

Hand power Lift and force pump for wells under 25 feet deep.

Bore of working barrel	Inch	2	2½	3	3½	4
Diameter of suction pipe	—	1	1½	1½	2	2
Delivery in gallons per hour (approximate)	—	220	350	480	600	700
With brass barrels	Rs	65	75	90	105	125
With iron barrels, brass lined	"	45	55	68	80	95
With brass barrels	"	53	68	75	90	110
With iron barrels brass lined	"	40	50	60	70	80
With iron barrels	"	—	35	45	60	—
— do — do —	"	25	30	35	48	60
— do — do —	"	32	38	44	58	72

"A Frame" Lift and force pump for Hand power & Belt driving

Bore of working barrels	Inch	2½	3	3½	4
Bore of suction and delivery pipes	—	1½	2	2½	2½
Delivery in gallons per hour at 30 strokes per minute	Approx	550	850	1000	1500
Double barrelled brass pumps for hand power	Rs	300	340	375	420
— do — do — for fast & loose pulleys	"	318	360	395	445
— do — do — for hand power	"	325	370	415	460
— do — do with fast & loose pulleys	"	345	390	435	485
Extra for strong copper air vessel	"	22	22	25	25

is. This could be readily ascertained by the use of a mâte of measured capacity for a certain number of hours. However, I show in the margin what would be the cost of pumps worked by bullock and hand power respectively and the amount they would lift per hour.

At Ayeru Konern. This is a large and handsome masonry tank. To accomplish with drainage, the usual method of approach is permitted with the result of giving dangerous opportunities for contamination. The only way to meet this difficulty is one which I do not care to press upon the Municipality, in view of it being probable they will secure a correct public tanks supply in course of time.

tems, namely, the purchase of a steam engine and of a steam pump and tank fitted with taps. I enclose for its information a photo of the Jubilee well at Negapatam which is worked on the same principles. This is a sound sanitary arrangement that is immensely popular in Negapatam, and if the Municipality could manage to raise a subscription and aid it in part by Municipal funds I think it would be an admirable protection. It could not be hoped at the best, I presume, that a water supply scheme could be completed under two years, and money spent upon this effort would by no means be wasted; as the plant would obtain a ready sale

The suggestions of the Sanitary Commissioner commend themselves very much to the Council, but as the tank in question belongs to the Samustanam, the Samustanam authorities were addressed on the subject. At to-days meeting, its Manager who is also a Councillor has been pleased to offer for the purpose a loan of Rs 3000 without interest subject to the condition of the same being discharged within 3 years at three equal instalments. It is particularly requested that the Govt will be pleased to sanction this small loan for the purpose. As the Sanitary Commissioner's proposal is, in the opinion of the Council, expected to effect a purer water supply for not less than half the population of the town using the tank, I am confident that the loan could be secured on still more favorable terms, should the Government be pleased to sanction the loan.

Approximate price of Parker's Engine, Vertical Cross-Tube Boiler, Brass pumps, fisher, and all necessary fittings arranged for a well 70 feet deep and equal to a total lift of 100 feet from water-surface

Delivering 4 gallons in 1 min 1000 gallons per hour — Rs 2350
— do — do — 4000 — Rs 3000
— do — do — 6000 — Rs 3550

10-11 Oct

pate on its being no longer required locally. I show in the margin the price of steam pumps. The tank and other fittings required would not absorb Rs 1,500 in addition. The feeding channel of this tank is open to defilement. Measures have already been proposed by the Municipality to run a syphon underneath the collecting channel, so as to exclude the contaminated water from entrance.

(d) The Municipality has sunk a new well near Daricapetta. This should be cement plastered down to the low water level. It now requires completing, so as to get rid of the water which has taken up lime during construction. This and

the

the sister well on the same spot will doubtless yield capital water, as the collecting area is free from contamination. Both sources are largely used by the better classes in the town, who have sufficient appreciation of the value of pure water to send thus far for it. Else it is however impossible for it to remain pure, so long as persons are allowed to withdraw water in their own vessels with their own ropes &c. Here certainly it would be advantageous to place a pump and cistern, provided with taps so as to deliver the water without contamination.

(c) The Maharajah of Vizianagram with his usual public spirit and liberality has gone to the expense of obtaining an Engineer from England for the purpose of supplying this town with water. The scheme proposed was the obtaining of water from the river Nellimarla (Champanady) a distance of about 4 miles from the town. The cost for such a scheme is, on account of the distance, very heavy and the question is now in abeyance. Under these circumstances, I searched the neighbourhood for other sources of supply. The line of drainage of the Parvatipur valley suggested itself to me, in consideration of the configuration of the country near the Gerra-konda seem to find in great part an outlet in the ridge of

The well has been more than once emptied recently. The council will provide the well with the pump recommended in the course of the next official year in consideration of the appreciation of the value of the waters therein by the public.

The council has more than once addressed the Government on the urgent necessity of taking up a water-supply scheme for this municipality even in preference to the drainage scheme that has been so long under contemplation. The Council is highly grateful to the Sanitary Commissioner for the marvelous energy with which he inspected the surroundings of the Gerra konda at so much personal inconvenience in order to investigate a scheme for water-supply. It learns with great pleasure that the Honble the Maharajah of Vizianagar G.C.I.E has expressed a willingness to contribute so generously towards the scheme for which aid the Council will doubtless

of ground separating the Choti Himalayn valley from this hill. Thus, if the Yerra Kouda be walked round, on the West side, it will be found that the sub-soil water is within a foot or two of the surface from the tannery Northwards, and that there are great stores of it apparent as shown by the wells sunk here. Again, at the Northern extremity the water is found at the surface in large perennial springs, which afford water for irrigation purposes. Thence, on the Eastern side, near a village, the sub-soil water is found within 6 feet of the surface and to the South of the Yerra Kouda are numerous perennial springs which are

be ever indebted to him. The Council considers that with such an aid, the scheme may be undertaken should it commend itself to the Sanitary Board and the Government.

are freely used by the dhobies, and which have never been known to cease flowing even during the great famine of 1876-77. In one spot, I found over twenty excavations made into a steep bank of gravel by dhobies resulting in the outflow of over twenty considerable and constantly flowing streams. Proceeding from this point towards the town, through the Railway bridge will be found a tank supplied in great part by springs. Scattered here and there in the same neighbourhood will be found springs appearing on the surface of the gravel. It seems to me by depending upon this obviously rich sub-soil sheet that the wants of Vizianagram can be more cheaply supplied

supplied than by a river water scheme, and I need hardly add that in view to protection from contamination, no source could offer better security than the subsoil of the area in question at most of the possible points. Collection could be arranged either by a series of wells, by a gallery, or by the uniting of driven tube wells and pumping direct to the town.

(f). On my communicating this proposal to the Maharajah, he had the great generosity to state that he would request the Engineer he had engaged to arrive in the country in October to investigate the scheme, and if it could be effected he would from his own

own purse contribute one and a half lakhs towards carrying it out, an offer which will doubtless secure for him the lasting gratitude of the inhabitants of Vizianagram whose best interests he thus subserves.

3. Conservancy (a) Rubbish removal - There are 237 dust-bins and 28 rubbish carts. It is unfortunately not possible to say how much labour is devoted to rubbish removal, as the sweepers also perform the duty of scavengers; but I shall allude to this subject under Night-soil Conservancy. The arrangement with the contractor requires the Municipality to collect and deliver the rubbish at a certain spot

The Council regrets that the conditions of the contract could not be enforced in the current year but every effort will be made to enforce the same in the next official year.

epoit, whence it is removed daily by the latter. At the time of my inspection, however, it was obvious from the amount stored there that the contractor had failed to carry out his terms for some time past.

(b) Night soil collection. The Municipality has lately erected a urinal at the drain near the Prince of Wales' Market. It is probable that a urinal in this special locality would be useful, but I would advise the Municipality to have as little to do with the erection of urinals as possible, until the far more important question as to night soil conservancy is completely attended to. In the case of this urinal, I would advise the addition of a Vizianagram

The Vizianagaram sewage filter on a large scale is prepared and fixed at the bottom of the urinal in question. In deference to the Sanitary Commissioner's recommendations two iron latrines and one urinal have been purchased - the number will be increased gradually -

The trained Sanitary Inspector is directed to induce people to adopt the recommendation

Vizianagram sewage filter, so as to prevent odour in the vicinity, its dimensions should however be large.

There are 26 latrines. With the exception of two of masonry, they are all simply "enclosed open spaces". Year by year, the Municipality should endeavour to replace these by the erection of others on the Sanitary Board's standard plans.

(c) Private latrines. These are often conveniently placed near the front of the houses, and can be approached by the Scties by means of a small trap door. This is a good form; but, in all cases, the Municipality should insist upon the provision of a special receptacle preferably iron, for the receipt of faecal matter.

The

of the Sanitary Commissioner with regard to the private privies and their up-keep.

The floor should be of cement, and where this form could be afforded the glazed stoneware flat forms patented by Mr. Donaldson, as sold by Messrs Burn & Co Calcutta, would make suitable seats.

In regard to private scavengering, a very modified arrangement exists. This the Municipal Chairman has described in his letter, para 4 thereof to Government, a copy of which he has supplied this office. Under the circumstances therein described, probably the best thing the Municipality can do is to preserve the present unsatisfactory system, until power to prevent strikes by Municipal scavengers is placed in ~~their~~ hands by the Revised

Revised Act No. IV of 1884, which is at present under the consideration of Government. It should however do its best in the meantime to weaken the power of combination against it, by insisting that the scavengers shall be employed solely for night soil work, and the ordinary class of sweepers for collection of rubbish. By thus discharging the surplus represented by the excess of private scavengers, it would probably be in a better position to make its own arrangements.

(d) Including all requirements of the general population and private scavenging, a staff of 62 to this should suffice and for rubbish collection 31 sweepers.

(e) The night-soil depot is

is sufficiently removed from dwellings, but it requires to be carefully laid out. The Sanitary Inspector, who is a certificated man, has already pointed this out to the Comm^t and considering the fact that all that is required to reduce arrangements to correct order and system, would be the employment of a few coolies for a short period, I trust the Municipality will see to this simple but important matter. This Sanitary Inspector should be encouraged to exhibit results of making of poudrette after the various methods, and to cultivate a plot of ground with it. A good object lesson in this matter would aid in securing a free sale

The trained Sanitary Inspector has already been directed to employ a few coolies for a short period in order to make the necessary arrangements with reference to the rectification of the existing night soil depot and the preparation of night soil poudrette fit for manuring purposes.

The trained Sanitary Inspector will make the necessary arrangements for the cattle slaughter House on a cheap scale.

of night soil to the neighbouring ryots.

4. Slaughter houses. (a) The Cattle Slaughter house. This is a simple enclosure in a most filthy place namely the Dacoit rocks. These rocks are freely used by the low caste inhabitants of the neighbourhood.

However simple and cheap the structure employed, the Municipality should see that it is kept in a perfect sanitary state. Neglect of this simple precaution may ensure the formation of poisonous toxins in the meat that may, in spite of a certain grade of (heating) Cooking, bring death to the consumers.

(b) Sheep slaughter house. The flooring is very uneven, and thus permits of the lodgment of filth. There is no drain at the sides

sides, nor is any special arrangement made for gutting. The flooring should be plastered with cement, and a pump should be used for the lifting of the waters to an elevated cistern for distribution. A plan of the building as it now exists should be sent to the Sanitary Board, with the request for suggestions for improvement.

A plan of the slaughter house building will be forwarded to the Sanitary Board for instruction with a view to adopting the recommendations of the Sanitary Commissioner

5. Markets (a) The weekly cattle market. Notwithstanding the large number of cattle that are assembled here weekly, no special provision has been made to meet the conditions of contamination of soil which are inevitable. The ground appears saturated with the filth of past years, and mosquitoes find here

here unusual opportunities for rapid increase - a matter of special danger in a town where elephantiasis is endemic. The cheapest method of remedy would probably be to remove the soil for, say, about 6 inches in depth. This might to secure an admirable sale to ryots, for the soil is rich manure. This once removed, a good general slope for drainage should be given. This done, the space should be divided into sections, each of which should have its drain communicating with a major drain. Still better would it be to make special surfaces formed of square cut granite slabs or of Patent Indian Stone (Messrs Garlick & Co Bombay) on which in regular lines the cattle should be placed.

The latrine attached to this market is a mere open space. It should

should be removed, and roofed corrugated iron latrines on the standard plan — should be erected in lieu.

(b) Both in this and the Prince of Wales Market, it is the custom to permit the filth to accumulate for 24 hours, and then proceed to remove. This is an incorrect mode of procedure. There should be a certain number of the very large staff allowed by the Samasthanum constantly on duty, who should be ready to gather up and remove filth quickly enough to prevent the slightest approach to accumulation. A Silchar incinerator. portable ~~X~~ field latterne (price about Rs 400, Agent Mr. Wallace C.E. Bombay or Messrs Burn & Co. — Calcutta

The manager of the Samasthanum has been addressed on the

Calcutta) would be very useful in this locality.

(c) In the Weekly market, the well is in a discreditable state of filth. There are holes in the surroundings, which permit of surface flow to the interior. Both here and in the Prince of Wales Market, the wells should be put into a correct state of repair, be closed, and have attached lift and force pumps permitting of raising the water to an elevated cistern, whence water should be distributed to its destination by means of pipes supplied with taps at the required points.

(d) Meat Bazaar. These are simple sheds. The butchers are provided with old and filthy boxes

boxes and equally filthy blocks. The whole of the arrangements in this market are very far behind the present state of advance in Municipal sanitation, and I consider it is the duty of the Municipality to represent this fact to the Sanitary Manager, who is responsible for the state of the buildings. I am confident that the Municipality have but to represent the facts to secure that necessary improvements are effected. To this end, I am sure the Sanitary Board will be prepared to offer full advice, on being furnished with a plan of the existing buildings by the Manager of the Sanitarium.

6. Vaccination (a) Of 44 children met in the streets

subject and the Council is hopeful that measures will be taken by the Sanitarium authorities for improving the various markets as recommended by the Sanitary Commissioners. Subsequent to the meeting I inspected the markets in company with the Head manager of the Sanitarium to whom I pointed out the various defects and explained to him the remedies suggested by the Sanitary Commissioners with regard to the same. The Manager has promised to effect the remedies as far as practicable.

streets without selection, 10 per cent were found unprotected. There is therefore room for improvement.

(b) The following table exhibits the results of the working of the compulsory clauses, as reported by the Municipality:-

Total births during the first 6 months of 1894.	No. Vaccinated Successfully	No. Vaccinated unsuccessfully for the first time	No. Vaccinated a second time because first operation proved unsuccessful		Postponed under Sec. 32 certificate at the end of 2 months	Died	Left the town	Unaccounted for	Ratio of Successful vaccination to total births per cent	Prosecutions for failure to accept vaccination during the year up to date			
			Successful	Unsuccessful						No. of Summonses issued	No. of cases dismissed by magistrate	No. of Convictions	
495	200	6	6	"	12	90	130	57	44·9	304	297	7	

The vaccinator is called upon to enforce the clause referring to the examination of results on the 7th day.

Attendance at the Municipal Depot is not insisted upon in all cases. Especially this seems neglected in reference to examination of results on the 7th day. This should be scrupulously enforced

enforced by the Municipality. Only by attention to this detail can it be possible for the vaccinator to accomplish his duty in the systematic manner necessary for correct working of the compulsory clauses.

7. Registration (a) According to a report received from the Chairman, he has since my visit promptly arranged for a better organization than existed of the Registration Department. There is therefore no necessity for me to dilate on this subject.

The following shows the results secured:-

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 three preceding years.	Ratio per mille of deaths of infants between one and five years of age to population of that age.
			Cholera	Small pox	Fevers	Bronchitis, pneumonia and pleurisy	Diarrhœa	all other causes		
1893	26.5	22.1	.	0.4	44.2	3.1	-	52.3	223.2	14.1
1894	26.7	24.6	.	0.4	43.1	5.1	0.8	50.7	231.0	21.4
1895 up to end of July	21.3	20.3	.	0.4	43.6	7.3	0.4	48.3	159.5	21.6

(b) This statement shows that the reform mentioned was urgently required - the statistics bespeaking an untrustworthy condition. This is specially marked as to the birth rate. Without an accurate record of births, it is of course out of the question that vaccination can be conducted satisfactorily.

Sanitary

In the case of the so-called Cantonment as only a single regiment is on the spot, ~~and~~ it seems unnecessary that a separate sanitary organization having its own laws should exist there.

W. King
Surgeon Lieut-Col
Sanitary Commissioner

Fort St George
2nd Nov. Oct. 1895

Municipal Office,

No 270

Vizianagaram, 26th February 1896

From

M. R. Ry.
V. VENKATARAYA SASTRI GARU,
Chairman, Municipal Council,
VIZIANAGARAM.

To

The Chief Secretary to Government
Fort Saint George, Madras.

Sir,

I have the honor to forward herewith the Inspection Notes of the Sanitary Commissioner, Madras for 1895 together with my remarks thereon as approved of by the Council at its meeting held on the 15th instant -

With regard to para 2 - Water-supply - (c)

Ayya Koneru - I have the honor to state that the proposal to borrow a sum of Rs 3000 from the Manager of the Samast anum may be sanctioned by Government at an early date so that the Council may proceed to put the work under execution - at once -

A copy of the Council's resolution on the subject is herewith submitted for the information of Government.

I have the honor to be
sir,
your most obedient servant

V. Venkatarayasastri
Chairman, M. C

Local & Municipal Dept.
From DUPLICATE No. 888/M

THE CHAIRMAN,
MUNICIPAL COUNCIL,
VIZIANAGARAM.

To
The Chief Secretary to Govt
Fort Saint George. Madras.

No. 270
Encl 2-
Dated 26th February 1896
Despatched 27th
Received

SUBJECT.

Submitting Inspection notes of the Sanitary Commissioner, Madras.

Cur. No. 745 of 1896
COLLECTOR'S OFFICE, VIZAGAPATAM.

Current No. 545

Forwarded - The Chairman is doing all he can to see that the Sanitary Commr's suggestions are not lost sight of. The sewage filters, which I have seen seem satisfactory but very many more are required of course.

Vizianagaram 5-8-96
Lutur Muller P.H.C.M. 4.3.96.

Vizianagaram
7 MAR 1896

Forwarded
M. Devereux Collector
9. 3. 96

CHIEF SECRETARY'S GOVERNMENT OF MADRAS
13 MAR 1896

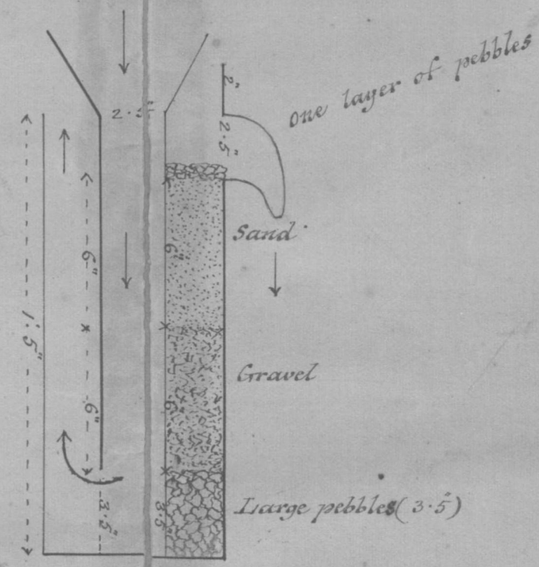
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RECEIVED IN THE SURVEY OFFICE ON 21 MAR. 96 MADRAS

RECEIVED IN THE SURVEY OFFICE ON 25 MAY. 96 MADRAS

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PARTMENT.

RI Garu, Chairman, Municipal
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replies thereon as approved of by

y, (c) Ayya koneru, I have the
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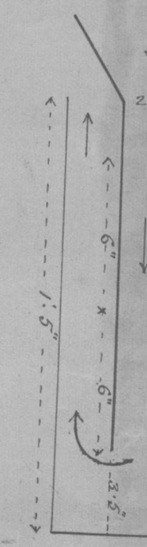
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		Total ..	30,881

Chairman's Remarks.



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RECEIVED IN THE SURVEY OFFICE ON 21 MAR. 96 MADRAS

RECEIVED IN THE SURVEY OFFICE ON 25 MAY. 96 MADRAS

No. 760 M., 4TH MAY 1896.

GOVERNMENT OF MADRAS.

LOCAL AND MUNICIPAL DEPARTMENT.

READ—the following paper :—

From M.R.Ry. V. VENKATARAYA SASTRI Garu, Chairman, Municipal Council, Vizianagram, to the Chief Secretary to Government, dated 26th February 1896, No. 270.

I have the honour to forward herewith the Inspection Notes of the Sanitary Commissioner, Madras, for 1895, together with my replies thereon as approved of by the council at its meeting held on the 15th instant.

2. With regard to paragraph 2, Water-supply, (*c*) Ayya koneru, I have the honour to state that the proposal to borrow a sum of Rs. 3,000 from the Manager of the Samastanam may be sanctioned by Government at an early date so that the council may proceed to put the work under execution at once.

3. A copy of the council's resolution on the subject is herewith submitted for the information of Government.

ENCLOSURES.

INSPECTION NOTES of the Sanitary Commissioner, Madras.

VIZAGAPATAM DISTRICT.

VIZIANAGRAM MUNICIPALITY.

Inspected 29th to 31st July 1895.

Population as per census of 1891..	Males	14,882
	Females	15,999
	Total ..	30,881

Inspection Notes.	Chairman's Remarks.
Sewerage.—(*a*) The majority of the sewage enters a large tank—the Pedda cheruvu. Whilst fairly full the processes of chemical and biological change appear to be undergone inoffensively, but, in the hot season, the stenches evolved are unbearable. A scheme, drawn up by the Sanitary Engineer's Department, is now under consideration. It contemplates protection of the tank by the use of an interception sewer. But, until this large scheme is effected, it is manifest that something might be done. It seems to me the conditions could largely be met by the use of sewage filters.	

Inspection Notes.

(*b*) With admirable energy, whilst I was at Vizianagram the Municipal Chairman carried out my suggestion of making an experimental filter near the cattle market. By adhering to this principle and effecting it under engineering advice at the various points of entrance of sewage, it ought to be possible to allow nothing to enter beyond a practically pure filtrate. Here is the account of the Chairman of the Municipal Council, Vizagapatam, who also erected on my advice a sewage filter of the same pattern:—

"The amount of sewage daily dealt with is about 7,200 gallons. The filtrate is clear and looks like pure water. At first, *i.e.*, a few days after the filter began to work, the filtrate tasted brackish: now it is not so."

(*c*) In regard to the sewage from houses, I invited the Chairman to sanction the making of a filter of a size that would permit the dealing with it on the spot, instead of permitting it to soak in the surroundings. Kerosene oil drums were then fitted up as I directed (*vide* margin). The effect secured is thus stated by the Chairman:—

"The domestic sewage-filter made when you were here is working excellently well. I have seen the filter myself and found the dirtiest sewage that is let into it coming out so pure that the water will be accepted for drinking by any human being who has not previously known that it was filtered sewage."

(*d*) I consider this simple mode offers an infinitely better method of disposal in this climate than cesspools, except where the latter can be made of the best material and be worked with odourless pumps lifting into air-tight carts. All the solid matter and part of the matter in solution must be arrested by the biological action of this filter, and instead of stinking sewage to soak in the ground surface all that is found is a clear and odourless water, which by reason of its not clogging the pores of the soil, or offering a greasy scum, rapidly evaporates or soaks in the ground. That it does not meet all sanitary ends is indubitable; but considering its cost—about Rs. 1–2–0 to Rs. 1–8–0—I think it offers considerable advantages where poverty of inhabitants presents difficulty.

(*e*) Much of the sewage nominally collected in the area drained towards the Pedda cheruvu really never reaches it, not only on account of the defective character

Chairman's Remarks.

The sewage-filter at Dába gardens has been improved later on by the construction of a masonry cistern measuring and is working well as has already been reported to the Sanitary Commissioner.

Thirty iron sewage-filters of the design recommended by the Sanitary Commissioner were made and they have been introduced in two streets in Suntapeta. The result of their working is as satisfactory as has been reported to the Sanitary Commissioner. More are in course of construction and they will be gradually introduced into the town as far as practicable.

—

They will cost the municipal council about Rs. 6,000 per annum to keep up. I don't know where the money is to come from.

9*th March* 1896. (Intld.) W.A.W.

—

Inspection Notes.

of the surface drains, but because for a considerable distance covered sewers are employed, which permit of the sewage permeating the soil. Any scheme for improvement of the condition of the Pedda cheruvu ought to take cognizance of this matter.

(*f*) In the south moat, two sewage drains make their exit from the Maharaja's palace. In the case of one, it would be possible to run the sewage on to a small filter, and in the other to a plot of ground for grass or other cultivation.

(*g*) The Fort street, which lines the Fort moat on one side, passes its sewage and surface drainage from anything but cleanly yards direct into the moat. This could, without much difficulty, be remedied by making the slope of the backyards towards the front, where it could be received in the street drain.

(*h*) The Chairman has a scheme for diverting the sewage from the Fort and the Ayya konneru to a plot that will serve as a sewage farm. Unfortunately, the ground available is constantly waterlogged by irrigation of the whole surroundings; so that, unless the municipality could afford to raise the ground, or stop the irrigation, the disposal of the sewage at this site would be surrounded with difficulties. Probably, the easiest way would be to cultivate during the part of the year that no irrigation is pursued a plot of ground for grass or other crop, and during the remainder of the year to trust to the use of a large sewage filter. The Maharanipeta drain, which would form part of this scheme, is undoubtedly a great and constant source of nuisance. Its condition could, however, be greatly improved by the use of half-tile glazed drains (obtainable at Messrs. Burn & Co., Calcutta) of a size that would accommodate the sewage only. At present, much of the stench is caused by the fact that no regular flow can be maintained on account of the small amount of sewage withdrawn in a section of drain that would admit of enormous quantities of surface water.

2. *Water-supply*—(*a*) *Boochmari's Tank.*—This is supplied by surface water from a fairly trustworthy area. The lower feeding channel has been passed through to

Chairman's Remarks.

The head manager of the Samastanam has made arrangements for carrying off this sewage to a distant place into the paddy fields.

These arrangements are still incomplete.

4*th March* 1896. (Intld.)

Notices have been issued to the inhabitants of the street to divert their drainage into the municipal side drain in front. The council will insist upon effecting the remedy suggested by the Sanitary Commissioner within the near future.

As the Sanitary Commissioner does not seem to have approved of the locality as being fit for opening a sewage farm of the kind that has been under the contemplation of the council, it is seeking to find a better locality, as it is very anxious to dispose of the town sewage by opening such a farm. The District Sanitary Officer has been addressed to advise the council in selecting one of a number of localities now in its view. The scheme will no doubt be worked under the advice, and as far as practicable under the supervision, of the District Sanitary Officer. The scheme will, it is hoped, become an accomplished fact in the course of the next official year.

The Sanitary Board will be addressed to furnish an estimate for constructing a half-tile glazed drain in Maharanipeta as recommended by the Sanitary Commissioner. The work will be undertaken in the course of the next official year.

Inspection Notes.

form a railway cutting. So far as can be judged by mere inspection, I should say that the new channel supplied by the railway does not correspond in area with that formerly in use, with the consequence that the tank fails to receive so large a supply as hitherto. The municipality should have the area of the channel ascertained, and, if my surmise be correct, the railway can rightfully be required to make matters correct.

(*b*) Close to the bund there is a well-built masonry well. The municipality should endeavour to encourage the people to resort to this, instead of to the surface water, as the supply must be much less contaminated. Were this well supplied with a pump for elevating the water to a cistern provided with taps and placed upon the bund, the people in this area of the town would have the advantage of possessing correctly-protected and safe water. To ascertain what this proposal would cost, it would be necessary for the municipality to state what the yield of the well is. This could be readily ascertained by the use of a môt of measured capacity for a certain number of houses. However, I show below what would be the cost of pumps worked by hand-power and the amount they would lift per hour :—

Chairman's Remarks.

The Railway authorities have been addressed on the matter and their reply awaited.

It is evident that the municipality cannot afford to provide the well with a pump as recommended by the Sanitary Commissioner. The public were however invited to subscribe and raise a fund for the purpose and the council trusts that its efforts in this direction may be attended with success.

Hand-power Lift and Force Pump for wells under 25 feet deep.					
Bore of working barrel— Inches	2	2½	3	3½	4
Diameter of suction pipe. ,,	1	1¼	1½	2	2
Delivery in gallons per hour (approximate)	220	350	450	600	700
	Rs.	Rs.	Rs.	Rs.	Rs.
With brass barrels	55	75	90	105	125
,, iron barrels, brass lined ..	45	55	68	80	95
,, brass barrels	53	68	75	90	110
,, iron barrels, brass lined ..	40	50	60	70	80
,, iron barrels ..	..	35	45	60	..
	25	30	35	48	60
	32	38	44	58	72

"A frame" Lift and Force Pump for hand-power and belt driving.				
Bore of working barrels. In.	2½	3	3½	4
Bore of suction and delivery pipes .. .. ,,	1½	2	2½	2½
Delivery in gallons per hour at 30 strokes per minute (approximate)	550	850	1,000	1,500
	Rs.	Rs.	Rs.	Rs.
Double-barrelled brass pumps for hand power	300	340	375	420
Double-barrelled brass pumps for fast and loose pulleys ..	318	360	395	445
Double-barrelled brass pumps for hand power	325	370	410	460
Double-barrelled brass pumps with fast and loose pulleys.	345	390	435	485
Extra for strong copper air vessel	22	22	25	25

(*c*) *Ayya Koneru.*—This is a large and handsome masonry tank. To accomplish withdrawal, the usual method of approach is permitted, with the result of giving dangerous opportunities for contamination. The only way to meet this difficulty is one which I do not care to press upon the municipality, in view of its

Inspection Notes.

being probable they will secure a correct public water-supply in course of time, namely, the purchase of a steam-engine and of a steam pump and tank fitted with taps. I enclose for its information a photo of the jubilee well at Negapatam which is worked on the same principles. This is a sound sanitary arrangement that is immensely popular in Negapatam, and if the municipality could manage to raise a subscription and aid it in part by municipal funds I think it would be an admirable protection. It could not be hoped at the best, I presume, that a water-supply scheme could be completed under two years, and money spent upon this effort would by no means be wasted, as the plant would obtain a ready sale on its being no longer required locally. I show below the price of steam pumps; the tank and other fittings required would not absorb Rs. 1,500 in addition :—

Approximate price of vertical engine, vertical cross-tube boiler, brass pumps, pipes, and all necessary fittings arranged for a well 70 feet deep and equal to a total lift of 100 feet from water-level—

	Rs.
Delivering approximately 2,800 gallons per hour	2,350
Delivering approximately 4,000 gallons per hour	3,000
Delivering approximately 6,000 gallons per hour	3,550

The feeding channel of this tank is open to defilement. Measures have already been proposed by the municipality to run a syphon underneath the collecting channel, so as to exclude the contaminated water from entrance.

(*d*) The municipality has sunk a new well near Davisapetta. This should be cement plastered down to the low water level. It now requires complete emptying, so as to get rid of the water which has taken up lime during construction. This and the sister well on the same spot will doubtless yield capital water, as the collecting area is free from contamination. Both sources are largely used by the better class in the town, who have sufficient appreciation of the value of pure water to send thus far for it. It is, however, impossible for it to remain pure so long as persons are allowed to withdraw water in their own vessels with their own ropes, &c. Here certainly it would be advantageous to place a pump and cistern provided with taps so as to deliver the water without contamination.

Chairman's Remarks.

The suggestions of the Sanitary Commissioner commend themselves very much to the council, but as the tank in question belongs to the Samastanam, the Samastanam authorities were addressed on the subject. At to-day's meeting, its manager, who is also a councillor, has been pleased to offer for the purpose a loan of Rs. 3,000 without interest subject to the condition of the same being discharged within three years at three equal instalments. It is particularly requested that the Government will be pleased to sanction this small loan for the purpose. As the Sanitary Commissioner's proposal is, in the opinion of the council, expected to effect a prior water-supply for not less than half the population of the town using the tank, I am confident that the loan could be secured on still more favourable terms, should the Government be pleased to sanction the loan.

The well has been more than once emptied recently. The council will provide the well with the pump recommended in the course of the next official year in consideration of the appreciation of the value of the water therein by the public.

Inspection Notes.

(*e*) The Maharaja of Vizianagram with his usual public spirit and liberality has gone to the expense of obtaining an engineer from England for the purpose of supplying this town with water. The scheme proposed was the obtaining of water from the river Nellimarla (Champanati), a distance of about four miles from the town. The cost for such a scheme is, on account of the distance, very heavy and the question is now in abeyance. Under these circumstances, I searched the neighbourhood for other sources of supply. The line of drainage of the Párvatípuram valley sub-soil water would, in consideration of the configuration of the country near the Yerrakonda, seem to find in great part an outlet in the ridge of ground separating the Choti Himalaya valley from this hill. Thus, if the Yerrakonda be walked round, on the west side it will be found that the sub-soil water is within a foot or two of the surface from the tannery northwards, and that there are great stores of it apparent as shown by the wells sunk here. Again, at the northern extremity the water is found at the surface in large perennial springs, which afford water for irrigation purposes. Thence on the eastern side, near a village, the sub-soil water is found within six feet of the surface, and to the south of the Yerrakonda are numerous perennial springs which are freely used by dhobies, and which have never been known to cease flowing even during the great famine of 1876–77. In one spot I found over twenty excavations made into a steep bank of gravel by dhobies—resulting in the outflow of over twenty considerable and constantly-flowing streams. Proceeding from this point towards the town, through the railway bridge, will be found a tank supplied in great part by springs. Scattered here and there in the same neighbourhood will be found springs appearing on the surface of the gravel. It seems to me by depending upon this obviously rich sub-soil sheet that the wants of Vizianagram can be more cheaply supplied than by a river-water scheme, and I need hardly add that, in view of protection from contamination, no source could offer better security than the sub-soil of the area in question at most of the possible points. Collection could be arranged either by a series of wells, by a gallery, or by the uniting of driven tube wells and pumping direct to the town.

Chairman's Remarks.

The council has more than once addressed the Government on the urgent necessity of taking up a water-supply scheme for this municipality even in preference to the drainage scheme that has been so long under contemplation. The council is highly grateful to the Sanitary Commissioner for the marvellous energy with which he inspected the surroundings of the Yerrakonda at so much personal inconvenience in order to investigate a scheme for water-supply. It learns with great pleasure that the Hon'ble the Maharaja of Vizianagram, G.C.I.E., has expressed a willingness to contribute so generously towards the scheme, for which aid the council will doubtless be ever indebted to him. The council considers that with such an aid, the scheme may be undertaken should it commend itself to the Sanitary Board and the Government.

Inspection Notes.

(*f*) On my communicating this proposal to the Maharaja, he had the great generosity to state that he would request the engineer he had engaged to arrive in the country in October to investigate the scheme, and if it could be effected, he would from his own purse contribute one-and-a-half lakhs towards carrying it out—an offer which will doubtless secure for him the lasting gratitude of the inhabitants of Vizianagram, whose best interests he thus subserves.

3. *Conservancy*—(*a*) *Rubbish removal.*—There are 237 dust-bins and 28 rubbish carts. It is unfortunately not possible to say how much labour is devoted to rubbish removal, as the sweepers also perform the duty of scavengers; but I shall allude to this subject under night-soil conservancy. The arrangement with the contractor requires the municipality to collect and deliver the rubbish at a certain spot, whence it is removed daily by the latter. At the time of my inspection, it was however obvious from the amount stored there that the contractor had failed to carry out his terms for some time past.

(*b*) *Night-soil collection.*—The municipality has lately erected a urinal at the drain near the Prince of Wales' market. It is probable that a urinal in this special locality would be useful; but I would advise the municipality to have as little to do with the erection of urinals as possible until the far more important question as to night-soil conservancy is completely attended to. In the case of this urinal, I would advise the addition of a Vizianagram sewage-filter, so as to prevent odour in this vicinity; its dimensions should, however, be large. There are twenty-six latrines. With the exception of two of masonry, they are all simply "enclosed open spaces." Year by year, the municipality should endeavour to replace these by the erection of others on the Sanitary Board's standard plans.

(*c*) *Private Latrines.*—These are often conveniently placed near the front of the house, and can be approached by the toties by means of a small trap door. This is a good form; but, in all cases, the municipality should insist upon the provision of a special receptacle, preferably iron, for receipt of fœcal matter. The floor should be of cement, and where this form could be afforded the glazed stoneware platforms patented by Mr. Donaldson, as sold by Messrs. Burn & Co., Calcutta, would make suitable seats.

Chairman's Remarks.

The council regrets that the conditions of the contract could not be enforced in the current year, but every effort will be made to enforce the same in the next official year.

The Vizianagram sewage-filter on a large scale is prepared and fixed at the bottom of the urinal in question. In deference to the Sanitary Commissioner's recommendations, two iron latrines and one urinal have been purchased. The number will be increased gradually .

The trained sanitary inspector is directed to induce people to adopt the recommendation of the Sanitary Commissioner with regard to the private privies and their upkeep.

Inspection Notes.

In regard to private scavenging a very mixed arrangement exists. This the Municipal Chairman has described in his letter to Government, a copy of which he has supplied this office. Under the circumstances therein described, probably the best thing the municipality can do is to pursue the present unsatisfactory system until power to prevent strikes by municipal scavengers is placed in its hands by the revised Act No. IV of 1884, which is at present under the consideration of Government. It should, however, do its best in the meantime to weaken the power of combinations against it by insisting that the scavengers shall be employed solely for night-soil work and the ordinary class of sweepers for collection of rubbish. By thus discharging the surplus represented by the excess of private scavengers, it would probably be in a better position to make its own arrangements.

(*d*) Including all requirements of the general population and private scavenging, a staff of sixty-two toties should suffice and for rubbish collection thirty-one sweepers.

(*e*) The night-soil depôt is sufficiently removed from dwellings, but it requires to be carefully laid out. The sanitary inspector, who is a certificated man, has already pointed this out to the council, and considering the fact that all that is required to reduce arrangements to correct order and system would be the employment of a few coolies for a short period, I trust the municipality will see to this simple but important matter. This sanitary inspector should be encouraged to exhibit results of making of poudrette after the various methods and to cultivate a plot of ground with it. A good object-lesson in this matter would aid in securing a free sale of night-soil to the neighbouring ryots.

4. *Slaughter-houses*—(*a*) *The Cattle Slaughter-house.*—This is a simple enclosure in a most filthy place, viz., the Dacoor rocks. These rocks are freely used by the low-caste inhabitants of the neighbourhood. However simple and cheap the structure employed, the municipality should see that it is kept in a perfect sanitary state. Neglect of this simple precaution may ensure the formation of poisonous toxins in the meat that may, in spite of a certain grade of heat in cooking, bring death to the consumers.

Chairman's Remarks.

The trained sanitary inspector has already been directed to employ a few coolies for a short period in order to make the necessary arrangements with reference to the rectification of the existing night-soil depôt and the preparation of night-soil poudrette fit for manuring purposes.

The trained sanitary inspector will make the necessary arrangements for the cattle slaughter-house on a cheap scale.

Inspection Notes.

(*b*) *Sheep Slaughter-house.*—The flooring is very uneven, and thus permits of the lodgment of filth. There is no drain at the sides nor is any special arrangement made for gutting. The flooring should be plastered with cement, and a pump should be used for the lifting of the water to an elevated cistern for distribution. A plan of the building as it now exists should be sent to the Sanitary Board, with the request for suggestions for improvement.

5. *Markets*—(*a*) *The weekly Cattle Market.*—Notwithstanding the large number of cattle that are assembled here weekly, no special provision has been made to meet the conditions of contamination of soil which are inevitable. The ground appears saturated with the filth of past years and mosquitoes find here unusual opportunities for rapid increase—a matter of special danger in a town where elephantiasis is endemic. The cheapest method of remedy would probably be to remove the soil for, say, about six inches in depth. This ought to secure an admirable sale to ryots, for the soil is rich manure. This once removed, a good general slope for drainage should be given. This done, the space should be divided into sections, each of which should have its drain communicating with a major drain. Still better would it be to make special surfaces formed of square cut granite slabs or of Patent Indian Stone (Messrs. Garlick & Co., Bombay) on which in regular lines the cattle should be placed.

The latrine attached to this market is a mere open space. It should be removed, and roofed, corrugated-iron latrines on the standard plan should be erected in lieu.

(*b*) Both in this and the Prince of Wales' market, it is the custom to permit the filth to accumulate for 24 hours, and then proceed to remove. This is an incorrect mode of procedure. There should be a certain number of the very large staff allowed by the Samastanam constantly on duty, who should be ready to gather up and remove filth quickly enough to prevent the slightest approach to accumulation. A Silchar incinerator, portable field pattern (price about Rs. 400, Agent Mr. Wallace, C.E., Bombay, or Messrs. Burn & Co., Calcutta), would be very useful in this locality.

Chairman's Remarks.

A plan of the slaughter-house building will be forwarded to the Sanitary Board for instruction with a view to adopting the recommendations of the Sanitary Commissioner.

Inspection Notes.

(*c*) In the weekly market, the well is in a discreditable state of filth. There are holes in the surroundings, which permit of surface flow to the interior. Both here and in the Prince of Wales' market, the wells should be put into a correct state of repair, be closed, and have attached lift and force pumps permitting of raising the water to an elevated cistern, whence water should be distributed to its destination by means of pipes supplied with taps at the required points.

(*d*) *Meat Bazaar.*—These are simple sheds. The butchers are provided with old and filthy boxes and equally filthy blocks. The whole of the arrangements in this market are very far behind the present state of advance in municipal sanitation, and I consider it is the duty of the municipality to represent this fact to the Samastanam manager, who is responsible for the state of the buildings. I am confident that the municipality have but to represent the facts to secure that necessary improvements are effected. To this end I am sure the Sanitary Board will be prepared to offer full advice, on being furnished with a plan of the existing buildings by the manager of the Samastanam.

Chairman's Remarks

The manager of the Samastanam has been addressed on the subject and the council is hopeful that measures will be taken by the Samastanam authorities for improving the various markets as recommended by the Sanitary Commissioner. Subsequent to the meeting I inspected the markets in company with the head manager of the Samastanam, to whom I pointed out the various defects and explained to him the remedies suggested by the Sanitary Commissioner with regard to the same. The manager has promised to effect the remedies as far as practicable.

6. *Vaccination.*—(*a*) Of forty-four children met in the streets without selection, 10 per cent. were found unprotected. There is therefore room for improvement.

(*b*) The following table exhibits the results of the working of the compulsory clauses, as reported by the municipality :—

Total births during the first six months of 1894.	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.	Ratio of successful vaccination to total births per cent.	Prosecutions for failure 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.
495	200	6	6	..	12	90	130	57	44·9	304	297	7

Attendance at the municipal depôt is not insisted upon in all cases. Especially this seems neglected in reference to examination of results on the seventh day. This should be scrupulously enforced by the municipality. Only by attention to this detail can it be possible for the vaccinator to accomplish his duty in the systematic manner necessary for correct working of the compulsory clauses.

The vaccinator is called upon to enforce the clause referring to the examination of results on the seventh day.

Inspection Notes.

Chairman's Remarks.

7. *Registration.*—(*a*) According to a report received from the Chairman, he has since my visit promptly arranged for a better organization than existed of the Registration department. There is therefore no necessity for me to dilate on this subject.

The following shows the results secured :—

Years.	Ratio of births per mille of estimated population.	Ratio of births per mille of estimated population.	Percentage of deaths from						Ratio of deaths of infants under one year of age per mille to registered births in the preceding year.	Ratio per mille of deaths of infants between one and five years of age to population of hat tage.
			Cholera.	Small-pox.	Fevers.	Dysentery and diarrhœa.	Injuries.	All other causes.		
1893	26·5	22·1	..	0·4	44·2	3·1	..	52·3	223 2	14·1
1894	26·7	24·6	..	0·4	43·1	5·1	0·8	50·7	231·0	21·4
1895 up to end of July.	21·3	20·3	..	0·4	43·6	7·3	0·4	48·3	159·5	21·6

(*b*) This statement shows that the reform mentioned was urgently required, the statistics bespeaking an untrustworthy condition. This is specially marked as to the birth-rate. Without an accurate record of births, it is of course out of the question that vaccination can be conducted satisfactorily.

8. *Sanitary Administration.*—I consider the municipal limits require reconsideration. I find that between the railway station and the town is a narrow belt of ground under the local fund board. This was given up by the municipality, with the rather selfish policy of not having to support the road. But now that the road serves the railway station, conditions are altered. It is most undesirable for sanitary reasons to have a railway station so close to municipal limits and yet beyond its sanitary control. Again, beyond the railway station commence the cantonment limits. On the other side of the tank the municipal limits are bounded by those of the Samastanam. Even the Pedda Cheruvu tank is out of the municipal limits, although municipal roads skirt its banks.

Inspection Notes.

It seems to me undesirable that this multiplicity of authority should exist over so small an area—so close to the town that the sanitary condition of the surroundings is a matter of importance. I think it desirable, if conflicting interests can by any method be made to subserve the common good of the inhabitants of Vizianagram, that the cantonment, the local fund strip mentioned, and the part of the Samastanam now out of municipal limits, should be placed definitely under municipal rule. In the case of the so-called cantonment, as only a single regiment is on the spot it seems unnecessary that a separate sanitary organization having its own laws should exist there.

FORT ST. GEORGE,
2*nd November* 1895.

(Signed) W. G. KING, Surgn.-Lieut.-Col.,
Sanitary Commissioner for Madras.

Chairman's Remarks.

The council is aware of the necessity of renewing the municipal limits. A separate communication will be forwarded to the Government on the subject later on.

EXTRACT from the Proceedings of the Municipal Council, Vizianagram, at a meeting held on Saturday, the 15th February 1896.

* * * * *

I. Laid on the table the inspection notes of the Sanitary Commissioner, Madras, on his inspection of this municipality on 29th—31st July 1895, and the Chairman's replies thereon.

Resolution.—The draft replies are approved by the council. The council thankfully accepts the offer of a loan of Rs. 3,000 without interest made by the manager of the Samastanam for the purchase of a steam-engine, steam-pump and a tank fitted with taps, &c., for the use of Ayyakoneru.

* * * * *

Cur. No. 545.

Forwarded. The Chairman is doing all he can to see that the Sanitary Commissioner's suggestions are not lost sight of. The sewage-filters which I have seen seem satisfactory, but very many more are required of course.

VIZIANAGRAM,
5*th March* 1896.

(Signed) L. C. MILLER,
Prinl. Asst. Collector.

Forwarded.

9*th March* 1896.

(Signed) W. A. WILLOCK,
Collector.

ORDER—No. 760 M., dated 4th May 1896.

Recorded, with the following remarks :—

(1) The municipal council's proposal to borrow a sum of Rs. 3,000 for providing for a proper supply of water from the Ayyakonéru is approved, and the Chairman will be requested to submit, without delay, an application in the form prescribed in G.O., No. 322 L., dated 8th February 1889.

(2) The council's attention will be drawn to the Collector's remarks in paragraph 1 (*d*) and (*f*) of the inspection notes.

(3) The scheme for the water-supply of the town suggested by Dr. King in paragraph 2 (*e*) of his notes will be referred to the Sanitary Board for remarks.

(4) The further communication, regarding the alteration of the municipal limits, promised by the Chairman, will be awaited.

(True Extract.)

Under Secy., P.W.D.,
for *Chief Secretary.*

To the Chairman, Municipal Council, Vizianagram.
" Collector of Vizagapatam.
" Sanitary Commissioner.
" Sanitary Engineer.
" Sanitary Board.
Editors' Table.

Exd. A. Baitt.

Govt. of {1896} Madras.

LOCAL AND MUNICIPAL.

Issued

Recd. *Encl:*

G.O., No. 760 M., 4th May 1896.

MAY.

Inspection Notes.

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

No. 760 M., April 1896.

GOVERNMENT OF MADRAS.

LOCAL AND MUNICIPAL DEPARTMENT.

Read—the following paper :—

From M.R.Ry. V. VENKATARAYA SASTRI Garu, Chairman, Municipal Council, Vizianagram, to the Chief Secretary to Government, dated 26th February 1896, No. 270.

I have the honour to forward herewith the Inspection Notes of the Sanitary Commissioner, Madras, for 1895, together with my replies thereon as approved of by the council at its meeting held on the 15th instant.

2. With regard to paragraph 2, Water-supply, (*c*) Ayya koneru, I have the honour to state that the proposal to borrow a sum of Rs. 3,000 from the Manager of the Samastanam may be sanctioned by Government at an early date so that the council may proceed to put the work under execution at once.

3. A copy of the council's resolution on the subject is herewith submitted for the information of Government.

Enclosures.

Inspection Notes of the Sanitary Commissioner, Madras.

VIZAGAPATAM DISTRICT.

Vizianagram Municipality.

Inspected 29th to 31st July 1895.

Population as per census of 1891..	Males		14,882
	Females		15,999
	Total ..		30,881

Inspection Notes.

Sewerage.—(*a*) The majority of the sewage enters a large tank—the Pedda cheruvu. Whilst fairly full the processes of chemical and biological change appear to be undergone inoffensively, but, in the hot season, the stenches evolved are unbearable. A scheme, drawn up by the Sanitary Engineer's Department, is now under consideration. It contemplates protection of the tank by the use of an interception sewer. But, until this large scheme is effected, it is manifest that something might be done. It seems to me the conditions could largely be met by the use of sewage filters.

Chairman's Remarks.

Inspection Notes.

(*b*) With admirable energy, whilst I was at Vizianagram the Municipal Chairman carried out my suggestion of making an experimental filter near the cattle market. By adhering to this principle and effecting it under engineering advice at the various points of entrance of sewage, it ought to be possible to allow nothing to enter beyond a practically pure filtrate. Here is the account of the Chairman of the Municipal Council, Vizagapatam, who also erected on my advice a sewage filter of the same pattern :—

"The amount of sewage daily dealt with is about 7,200 gallons. The filtrate is clear and looks like pure water. At first, *i.e.*, a few days after the filter began to work, the filtrate tasted brackish : now it is not so."

(*c*) In regard to the sewage from houses, I invited the Chairman to sanction the making of a filter of a size that would permit the dealing with it on the spot, instead of permitting it to soak in the surroundings. Kerosene oil drums were then fitted up as I directed (*vide* margin). The effect secured is thus stated by the Chairman : —

"The domestic sewage-filter made when you were here is working excellently well. I have seen the filter myself and found the dirtiest sewage that is let into it coming out so pure that the water will be accepted for drinking by any human being who has not previously known that it was filtered sewage."

(*d*) I consider this simple mode offers an infinitely better method of disposal in this climate than cesspools, except where the latter can be made of the best material and be worked with odourless pumps lifting into air-tight carts. All the solid matter and part of the matter in solution must be arrested by the biological action of this filter, and instead of stinking sewage to soak in the ground surface all that is found is a clear and odourless water, which by reason of its not clogging the pores of the soil, or offering a greasy scum, rapidly evaporates or soaks in the ground. That it does not meet all sanitary ends is indubitable ; but considering its cost—about Rs. 1–2–0 to Rs. 1–8–0—I think it offers considerable advantages where poverty of inhabitants presents difficulty.

(*e*) Much of the sewage nominally collected in the area drained towards the Pedda cheruvu really never reaches it, not only on account of the defective character

Chairman's Remarks.

The sewage-filter at Dába gardens has been improved later on by the construction of a masonry cistern measuring and is working well as has already been reported to the Sanitary Commissioner.

Thirty iron sewage-filters of the design recommended by the Sanitary Commissioner were made and they have been introduced in two streets in Suntapeta. The result of their working is as satisfactory as has been reported to the Sanitary Commissioner. More are in course of construction and they will be gradually introduced into the town as far as practicable.

—

They will cost the municipal council about Rs. 6,000 per annum to keep up. I don't know where the money is to come from.

9*th March* 1896. (Intld.) W.A.W.

—

Inspection Notes.

of the surface drains, but because for a considerable distance covered sewers are employed, which permit of the sewage permeating the soil. Any scheme for improvement of the condition of the Pedda cheruvu ought to take cognizance of this matter.

(*f*) In the south moat, two sewage drains make their exit from the Maharaja's palace. In the case of one, it would be possible to run the sewage on to a small filter, and in the other to a plot of ground for grass or other cultivation.

(*g*) The Fort street, which lines the Fort moat on one side, passes its sewage and surface drainage from anything but cleanly yards direct into the moat. This could, without much difficulty, be remedied by making the slope of the backyards towards the front, where it could be received in the street drain.

(*h*) The Chairman has a scheme for diverting the sewage from the Fort and the Ayya konneru to a plot that will serve as a sewage farm. Unfortunately, the ground available is constantly waterlogged by irrigation of the whole surroundings; so that, unless the municipality could afford to raise the ground, or stop the irrigation, the disposal of the sewage at this site would be surrounded with difficulties. Probably, the easiest way would be to cultivate during the part of the year that no irrigation is pursued a plot of ground for grass or other crop, and during the remainder of the year to trust to the use of a large sewage filter. The Maharanipeta drain, which would form part of this scheme, is undoubtedly a great and constant source of nuisance. Its condition could, however, be greatly improved by the use of half-tile glazed drains (obtainable at Messrs. Burn & Co., Calcutta) of a size that would accommodate the sewage only. At present, much of the stench is caused by the fact that no regular flow can be maintained on account of the small amount of sewage withdrawn in a section of drain that would admit of enormous quantities of surface water.

2. *Water-supply*—(*a*) *Boochmari's Tank.*—This is supplied by surface water from a fairly trustworthy area. The lower feeding channel has been passed through to

Chairman's Remarks.

The head manager of the Samastanam has made arrangements for carrying off this sewage to a distant place into the paddy fields.

These arrangements are still incomplete.

4th March 1896. (Intld.)

Notices have been issued to the inhabitants of the street to divert their drainage into the municipal side drain in front. The council will insist upon effecting the remedy suggested by the Sanitary Commissioner within the near future.

As the Sanitary Commissioner does not seem to have approved of the locality as being fit for opening a sewage farm of the kind that has been under the contemplation of the council, it is seeking to find a better locality, as it is very anxious to dispose of the town sewage by opening such a farm. The District Sanitary Officer has been addressed to advise the council in selecting one of a number of localities now in its view. The scheme will no doubt be worked under the advice, and as far as practicable under the supervision, of the District Sanitary Officer. The scheme will, it is hoped, become an accomplished fact in the course of the next official year.

The Sanitary Board will be addressed to furnish an estimate for constructing a half-tile glazed drain in Maharanipeta as recommended by the Sanitary Commissioner. The work will be undertaken in the course of the next official year.

form a railway cutting. So far as can be judged by mere inspection, I should say that the new channel supplied by the railway does not correspond in area with that formerly in use, with the consequence that the tank fails to receive so large a supply as hitherto. The municipality should have the area of the channel ascertained, and, if my surmise be correct, the railway can rightfully be required to make matters correct.

(*b*) Close to the bund there is a well-built masonry well. The municipality should endeavour to encourage the people to resort to this, instead of to the surface water, as the supply must be much less contaminated. Were this well supplied with a pump for elevating the water to a cistern provided with taps and placed upon the bund, the people in this area of the town would have the advantage of possessing correctly-protected and safe water. To ascertain what this proposal would cost, it would be necessary for the municipality to state what the yield of the well is. This could be readily ascertained by the use of a môt of measured capacity for a certain number of houses. However, I show below what would be the cost of pumps worked by hand-power and the amount they would lift per hour :—

Hand-power Lift and Force Pump for wells under 25 feet deep.

Bore of working barrel — Inches	2	2½	3	3½	4
Diameter of suction pipe. ,,	1	1¼	1½	2	2
Delivery in gallons per hour (approximate)	220	350	450	600	700
	Rs.	Rs.	Rs.	Rs.	Rs.
With brass barrels	55	75	90	105	125
,, iron barrels, brass lined ..	45	55	68	80	95
,, brass barrels	53	68	75	90	110
,, iron barrels, brass lined ..	40	50	60	70	80
,, iron barrels ..	..	35	45	60	..
	25	30	35	48	60
	32	38	44	58	72

"A frame" Lift and Force Pump for hand-power and belt driving.

Bore of working barrels. In.	2½	3	3½	4
Bore of suction and delivery pipes .. .. ,,	1½	2	2½	2½
Delivery in gallons per hour at 30 strokes per minute (approximate)	550	850	1,000	1,500
	Rs.	Rs.	Rs.	Rs.
Double-barrelled brass pumps for hand power	300	340	375	420
Double-barrelled brass pumps for fast and loose pulleys ..	318	360	395	445
Double-barrelled brass pumps for hand power	325	370	410	460
Double-barrelled brass pumps with fast and loose pulleys.	345	390	435	485
Extra for strong copper air vessel	22	22	25	25

(*c*) *Ayya Koneru.*—This is a large and handsome masonry tank. To accomplish withdrawal, the usual method of approach is permitted, with the result of giving dangerous opportunities for contamination. The only way to meet this difficulty is one which I do not care to press upon the municipality, in view of it

The Railway authorities have been addressed on the matter and their reply awaited.

It is evident that the municipality cannot afford to provide the well with a pump as recommended by the Sanitary Commissioner. The public were however invited to subscribe and raise a fund for the purpose and the council trusts its that efforts in this direction may be attended with success.

Inspection Notes.

being probable they will secure a correct public water-supply in course of time, namely, the purchase of a steam-engine and of a steam pump and tank fitted with taps. I enclose for its information a photo of the jubilee well at Negapatam which is worked on the same principles. This is a sound sanitary arrangement that is immensely popular in Negapatam, and if the municipality could manage to raise a subscription and aid it in part by municipal funds I think it would be an admirable protection. It could not be hoped at the best, I presume, that a water-supply scheme could be completed under two years, and money spent upon this effort would by no means be wasted, as the plant would obtain a ready sale on its being no longer required locally. I show below the price of steam pumps; the tank and other fittings required would not absorb Rs. 1,500 in addition :—

Approximate price of vertical engine, vertical cross-tube boiler, brass pumps, pipes, and all necessary fittings arranged for a well 70 feet deep and equal to a total lift of 100 feet from water-level—

	RS.
Delivering approximately 2,800 gallons per hour	2,350
Delivering approximately 4,000 gallons per hour	3,000
Delivering approximately 6,000 gallons per hour	3,550

The feeding channel of this tank is open to defilement. Measures have already been proposed by the municipality to run a syphon underneath the collecting channel, so as to exclude the contaminated water from entrance.

(*d*) The municipality has sunk a new well near Davisapetta. This should be cement plastered down to the low water level. It now requires complete emptying, so as to get rid of the water which has taken up lime during construction. This and the sister well on the same spot will doubtless yield capital water, as the collecting area is free from contamination. Both sources are largely used by the better class in the town, who have sufficient appreciation of the value of pure water to send thus far for it. It is, however, impossible for it to remain pure so long as persons are allowed to withdraw water in their own vessels with their own ropes, &c. Here certainly it would be advantageous to place a pump and cistern provided with taps so as to deliver the water without contamination.

(*e*) The Maharajah of Vizianagram with his usual public spirit and liberality has gone to the expense of obtaining an engineer from England for the purpose of supplying this town with water. The

Chairman's Remarks.

The suggestions of the Sanitary Commissioner commend themselves very much to the council, but as the tank in question belongs to the Samastanam, the Samastanam authorities were addressed on the subject. At to-day's meeting, its manager, who is also a councillor, has been pleased to offer for the purpose a loan of Rs. 3,000 without interest subject to the condition of the same being discharged within three years at three equal instalments. It is particularly requested that the Government will be pleased to sanction this small loan for the purpose. As the Sanitary Commissioner's proposal is, in the opinion of the council, expected to effect a prior water-supply for not less than half the population of the town using the tank, I am confident that the loan could be secured on still more favourable terms, should the Government be pleased to sanction the loan.

The well has been more than once emptied recently. The council will provide the well with the pump recommended in the course of the next official year in consideration of the appreciation of the value of the water therein by the public.

scheme proposed was the obtaining of water from the river Nellimaila (Champanati), a distance of about four miles from the town. The cost for such a scheme is, on account of the distance, very heavy and the question is now in abeyance. Under these circumstances, I searched the neighbourhood for other sources of supply. The line of drainage of the Párvatípuram valley sub-soil water would, in consideration of the configuration of the country near the Yerrakonda, seem to find in great part an outlet in the ridge of ground separating the Choti Himalaya valley from this hill. Thus, if the Yerrakonda be walked round, on the west side it will be found that the sub-soil water is within a foot or two of the surface from the tannery northwards, and that there are great stores of it apparent as shown by the wells sunk here. Again, at the northern extremity the water is found at the surface in large perennial springs, which afford water for irrigation purposes. Thence on the eastern side, near a village, the sub-soil water is found within six feet of the surface, and to the south of the Yerrakonda are numerous perennial springs which are freely used by dhobies, and which have never been known to cease flowing even during the great famine of 1876–77. In one spot I found over twenty excavations made into a steep bank of gravel by dhobies—resulting in the outflow of over twenty considerable and constantly-flowing streams. Proceeding from this point towards the town, through the railway bridge, will be found a tank supplied in great part by springs. Scattered here and there in the same neighbourhood will be found springs appearing on the surface of the gravel. It seems to me by depending upon this obviously rich sub-soil sheet that the wants of Vizianagram can be more cheaply supplied than by a river-water scheme, and I need hardly add that, in view of protection from contamination, no source could offer better security than the sub-soil of the area in question at most of the possible points. Collection could be arranged either by a series of wells, by a gallery, or by the uniting of driven tube wells and pumping direct to the town.

(*f*) On my communicating this proposal to the Maharajah, he had the great generosity to state that he would request the engineer he had engaged to arrive in

The council has more than once addressed the Government on the urgent necessity of taking up a water-supply scheme for this municipality even in preference to the drainage scheme that has been so long under contemplation. The council is highly grateful to the Sanitary Commissioner for the marvellous energy with which he inspected the surroundings of the Yerrakonda at so much personal inconvenience in order to investigate a scheme for water-supply. It learns with great pleasure that the Hon'ble the Maharajah of Vizianagram, G.C.I.E., has expressed a willingness to contribute so generously towards the scheme, for which aid the council will doubtless be ever indebted to him. The council considers that with such an aid, the scheme may be undertaken should it commend itself to the Sanitary Board and the Government.

Inspection Notes.

Chairman's Remarks.

the country in October to investigate the scheme, and if it could be effected, he would from his own purse contribute one-and-a-half lakhs towards carrying it out—an offer which will doubtless secure for him the lasting gratitude of the inhabitants of Vizianagram, whose best interests he thus subserves.

3. *Conservancy*—(*a*) *Rubbish removal.*—There are 237 dust-bins and 28 rubbish carts. It is unfortunately not possible to say how much labour is devoted to rubbish removal, as the sweepers also perform the duty of scavengers; but I shall allude to this subject under night-soil conservancy. The arrangement with the contractor requires the municipality to collect and deliver the rubbish at a certain spot, whence it is removed daily by the latter. At the time of my inspection, it was however obvious from the amount stored there that the contractor had failed to carry out his terms for some time past.

The council regrets that the conditions of the contract could not be enforced in the current year, but every effort will be made to enforce the same in the next official year.

(*b*) *Night-soil collection.*—The municipality has lately erected a urinal at the drain near the Prince of Wales' market. It is probable that a urinal in this special locality would be useful; but I would advise the municipality to have as little to do with the erection of urinals as possible until the far more important question as to night-soil conservancy is completely attended to. In the case of this urinal, I would advise the addition of a Vizianagram sewage-filter, so as to prevent odour in this vicinity; its dimensions should, however, be large.

The Vizianagram sewage-filter on a large scale is prepared and fixed at the bottom of the urinal in question. In deference to the Sanitary Commissioner's recommendations, two iron latrines and one urinal have been purchased. The number will be increased gradually.

There are twenty-six latrines. With the exception of two of masonry, they are all simply "enclosed open spaces." Year by year, the municipality should endeavour to replace these by the erection of others on the Sanitary Board's standard plans.

(*c*) *Private Latrines.*—These are often conveniently placed near the front of the house, and can be approached by the toties by means of a small trap door. This is a good form; but, in all cases, the municipality should insist upon the provision of a special receptacle, preferably iron, for receipt of fœcal matter. The floor should be of cement, and where this form could be afforded the glazed stoneware platforms patented by Mr. Donaldson, as sold by Messrs. Burn & Co., Calcutta, would make suitable seats.

The trained sanitary inspector is directed to induce people to adopt the recommendation of the Sanitary Commissioner with regard to the private privies and their upkeep.

Inspection Notes.

Chairman's Remarks.

In regard to private scavenging a very mixed arrangement exists. This the Municipal Chairman has described in his letter to Government, a copy of which he has supplied this office. Under the circumstances therein described, probably the best thing the municipality can do is to pursue the present unsatisfactory system until power to prevent strikes by municipal scavengers is placed in its hands by the revised Act No. IV of 1884, which is at present under the consideration of Government. It should, however, do its best in the meantime to weaken the power of combinations against it by insisting that the scavengers shall be employed solely for night-soil work and the ordinary class of sweepers for collection of rubbish. By thus discharging the surplus represented by the excess of private scavengers, it would probably be in a better position to make its own arrangements.

(*d*) Including all requirements of the general population and private scavenging, a staff of sixty-two toties should suffice and for rubbish collection thirty-one sweepers.

(*e*) The night-soil depôt is sufficiently removed from dwellings, but it requires to be carefully laid out. The sanitary inspector, who is a certificated man, has already pointed this out to the council, and considering the fact that all that is required to reduce arrangements to correct order and system would be the employment of a few coolies for a short period, I trust the municipality will see to this simple but important matter. This sanitary inspector should be encouraged to exhibit results of making of poudrette after the various methods and to cultivate a plot of ground with it. A good object-lesson in this matter would aid in securing a free sale of night-soil to the neighbouring ryots.

The trained sanitary inspector has already been directed to employ a few coolies for a short period in order to make the necessary arrangements with reference to the rectification of the existing night-soil depôt and the preparation of night-soil poudrette fit for manuring purposes.

4. *Slaughter-houses*—(*a*) *The Cattle Slaughter-house.*—This is a simple enclosure in a most filthy place, *viz.*, the Dacoor rocks. These rocks are freely used by the low-caste inhabitants of the neighbourhood. However simple and cheap the structure employed, the municipality should see that it is kept in a perfect sanitary state. Neglect of this simple precaution may ensure the formation of poisonous toxins in the meat that may, in spite of a certain grade of heat in cooking, bring death to the consumers.

The trained sanitary inspector will make the necessary arrangements for the cattle slaughter-house on a cheap scale.

Inspection Notes.

(*b*) *Sheep Slaughter-house.*—The flooring is very uneven, and thus permits of the lodgment of filth. There is no drain at the sides nor is any special arrangement made for gutting. The flooring should be plastered with cement, and a pump should be used for the lifting of the water to an elevated cistern for distribution. A plan of the building as it now exists should be sent to the Sanitary Board, with the request for suggestions for improvement.

5. *Markets*—(*a*) *The weekly Cattle Market.*—Notwithstanding the large number of cattle that are assembled here weekly, no special provision has been made to meet the conditions of contamination of soil which are inevitable. The ground appears saturated with the filth of past years and mosquitoes find here unusual opportunities for rapid increase—a matter of special danger in a town where elephantiasis is endemic. The cheapest method of remedy would probably be to remove the soil for, say, about six inches in depth. This ought to secure an admirable sale to ryots, for the soil is rich manure. This once removed, a good general slope for drainage should be given. This done, the space should be divided into sections, each of which should have its drain communicating with a major drain. Still better would it be to make special surfaces formed of square cut granite slabs or of Patent Indian Stone (Messrs. Garlick & Co., Bombay) on which in regular lines the cattle should be placed.

The latrine attached to this market is a mere open space. It should be removed, and roofed, corrugated-iron latrines on the standard plan should be erected in lieu.

(*b*) Both in this and the Prince of Wales' market, it is the custom to permit the filth to accumulate for 24 hours, and then proceed to remove. This is an incorrect mode of procedure. There should be a certain number of the very large staff allowed by the Samastanam constantly on duty, who should be ready to gather up and remove filth quickly enough to prevent the slightest approach to accumulation. A Silchar incinerator, portable field pattern (price about Rs. 400, Agent Mr. Wallace, C.E., Bombay, or Messrs. Burn & Co., Calcutta), would be very useful in this locality.

Chairman's Remarks.

A plan of the slaughter-house building will be forwarded to the Sanitary Board for instruction with a view to adopting the recommendations of the Sanitary Commissioner.

Inspection Notes.

Chairman's Remarks

(*c*) In the weekly market, the well is in a discreditable state of filth. There are holes in the surroundings, which permit of surface flow to the interior. Both here and in the Prince of Wales' market, the wells should be put into a correct state of repair, be closed, and have attached lift and force pumps permitting of raising the water to an elevated cistern, whence water should be distributed to its destination by means of pipes supplied with taps at the required points.

(*d*) *Meat Bazaar.*—These are simple sheds. The butchers are provided with old and filthy boxes and equally filthy blocks. The whole of the arrangements in this market are very far behind the present state of advance in municipal sanitation, and I consider it is the duty of the municipality to represent this fact to the Samastanam manager, who is responsible for the state of the buildings. I am confident that the municipality have but to represent the facts to secure that necessary improvements are effected. To this end I am sure the Sanitary Board will be prepared to offer full advice, on being furnished with a plan of the existing buildings by the manager of the Samastanam.

The manager of the Samastanam has been addressed on the subject and the council is hopeful that measures will be taken by the Samastanam authorities for improving the various markets as recommended by the Sanitary Commissioner. Subsequent to the meeting I inspected the markets in company with the head manager of the Samastanam, to whom I pointed out the various defects and explained to him the remedies suggested by the Sanitary Commissioner with regard to the same. The manager has promised to effect the remedies as far as practicable.

6. *Vaccination.*—(*a*) Of forty-four children met in the streets without selection, 10 per cent. were found unprotected. There is therefore room for improvement.

(*b*) The following table exhibits the results of the working of the compulsory clauses, as reported by the municipality :—

Total births during the first six months of 1894.	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.	Ratio of successful vaccination to total births per cent.	Prosecutions for failure 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.
495	200	6	6	..	12	90	130	57	44·9	304	297	7

Attendance at the municipal depôt is not insisted upon in all cases. Especially this seems neglected in reference to examination of results on the seventh day. This should be scrupulously enforced by the municipality. Only by attention to

The vaccinator is called upon to enforce the clause referring to the examination of results on the seventh day.

Inspection Notes.

Chairman's Remarks.

this detail can it be possible for the vaccinator to accomplish his duty in the systematic manner necessary for correct working of the compulsory clauses.

7. *Registration.*—(*a*) According to a report received from the Chairman, he has since my visit promptly arranged for a better organization than existed of the Registration department. There is therefore no necessity for me to dilate on this subject.

The following shows the results secured :—

Years.	Ratio of births per mille of estimated population.	Ratio of births per mille of estimated population.	Percentage of deaths from						Ratio of deaths of infants under one year of age per mille to 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.	All other causes.		
1893	26·5	22·1	..	0·4	44·2	3·1	..	52·3	223·2	14·1
1894	26·7	24·6	..	0·4	43·1	5·1	0·8	50·7	231·0	21·4
1895 up to end of July.	21·3	20·3	..	0·4	43·6	7·3	0·4	48·3	159·5	21·6

(*b*) This statement shows that the reform mentioned was urgently required, the statistics bespeaking an untrustworthy condition. This is specially marked as to the birth-rate. Without an accurate record of births, it is of course out of the question that vaccination can be conducted satisfactorily.

8. *Sanitary Administration.*—I consider the municipal limits require reconsideration. I find that between the railway station and the town is a narrow belt of ground under the local fund board. This was given up by the municipality, with the rather selfish policy of not having to support the road. But now that the road serves the railway station, conditions are altered. It is most undesirable for sanitary reasons to have a railway station so close to municipal limits and yet beyond its sanitary control. Again, beyond the railway station commence the cantonment limits. On the other side of the tank the municipal limits are bounded by those of the Samastanam. Even the Pedda Cheruvu tank is out of the municipal limits, although municipal roads skirt its banks.

Inspection Notes.

It seems to me undesirable that this multiplicity of authority should exist over so small an area—so close to the town that the sanitary condition of the surroundings is a matter of importance. I think it desirable, if conflicting interests can by any method be made to subserve the common good of the inhabitants of Vizianagram, that the cantonment, the local fund strip mentioned, and the part of the Samastanam now out of municipal limits, should be placed definitely under municipal rule. In the case of the so-called cantonment, as only a single regiment is on the spot it seems unnecessary that a separate sanitary organization having its own laws should exist there.

FORT ST. GEORGE,
2nd November 1895.

(Signed) W. G. KING, Surgeon-Lieut.-Colonel,
Sanitary Commissioner for Madras.

Chairman's Remarks.

The council is aware of the necessity of renewing the municipal limits. A separate communication will be forwarded to the Government on the subject later on.

EXTRACT from the Proceedings of the Municipal Council, Vizianagram, at a meeting held on Saturday, the 15th February 1896.

* * * * *

I. Laid on the table the inspection notes of the Sanitary Commissioner, Madras, on his inspection of this municipality on 29th—31st July 1895, and the Chairman's replies thereon.

Resolution.—The draft replies are approved by the council. The council thankfully accepts the offer of a loan of Rs. 3,000 without interest made by the manager of the Samastanam for the purchase of a steam-engine, steam-pump and a tank fitted with taps, &c., for the use of Ayyakoneru.

* * * * *

Cur. No. 545.

Forwarded. The Chairman is doing all he can to see that the Sanitary Commissioner's suggestions are not lost sight of. The sewage-filters which I have seen seem satisfactory, but very many more are required of course.

VIZIANAGRAM,
5th March 1896.

(Signed) L. C. MILLER,
Prinl. Asst. Collector.

Forwarded.

9th March 1896.

(Signed) W. A. WILLOCK,
Collector.

C.S.
P.S.

Order No. 760 M. dt 4-5-96

Recorded with the following remarks:—

(1) The municipal council's proposal to borrow a sum of Rs. 3000 for providing for a protected supply of water from the Ayyakonēru is approved, and the Chairman will be requested to submit an application in the form prescribed in G.O. No. 322 L, dated 8th February 1889, without delay.

(2) The council's attention will be drawn to the Collector's remarks in paras. 1(d) and (f) of the Inspection notes, and the action which it is proposed to take on para. 5 (a), (b) & (c) should be reported.

(3) The scheme for the water-supply of the town suggested by Dr. King in para. 2(a) of his notes will be referred to the Sanitary Board for remarks.

(4) The further communication regarding the alteration of the municipal limits, promised by the Chairman, will be awaited.

Cross

Vizagapatam

4/4/96

(with order)

7.4.96. 29.4.96 21/5/96

To The Chairman, M. C. Vizianagram
" Collector of Vizagapatam
" Sanitary Commissioner
" Sanitary Engineer
" Sanitary Board
" notes

No. 760 M., 4TH MAY 1896.

GOVERNMENT OF MADRAS.

LOCAL AND MUNICIPAL DEPARTMENT.

READ—the following paper:—

From M.R.Ry. V. VENKATARAYA SASTRI Garu, Chairman, Municipal Council, Vizianagram, to the Chief Secretary to Government, dated 26th February 1896, No. 270.

I have the honour to forward herewith the Inspection Notes of the Sanitary Commissioner, Madras, for 1895, together with my replies thereon as approved of by the council at its meeting held on the 15th instant.

2. With regard to paragraph 2, Water-supply, (*c*) Ayya koneru, I have the honour to state that the proposal to borrow a sum of Rs. 3,000 from the Manager of the Samastanam may be sanctioned by Government at an early date so that the council may proceed to put the work under execution at once.

3. A copy of the council's resolution on the subject is herewith submitted for the information of Government.

ENCLOSURES.

INSPECTION NOTES of the Sanitary Commissioner, Madras.

VIZAGAPATAM DISTRICT.

VIZIANAGRAM MUNICIPALITY.

Inspected 29*th to* 31*st July* 1895.

Population as per census of 1891..	Males	14,882
	Females	15,999
	Total ..	30,881

Inspection Notes.

Sewerage.—(*a*) The majority of the sewage enters a large tank—the Pedda cheruvu. Whilst fairly full the processes of chemical and biological change appear to be undergone inoffensively, but, in the hot season, the stenches evolved are unbearable. A scheme, drawn up by the Sanitary Engineer's Department, is now under consideration. It contemplates protection of the tank by the use of an interception sewer. But, until this large scheme is effected, it is manifest that something might be done. It seems to me the conditions could largely be met by the use of sewage filters.

Chairman's Remarks.

Inspection Notes.

(*b*) With admirable energy, whilst I was at Vizianagram the Municipal Chairman carried out my suggestion of making an experimental filter near the cattle market. By adhering to this principle and effecting it under engineering advice at the various points of entrance of sewage, it ought to be possible to allow nothing to enter beyond a practically pure filtrate. Here is the account of the Chairman of the Municipal Council, Vizagapatam, who also erected on my advice a sewage filter of the same pattern:—

"The amount of sewage daily dealt with is about 7,200 gallons. The filtrate is clear and looks like pure water. At first, *i.e.*, a few days after the filter began to work, the filtrate tasted brackish: now it is not so."

(*c*) In regard to the sewage from houses, I invited the Chairman to sanction the making of a filter of a size that would permit the dealing with it on the spot, instead of permitting it to soak in the surroundings. Kerosene oil drums were then fitted up as I directed (*vide* margin). The effect secured is thus stated by the Chairman:—

"The domestic sewage-filter made when you were here is working excellently well. I have seen the filter myself and found the dirtiest sewage that is let into it coming out so pure that the water will be accepted for drinking by any human being who has not previously known that it was filtered sewage."

(*d*) I consider this simple mode offers an infinitely better method of disposal in this climate than cesspools, except where the latter can be made of the best material and be worked with odourless pumps lifting into air-tight carts. All the solid matter and part of the matter in solution must be arrested by the biological action of this filter, and instead of stinking sewage to soak in the ground surface all that is found is a clear and odourless water, which by reason of its not clogging the pores of the soil, or offering a greasy scum, rapidly evaporates or soaks in the ground. That it does not meet all sanitary ends is indubitable; but considering its cost—about Rs. 1-2-0 to Rs. 1-8-0—I think it offers considerable advantages where poverty of inhabitants presents difficulty.

(*e*) Much of the sewage nominally collected in the area drained towards the Pedda cheruvu really never reaches it, not only on account of the defective character

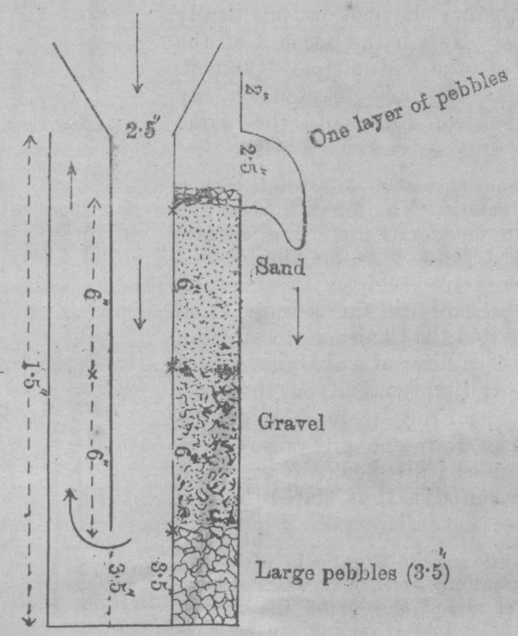
Chairman's Remarks.

The sewage-filter at Dába gardens has been improved later on by the construction of a masonry cistern measuring and is working well as has already been reported to the Sanitary Commissioner.

Thirty iron sewage-filters of the design recommended by the Sanitary Commissioner were made and they have been introduced in two streets in Suntapeta. The result of their working is as satisfactory as has been reported to the Sanitary Commissioner. More are in course of construction and they will be gradually introduced into the town as far as practicable.

They will cost the municipal council about Rs. 6,000 per annum to keep up. I don't know where the money is to come from.

9*th March* 1896. (Intld.) W.A.W.



Scale

2" to a foot.

NOTE.—Both sides to be filled as shown.

"The Vizianagrum sewage filter."

Reg: No. 2779
Copies 105

Litho. Survey Office, Madras.
1896

Inspection Notes.

of the surface drains, but because for a considerable distance covered sewers are employed, which permit of the sewage permeating the soil. Any scheme for improvement of the condition of the Pedda cheruvu ought to take cognizance of this matter.

(*f*) In the south moat, two sewage drains make their exit from the Maharaja's palace. In the case of one, it would be possible to run the sewage on to a small filter, and in the other to a plot of ground for grass or other cultivation.

(*g*) The Fort street, which lines the Fort moat on one side, passes its sewage and surface drainage from anything but cleanly yards direct into the moat. This could, without much difficulty, be remedied by making the slope of the backyards towards the front, where it could be received in the street drain.

(*h*) The Chairman has a scheme for diverting the sewage from the Fort and the Ayya konneru to a plot that will serve as a sewage farm. Unfortunately, the ground available is constantly waterlogged by irrigation of the whole surroundings; so that, unless the municipality could afford to raise the ground, or stop the irrigation, the disposal of the sewage at this site would be surrounded with difficulties. Probably, the easiest way would be to cultivate during the part of the year that no irrigation is pursued a plot of ground for grass or other crop, and during the remainder of the year to trust to the use of a large sewage filter. The Maharanipeta drain, which would form part of this scheme, is undoubtedly a great and constant source of nuisance. Its condition could, however, be greatly improved by the use of half-tile glazed drains (obtainable at Messrs. Burn & Co., Calcutta) of a size that would accommodate the sewage only. At present, much of the stench is caused by the fact that no regular flow can be maintained on account of the small amount of sewage withdrawn in a section of drain that would admit of enormous quantities of surface water.

2. *Water-supply*—(*a*) *Boochmari's Tank.*—This is supplied by surface water from a fairly trustworthy area. The lower feeding channel has been passed through to

Chairman's Remarks.

The head manager of the Samastanam has made arrangements for carrying off this sewage to a distant place into the paddy fields.

These arrangements are still incomplete.

4th March 1896. (Intld.)

Notices have been issued to the inhabitants of the street to divert their drainage into the municipal side drain in front. The council will insist upon effecting the remedy suggested by the Sanitary Commissioner within the near future.

As the Sanitary Commissioner does not seem to have approved of the locality as being fit for opening a sewage farm of the kind that has been under the contemplation of the council, it is seeking to find a better locality, as it is very anxious to dispose of the town sewage by opening such a farm. The District Sanitary Officer has been addressed to advise the council in selecting one of a number of localities now in its view. The scheme will no doubt be worked under the advice, and as far as practicable under the supervision, of the District Sanitary Officer. The scheme will, it is hoped, become an accomplished fact in the course of the next official year.

The Sanitary Board will be addressed to furnish an estimate for constructing a half-tile glazed drain in Maharanipeta as recommended by the Sanitary Commissioner. The work will be undertaken in the course of the next official year.

Inspection Notes.

form a railway cutting. So far as can be judged by mere inspection, I should say that the new channel supplied by the railway does not correspond in area with that formerly in use, with the consequence that the tank fails to receive so large a supply as hitherto. The municipality should have the area of the channel ascertained, and, if my surmise be correct, the railway can rightfully be required to make matters correct.

(*b*) Close to the bund there is a well-built masonry well. The municipality should endeavour to encourage the people to resort to this, instead of to the surface water, as the supply must be much less contaminated. Were this well supplied with a pump for elevating the water to a cistern provided with taps and placed upon the bund, the people in this area of the town would have the advantage of possessing correctly-protected and safe water. To ascertain what this proposal would cost, it would be necessary for the municipality to state what the yield of the well is. This could be readily ascertained by the use of a môt of measured capacity for a certain number of houses. However, I show below what would be the cost of pumps worked by hand-power and the amount they would lift per hour :—

Chairman's Remarks.

The Railway authorities have been addressed on the matter and their reply awaited.

It is evident that the municipality cannot afford to provide the well with a pump as recommended by the Sanitary Commissioner. The public were however invited to subscribe and raise a fund for the purpose and the council trusts that its efforts in this direction may be attended with success.

Hand-power Lift and Force Pump for wells under 25 feet deep.					
Bore of working barrel — Inches	2	2½	3	3½	4
Diameter of suction pipe. ,,	1	1¼	1½	2	2
Delivery in gallons per hour (approximate)	220	350	450	600	700
	Rs.	Rs.	Rs.	Rs.	Rs.
With brass barrels ..	55	75	90	105	125
,, iron barrels, brass lined ..	45	55	68	80	95
,, brass barrels	53	68	75	90	110
,, iron barrels, brass lined ..	40	50	60	70	80
,, iron barrels ..	..	35	45	60	..
	25	30	35	48	60
	32	38	44	58	72

"A frame" Lift and Force Pump for hand-power and belt driving.				
Bore of working barrels. In.	2½	3	3½	4
Bore of suction and delivery pipes .. .. ,,	1½	2	2½	2½
Delivery in gallons per hour at 30 strokes per minute (approximate)	550	850	1,000	1,500
	Rs.	Rs.	Rs.	Rs.
Double-barrelled brass pumps for hand power	300	340	375	420
Double-barrelled brass pumps for fast and loose pulleys ..	318	360	395	445
Double-barrelled brass pumps for hand power	325	370	410	460
Double-barrelled brass pumps with fast and loose pulleys.	345	390	435	485
Extra for strong copper air vessel	22	22	25	25

(*c*) *Ayya Koneru.*—This is a large and handsome masonry tank. To accomplish withdrawal, the usual method of approach is permitted, with the result of giving dangerous opportunities for contaminion.t The only way to meet this difficulty is one which I do not care to press upon the municipality, in view of its



Photo.-print, Survey Office, Madras. 1896.

Inspection Notes.

being probable they will secure a correct public water-supply in course of time, namely, the purchase of a steam-engine and of a steam pump and tank fitted with taps. I enclose for its information a photo of the jubilee well at Negapatam which is worked on the same principles. This is a sound sanitary arrangement that is immensely popular in Negapatam, and if the municipality could manage to raise a subscription and aid it in part by municipal funds I think it would be an admirable protection. It could not be hoped at the best, I presume, that a water-supply scheme could be completed under two years, and money spent upon this effort would by no means be wasted, as the plant would obtain a ready sale on its being no longer required locally. I show below the price of steam pumps; the tank and other fittings required would not absorb Rs. 1,500 in addition:—

Approximate price of vertical engine, vertical cross-tube boiler, brass pumps, pipes, and all necessary fittings arranged for a well 70 feet deep and equal to a total lift of 100 feet from water-level—

	RS.
Delivering approximately 2,800 gallons per hour	2,350
Delivering approximately 4,000 gallons per hour	3,000
Delivering approximately 6,000 gallons per hour	3,550

The feeding channel of this tank is open to defilement. Measures have already been proposed by the municipality to run a syphon underneath the collecting channel, so as to exclude the contaminated water from entrance.

(*d*) The municipality has sunk a new well near Davisapetta. This should be cement plastered down to the low water level. It now requires complete emptying, so as to get rid of the water which has taken up lime during construction. This and the sister well on the same spot will doubtless yield capital water, as the collecting area is free from contamination. Both sources are largely used by the better class in the town, who have sufficient appreciation of the value of pure water to send thus far for it. It is, however, impossible for it to remain pure so long as persons are allowed to withdraw water in their own vessels with their own ropes, &c. Here certainly it would be advantageous to place a pump and cistern provided with taps so as to deliver the water without contamination.

Chairman's Remarks.

The suggestions of the Sanitary Commissioner commend themselves very much to the council, but as the tank in question belongs to the Samastanam, the Samastanam authorities were addressed on the subject. At to-day's meeting, its manager, who is also a councillor, has been pleased to offer for the purpose a loan of Rs. 3,000 without interest subject to the condition of the same being discharged within three years at three equal instalments. It is particularly requested that the Government will be pleased to sanction this small loan for the purpose. As the Sanitary Commissioner's proposal is, in the opinion of the council, expected to effect a prior water-supply for not less than half the population of the town using the tank, I am confident that the loan could be secured on still more favourable terms, should the Government be pleased to sanction the loan.

The well has been more than once emptied recently. The council will provide the well with the pump recommended in the course of the next official year in consideration of the appreciation of the value of the water therein by the public.

Inspection Notes.

(e) The Maharaja of Vizianagram his usual public spirit and liberality ne to the expense of obtaining an from England for the purpose g this town with water. The osed was the obtaining of river Nellimarla (Champa- of about four miles from st for such a scheme is, distance, very heavy now in abeyance.

Under these circumstances, I searched the neighbourhood for other sources of supply. The line of drainage of the Párvatípuram valley sub-soil water would, in consideration of the configuration of the country near the Yerrakonda, seem to find in great part an outlet in the ridge of ground separating the Choti Himalaya valley from this hill. Thus, if the Yerrakonda be walked round, on the west side it will be found that the sub-soil water is within a foot or two of the surface from the tannery northwards, and that there are great stores of it apparent as shown by the wells sunk here. Again, at the northern extremity the water is found at the surface in large perennial springs, which afford water for irrigation purposes. Thence on the eastern side, near a village, the sub-soil water is found within six feet of the surface, and to the south of the Yerrakonda are numerous perennial springs which are freely used by dhobies, and which have never been known to cease flowing even during the great famine of 1876–77. In one spot I found over twenty excavations made into a steep bank of gravel by dhobies—resulting in the outflow of over twenty considerable and constantly-flowing streams. Proceeding from this point towards the town, through the railway bridge, will be found a tank supplied in great part by springs. Scattered here and there in the same neighbourhood will be found springs appearing on the surface of the gravel. It seems to me by depending upon this obviously rich sub-soil sheet that the wants of Vizianagram can be more cheaply supplied than by a river-water scheme, and I need hardly add that, in view of protection from contamination, no source could offer better security than the sub-soil of the area in question at most of the possible points. Collection could be arranged either by a series of wells, by a gallery, or by the uniting of driven tube wells and pumping direct to the town.

Chairman's Remarks.

The council has more than once addressed the Government on the urgent necessity of taking up a water-supply scheme for this municipality even in preference to the drainage scheme that has been so long under contemplation. The council is highly grateful to the Sanitary Commissioner for the marvellous energy with which he inspected the surroundings of the Yerrakonda at so much personal inconvenience in order to investigate a scheme for water-supply. It learns with great pleasure that the Hon'ble the Maharaja of Vizianagram, G.C.I.E., has expressed a willingness to contribute so generously towards the scheme, for which aid the council will doubtless be ever indebted to him. The council considers that with such an aid, the scheme may be undertaken should it commend itself to the Sanitary Board and the Government.

Inspection Notes.

(f) On my communicating this proposal to the Maharaja, he had the great generosity to state that he would request the engineer he had engaged to arrive in the country in October to investigate the scheme, and if it could be effected, he would from his own purse contribute one-and-a-half lakhs towards carrying it out—an offer which will doubtless secure for him the lasting gratitude of the inhabitants of Vizianagram, whose best interests he thus subserves.

3. *Conservancy*—(a) *Rubbish removal.*—There are 237 dust-bins and 28 rubbish carts. It is unfortunately not possible to say how much labour is devoted to rubbish removal, as the sweepers also perform the duty of scavengers; but I shall allude to this subject under night-soil conservancy. The arrangement with the contractor requires the municipality to collect and deliver the rubbish at a certain spot, whence it is removed daily by the latter. At the time of my inspection, it was however obvious from the amount stored there that the contractor had failed to carry out his terms for some time past.

(b) *Night-soil collection.*—The municipality has lately erected a urinal at the drain near the Prince of Wales' market. It is probable that a urinal in this special locality would be useful; but I would advise the municipality to have as little to do with the erection of urinals as possible until the far more important question as to night-soil conservancy is completely attended to. In the case of this urinal, I would advise the addition of a Vizianagram sewage-filter, so as to prevent odour in this vicinity; its dimensions should, however, be large. There are twenty-six latrines. With the exception of two of masonry, they are all simply "enclosed open spaces." Year by year, the municipality should endeavour to replace these by the erection of others on the Sanitary Board's standard plans.

(c) *Private Latrines.*—These are often conveniently placed near the front of the house, and can be approached by the toties by means of a small trap door. This is a good form; but, in all cases, the municipality should insist upon the provision of a special receptacle, preferably iron, for receipt of fœcal matter. The floor should be of cement, and where this form could be afforded the glazed stoneware platforms patented by Mr. Donaldson, as sold by Messrs. Burn & Co., Calcutta, would make suitable seats.

Chairman's Remarks.

The council regrets that the conditions of the contract could not be enforced in the current year, but every effort will be made to enforce the same in the next official year.

The Vizianagram sewage-filter on a large scale is prepared and fixed at the bottom of the urinal in question. In deference to the Sanitary Commissioner's recommendations, two iron latrines and one urinal have been purchased. The number will be increased gradually .

The trained sanitary inspector is directed to induce people to adopt the recommendation of the Sanitary Commissioner with regard to the private privies and their upkeep.

Inspection Notes.

In regard to private scavenging a very mixed arrangement exists. This the Municipal Chairman has described in his letter to Government, a copy of which he has supplied this office. Under the circumstances therein described, probably the best thing the municipality can do is to pursue the present unsatisfactory system until power to prevent strikes by municipal scavengers is placed in its hands by the revised Act No. IV of 1884, which is at present under the consideration of Government. It should, however, do its best in the meantime to weaken the power of combinations against it by insisting that the scavengers shall be employed solely for night-soil work and the ordinary class of sweepers for collection of rubbish. By thus discharging the surplus represented by the excess of private scavengers, it would probably be in a better position to make its own arrangements.

(*d*) Including all requirements of the general population and private scavenging, a staff of sixty-two toties should suffice and for rubbish collection thirty-one sweepers.

(*e*) The night-soil depôt is sufficiently removed from dwellings, but it requires to be carefully laid out. The sanitary inspector, who is a certificated man, has already pointed this out to the council, and considering the fact that all that is required to reduce arrangements to correct order and system would be the employment of a few coolies for a short period, I trust the municipality will see to this simple but important matter. This sanitary inspector should be encouraged to exhibit results of making of poudrette after the various methods and to cultivate a plot of ground with it. A good object-lesson in this matter would aid in securing a free sale of night-soil to the neighbouring ryots.

4. *Slaughter-houses*—(*a*) *The Cattle Slaughter-house.*—This is a simple enclosure in a most filthy place, viz., the Dacoor rocks. These rocks are freely used by the low-caste inhabitants of the neighbourhood. However simple and cheap the structure employed, the municipality should see that it is kept in a perfect sanitary state. Neglect of this simple precaution may ensure the formation of poisonous toxins in the meat that may, in spite of a certain grade of heat in cooking, bring death to the consumers.

Chairman's Remarks.

The trained sanitary inspector has already been directed to employ a few coolies for a short period in order to make the necessary arrangements with reference to the rectification of the existing night-soil depôt and the preparation of night-soil poudrette fit for manuring purposes.

The trained sanitary inspector will make the necessary arrangements for the cattle slaughter-house on a cheap scale.

Inspection Notes.

(*b*) *Sheep Slaughter-house.*—The flooring is very uneven, and thus permits of the lodgment of filth. There is no drain at the sides nor is any special arrangement made for gutting. The flooring should be plastered with cement, and a pump should be used for the lifting of the water to an elevated cistern for distribution. A plan of the building as it now exists should be sent to the Sanitary Board, with the request for suggestions for improvement.

5. *Markets*—(*a*) *The weekly Cattle Market.*—Notwithstanding the large number of cattle that are assembled here weekly, no special provision has been made to meet the conditions of contamination of soil which are inevitable. The ground appears saturated with the filth of past years and mosquitoes find here unusual opportunities for rapid increase—a matter of special danger in a town where elephantiasis is endemic. The cheapest method of remedy would probably be to remove the soil for, say, about six inches in depth. This ought to secure an admirable sale to ryots, for the soil is rich manure. This once removed, a good general slope for drainage should be given. This done, the space should be divided into sections, each of which should have its drain communicating with a major drain. Still better would it be to make special surfaces formed of square cut granite slabs or of Patent Indian Stone (Messrs. Garlick & Co., Bombay) on which in regular lines the cattle should be placed.

The latrine attached to this market is a mere open space. It should be removed, and roofed, corrugated-iron latrines on the standard plan should be erected in lieu.

(*b*) Both in this and the Prince of Wales' market, it is the custom to permit the filth to accumulate for 24 hours, and then proceed to remove. This is an incorrect mode of procedure. There should be a certain number of the very large staff allowed by the Samastanam constantly on duty, who should be ready to gather up and remove filth quickly enough to prevent the slightest approach to accumulation. A Silchar incinerator, portable field pattern (price about Rs. 400, Agent Mr. Wallace, C.E., Bombay, or Messrs. Burn & Co., Calcutta), would be very useful in this locality.

Chairman's Remarks.

A plan of the slaughter-house building will be forwarded to the Sanitary Board for instruction with a view to adopting the recommendations of the Sanitary Commissioner.

Inspection Notes.

(*c*) In the weekly market, the well is in a discreditable state of filth. There are holes in the surroundings, which permit of surface flow to the interior. Both here and in the Prince of Wales' market, the wells should be put into a correct state of repair, be closed, and have attached lift and force pumps permitting of raising the water to an elevated cistern, whence water should be distributed to its destination by means of pipes supplied with taps at the required points.

(*d*) *Meat Bazaar.*—These are simple sheds. The butchers are provided with old and filthy boxes and equally filthy blocks. The whole of the arrangements in this market are very far behind the present state of advance in municipal sanitation, and I consider it is the duty of the municipality to represent this fact to the Samastanam manager, who is responsible for the state of the buildings. I am confident that the municipality have but to represent the facts to secure that necessary improvements are effected. To this end I am sure the Sanitary Board will be prepared to offer full advice, on being furnished with a plan of the existing buildings by the manager of the Samastanam.

Chairman's Remarks

The manager of the Samastanam has been addressed on the subject and the council is hopeful that measures will be taken by the Samastanam authorities for improving the various markets as recommended by the Sanitary Commissioner. Subsequent to the meeting I inspected the markets in company with the head manager of the Samastanam, to whom I pointed out the various defects and explained to him the remedies suggested by the Sanitary Commissioner with regard to the same. The manager has promised to effect the remedies as far as practicable.

6. *Vaccination.*—(*a*) Of forty-four children met in the streets without selection, 10 per cent. were found unprotected. There is therefore room for improvement.

(*b*) The following table exhibits the results of the working of the compulsory clauses, as reported by the municipality :—

Total births during the first six months of 1894.	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.	Ratio of successful vaccination to total births per cent.	Prosecutions for failure 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.
495	200	6	6	..	12	90	130	57	44·9	304	297	7

Attendance at the municipal depôt is not insisted upon in all cases. Especially this seems neglected in reference to examination of results on the seventh day. This should be scrupulously enforced by the municipality. Only by attention to this detail can it be possible for the vaccinator to accomplish his duty in the systematic manner necessary for correct working of the compulsory clauses.

The vaccinator is called upon to enforce the clause referring to the examination of results on the seventh day.

Inspection Notes.

Chairman's Remarks.

7. *Registration.*—(*a*) According to a report received from the Chairman, he has since my visit promptly arranged for a better organization than existed of the Registration department. There is therefore no necessity for me to dilate on this subject.

The following shows the results secured :—

Years.	Ratio of births per mille of estimated population.	Ratio of births per mille of estimated population.	Percentage of deaths from						Ratio of deaths of infants under one year of age per mille to registered births in the preceding year.	Ratio per mille of deaths of infants between one and five years of age to population of hat tage.
			Cholera.	Small-pox.	Fevers.	Dysentery and diarrhœa.	Injuries.	All other causes.		
1893	26·5	22·1	..	0·4	44·2	3·1	..	52·3	223 2	14·1
1894	26·7	24·6	..	0·4	43·1	5·1	0·8	50·7	231·0	21·4
1895 up to end of July.	21·3	20·3	..	0·4	43·6	7·3	0·4	48·3	159·5	21·6

(*b*) This statement shows that the reform mentioned was urgently required, the statistics bespeaking an untrustworthy condition. This is specially marked as to the birth-rate. Without an accurate record of births, it is of course out of the question that vaccination can be conducted satisfactorily.

8. *Sanitary Administration.*—I consider the municipal limits require reconsideration. I find that between the railway station and the town is a narrow belt of ground under the local fund board. This was given up by the municipality, with the rather selfish policy of not having to support the road. But now that the road serves the railway station, conditions are altered. It is most undesirable for sanitary reasons to have a railway station so close to municipal limits and yet beyond its sanitary control. Again, beyond the railway station commence the cantonment limits. On the other side of the tank the municipal limits are bounded by those of the Samastanam. Even the Pedda Cheruvu tank is out of the municipal limits, although municipal roads skirt its banks.

Inspection Notes.

It seems to me undesirable that this multiplicity of authority should exist over so small an area—so close to the town that the sanitary condition of the surroundings is a matter of importance. I think it desirable, if conflicting interests can by any method be made to subserve the common good of the inhabitants of Vizianagram, that the cantonment, the local fund strip mentioned, and the part of the Samastanam now out of municipal limits, should be placed definitely under municipal rule. In the case of the so-called cantonment, as only a single regiment is on the spot it seems unnecessary that a separate sanitary organization having its own laws should exist there.

FORT ST. GEORGE,
2*nd November* 1895. (Signed) W. G. KING, Surgn.-Lieut.-Col.,
Sanitary Commissioner for Madras.

Chairman's Remarks.

The council is aware of the necessity of renewing the municipal limits. A separate communication will be forwarded to the Government on the subject later on.

EXTRACT from the Proceedings of the Municipal Council, Vizianagram, at a meeting held on Saturday, the 15th February 1896.

* * * * *

I. Laid on the table the inspection notes of the Sanitary Commissioner, Madras, on his inspection of this municipality on 29th—31st July 1895, and the Chairman's replies thereon.

Resolution.—The draft replies are approved by the council. The council thankfully accepts the offer of a loan of Rs. 3,000 without interest made by the manager of the Samastanam for the purchase of a steam-engine, steam-pump and a tank fitted with taps, &c., for the use of Ayyakoneru.

* * * * *

Cur. No. 545.

Forwarded. The Chairman is doing all he can to see that the Sanitary Commissioner's suggestions are not lost sight of. The sewage-filters which I have seen seem satisfactory, but very many more are required of course.

VIZIANAGRAM,
5*th March* 1896. (Signed) L. C. MILLER,
Prinl. Asst. Collector.

Forwarded.

9*th March* 1896. (Signed) W. A. WILLOCK,
Collector.

ORDER—No. 760 M., dated 4th May 1896.

Recorded, with the following remarks :—

(1) The municipal council's proposal to borrow a sum of Rs. 3,000 for providing for a proper supply of water from the Ayyakonéru is approved, and the Chairman will be requested to submit, without delay, an application in the form prescribed in G.O., No. 322 L., dated 8th February 1889.

(2) The council's attention will be drawn to the Collector's remarks in paragraph 1 (*d*) and (*f*) of the inspection notes.

(3) The scheme for the water-supply of the own suggested by Dr. King in paragraph 2 (*e*) of his notes will be referred to the Sanitary Board for remarks.

(4) The further communication, regarding the deration of the municipal limits, promised by the Chairman, will be awaited.

(True Extract.)

J. F. PRICE,
Chief Secretary.

To the Chairman, Municipal Council, Vizianagram.
" Collector of Vizagapatam.
" Sanitary Commissioner.
" Sanitary Engineer.
" Sanitary Board.
Editors' Table.

Exd. A. Raitt.

Govt. of {1896} Madras.

LOCAL AND MUNICIPAL.

Issued

Recd. *Encl.*

G.O., No. 760 M., 4th May 1896.

MAY.

Inspection Notes.

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

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