M.R.O. 1—77,006—8-6-37.

(1) Number of pages 24.

(2) Date of repair 9-12-39.

(3) Initials of the Reference CX

MADRAS RECORD OFFICE.

Government of Madras.

Financial DEPARTMENT.

G.O. No. 912 Press Mis.

85-87

Dated 19-7- 1872.

13/14

85-87

Not to be folded or roughly handled

Proceedings of the Madras Government, Financial Department,
19th July 1872.

Read the following papers :—

No. 85. From W. R. CORNISH, Esq., F.R.C.S., Sanitary Commissioner for Madras, to the Secretary to Government, Fort St. George, dated Madras, 29th June 1872, No. 764.

I have, in addressing the President of the Municipal Commission of Madras on the subject of water distribution, objected to the use of the dirty surface-fed tanks of the town as receptacles for drinking water, and have the honour to forward for record copies of correspondence on the subject.

From the Officiating President of the Municipal Commission, Madras, to the Sanitary Commissioner for Madras, dated Madras, 13th June 1872, No. 88.

In reply to your letter, No. 661, dated 30th May 1872, I have the honour to inform you that I have addressed the enclosed letter to Government on the subject of supplying the regiment located in Perambore with water.

2. With reference to paragraph 3, I have much pleasure to inform you that Fort St. George and the General Hospital have both been provided for in the municipal distribution scheme, and an abundant supply of water will be available in a very short time. The plan proposed is to connect the existing net-work of pipes from the Seven Wells within those areas with our water mains. While I am on this subject, I might mention that if a chemically pure water is desired for distribution to the troops the apparatus for delivering the supply should be altered.

3. The water admitted into our pipes is no doubt very soft and free from contamination, but I must not omit to mention the fact that it has simply been strained through four feet of filtering material on entering the delivery channel, and again through six wire gauge strainers (60 mesh to an inch) before flowing into the trunk main. In the fountains erected by the Municipality this drawback, if I might so term it, is provided for by one tap, in each cistern fountain being so constructed as to deliver water that has passed between two slabs of Ransom's patent filtering stones with about six inches of carbide of iron between them. This water is for drinking purposes, the remaining taps delivering water for all other uses.

4. The Executive Engineer, Mr. Lee, informs me that by this means very great economy is obtained, inasmuch as 25 gallons per head (the supply provided for) is not all filtered for the purpose of securing about two quarts (the quantity probably actually drunk by each individual) of pure water.

5. In localities not very thickly populated fountains of the description shown in the enclosed Plan No. 1 are to be used, and their cost is given in the memorandum attached to the plan.

6. I might mention before concluding that it is not yet definitely settled as to which is the best packing material to be used between the filtering stones, and the ultimate selection will be made after obtaining the results of certain experiments about to be instituted by Mr. S. Lee in our fountains. The water from these will be sent for analysis, and that which gives the best results will be selected for general use.

7. As regards the supply of water to the Body Guard, I forward, for your information, the correspondence on the subject.

8. With reference to the Vepery Lines, permission was asked to fill the tank in Rundall's Road on the 7th April, and the sanction of Government, dated 31st May 1872, has just been received, and the work ordered to be executed. I have also much pleasure in sending you a tracing showing the pipes as already laid in the vicinity of the lines, and shall be happy to comply with any requisition for the delivery of water at as many points as may be necessary within the lines on the condition that the immediate expense be defrayed by Government.

9. The Royapooram Lines being considerably without the water-supply districts, I am sorry I cannot for the present hold forth any prospects of being able to take the water to them. It was

expected, I believe, that the Seven Wells would be available on their being relieved of the supply to the fort and other Government institutions.

From W. R. CORNISH, Esq., F.R.C.S., Sanitary Commissioner for Madras, to the Acting President of the Municipal Commission, Madras, dated Madras, 29th June 1872, No. 763.

In returning the plans, &c., accompanying your letter, No. 88, of 13th instant, I have the honour to state that the proposed arrangements in regard to the water-supply of the Perambore barracks meet with my approval.

2. The proposed method of supplying the Vepery Regiment with water I have objected to on sanitary grounds, and Government has been pleased in G. O., No. 1934, of 12th instant, to cancel the order regarding the filling of the tank in Rundall's Road.

3. In regard to the use of existing earth tanks for the Red Hills water, I should advise the Municipality to proceed with extreme caution. These tanks have nearly all been constructed to receive *surface drainage*, and will continue to receive such drainage in rainy seasons. The beds of such tanks and surrounding soil are often tainted with organic impurities. The water in them is liable to be fouled and abused in every conceivable manner, and if the system of pouring clean water into such receptacles is extensively practised, the population of Madras may yet discover that their water-supply may become a curse instead of a blessing.

4. If for any *temporary* purpose it be necessary to conduct municipal water into any of these existing tanks, I think it is highly desirable that the tanks selected for this purpose should in the first instance be cleaned out and puddled with fresh clay, that their sloping banks should be turfed, and that such tanks should be efficiently guarded to see that the water is not defiled by the washing of clothes, dirty pots, dirty human bodies, or cattle.

5. I say nothing on the subject of the enormous waste of water from evaporation and soakage that the employment of such tanks will occasion, but I am quite sure of this, that if the Municipal Commissioners seek to improve the health of the inhabitants of the town they must take means to ensure that the drinking water they are providing with so much labour and cost be not contaminated before it reaches the consumer. That the water will be often dangerously polluted in open tanks I make no doubt; such pollution in fact is inevitable where the tank is frequented by large numbers of natives.

6. I infer from your letter under reply that, although provision has been made for connecting the present distribution pipes from the Seven Wells with the municipal pipes, the work will not be undertaken without further reference to Government.

7. I shall be glad to learn if this is the case, for it seems to me that the subject will have to be very carefully considered in all its bearings before we give up the Seven Wells water for the use of the troops and General Hospital, and substitute for it an unfiltered water, which, although ordinarily quite pure, may at times contain a good deal of silt and other impurities in suspension.

8. The storage capacity of the reservoirs in the fort, and the provision probably of extra settling tanks for the deposit of silt, will have to be considered before it can be judged whether the new water-supply will be an improvement on the old or the reverse.

9. The arrangements proposed to be adopted by the Municipal Engineer for the supply of filtered water at the drinking fountains may be sufficient, but I have very grave doubts if, when several taps are available at a fountain, the public will seek the particular one that supplies filtered water. Experience alone can decide whether the passage of water through the filtering material will be rapid enough for the draught. At the Ulsoor Water Works the best filtering material is found to be animal charcoal coarsely broken into lumps. Its manufacture in this country is quite easy, and I would suggest a trial of this substance for packing between the layers of Ransom's stone.

10. I shall be always ready to co-operate with the Municipal Commissioners in advising as to the distribution of water in a condition of purity, and I beg the favour of your keeping me informed of any questions arising from time to time as to extension of the water-supply.

No. 86. From the Officiating President of the Municipal Commission, Madras, to the Chief Secretary to Government, Fort St. George, dated Madras, 3rd July 1872, No. 134.

The Sanitary Commissioner having addressed to me the letter noted in the margin on the subject of filling public tanks with Red Hills water, I have the honour to request that you will do me the favour to lay before His Excellency the Governor in Council Dr. Cornish's letter and my reply to it.

1 Letter from the Sanitary Commissioner, to the Acting President, Municipal Commission, dated 29th June 1872, No. 763, printed above.
1 Copy of letter from the President, Municipal Commission, to the Sanitary Commissioner, dated 3rd July 1872, No. 133.

2. I take the liberty of forwarding this correspondence, with the view of keeping Government informed of what action the Municipality is taking in supplying Madras with water.

From the Officiating President of the Municipal Commission, Madras, to the Sanitary Commissioner for Madras, dated Madras, 3rd July 1872, No. 133.

With reference to paragraph 2 of your letter, No. 763, dated the 29th June 1872, I have the honour to inform you that the laying down of pipes for the delivery of water within private enclosures, Government compounds, and Regimental Lines is undertaken by the Municipality on special arrangements being entered into, and not as an integral part of the sanctioned scheme, which, as you are aware (the Water Supply Committee's Report having been sent to your office previous to the Government approving of the scheme) consists of 137 fountains and a few stand-pipes.

2. Connecting the Sepoys' tank in Rundall's Road with our system of pipes was, therefore, not to provide a supply of drinking water to the regiment. It was done in compliance with the following paragraph in Mr. Lee's report: "When the fountains are not in draft, as during several hours of the night, the water will flow into 36 large tanks, capable of containing in the aggregate 17 millions cubic yards of water." Mr. Lee had satisfied the Water Supply Committee and Government as to the desirability of this step, and I have no doubt the reasons he adduces in support of it would also meet with your approval. I should be very happy to meet you in company with Mr. Lee on Wednesday next, the 10th instant, at your office at 12 o'clock, if convenient to you, for the purpose of discussing this subject.

3. I might mention that the tanks now supplied with Red Hills water have had the surface drainage diverted, and in every case an iron fountain erected on the bank, from which the people prefer drawing their supply to resorting to the tanks. The latter are used only for bathing purposes, and are very much appreciated.

4. I agree with you as to the impurities the water would contract in these tanks, and I would even go further and deprecate entirely any attempt to deliver the public supply in open reservoirs, however well-constructed. It is well-known that water absorbs from the air with extraordinary avidity any gaseous impurities or organic particles that may be floating in the atmosphere, and to store water in reservoirs exposed to such contamination would surely result in propagating endemic diseases.

5. I can well understand your anxiety on hearing that we were filling tanks in crowded localities; and you must allow me to thank you for your kind promise to co-operate with the Commissioners in advising them as to the distribution of water.

6. With reference to paragraphs 6 and 7, I have the honour to state that the work of connecting our system with pipes from the Seven Wells will not be commenced without the sanction of Government in the Public Works Department, and I shall apprize you when application is made for permission.

7. As regards paragraph 10, Mr. Lee states that the tap which is to deliver filtered water will be smaller than the others, and painted differently. His experience of the working of this

system is that the people very readily find out the object of this tap, and resort to it only when drinking water is required.

8. The reason of making it smaller than the others is to prevent a resort to it for all purposes, and thereby exhausting the pure-water chamber before the water could infilter into it. As for the filtering material to be eventually used throughout, I have in my former letter mentioned that the selection would be made after careful and extended experiments. I should feel obliged by your obtaining for me the result of the experience gained at Bangalore with animal charcoal. Mr. Lee states that he has read carefully Dr. Nicholson's report on it, and has also personally inspected the works repeatedly, and that he is not very favourably impressed with the success. I am also afraid that caste prejudices would prevent our using it in the native quarters of the town.

No. 87. ORDER THEREON, 19th July 1872, No. 912.

Communicated to the Military Department.

2. The Governor in Council will be glad to learn the resolution to which the Madras Municipality may come on the several points brought under their consideration by the Sanitary Commissioner.

(True Extract.)

R. S. ELLIS,
Chief Secretary.

To the Military Department.
" President of the Municipal Commission, Madras.
" Sanitary Commissioner.

Exd. J. Wright.

Govt. of {1872} Madras.

FINANCIAL.

To

THE MILITARY DEPARTMENT,
&c., &c., &c.

Dated July, 19th.

Recd. *Encl.*

G. O., 19th July 1872, No. 912.

JULY.
Nos. 85—87.

Awaiting the resolution of the Municipality on the subject of filling in the surface-fed tanks of the Madras Town objected to by the Sanitary Commissioner.

I have the honor to be
Sir
Your most Obed.t Servant

Aug.s Sutherden
Off.r President
Mem.l Cong.s

Ks No 135. Munpl Comrs Office
Madras 3d July 1872

To
Dr W. R. Cornish
Sanitary Commissioner
Madras

Sir,

1. With reference to para 2 of your letter No 763 dated the 29th June 1872, I have the honor to inform you that the laying down of pipes for the delivery of water within private enclosures, Government Compounds, and Regimental Lines, is undertaken by the Municipality on Special arrangements being entered into, and not as a integral part of the sanctioned Scheme, which as you are aware, the Water Supply Committee's Report having been sent to your Office previous to the Government approving of the Scheme, consists of 137 Fountains and a few Stand-pipes.

2. Connecting the Sepoy's tank in Rundall's road with our system of pipes was therefore not to provide a supply of drinking water to the Regiment. It was done in compliance with the following para in Mr Lee's report. "When the fountains are not in draft, as during several hours of the night the water will flow into 36 large tanks, capable of containing

1872
Triennial Returns
Town
Pay & Bladen Bunds
Vol

Ks No 1282
Commands certain correspondence with the Surgeon Genl Expenditure Water Supply & Buildings -

Ks No 912
4/6/19 July/72 & 80

By Order

containing in the aggregate 17 millions Cubic yards of water." Mr. Lee had satisfied the Water Supply Committee, and Government, as to the desirability of this step, and I have no doubt the reasons he adduces in support of it would also meet with your approval. I should be very happy to meet you in company with Mr. Lee on Wednesday next the 10th Instant, at your Office at 12 O'clock, if convenient to you, for the purpose of discussing this subject.

3. I might mention that the tanks now supplied with Red Hills Water, have had the surface drainage diverted, and in every case an iron fountain erected on the bank, from which the people prefer drawing their supply, to resorting to the tanks. The latter are used only for bathing purposes, and are very much appreciated.

4. I agree with you as to the impurities the water would contract in these tanks, and I would even go further and deprecate entirely any attempt to deliver the public supply in open reservoirs, however well constructed. It is well known that water absorbs from the air with extraordinary avidity, any gaseous impurities or organic particles that may be floating in the atmosphere, and to store water in reservoirs exposed to such contamination would surely result in propagating endemic diseases.

5. I can well understand your anxiety on hearing that we were filling tanks in crowded localities; and you must allow me to thank you for your kind promise to co-operate with the Commissioners in advising them as to the distribution of water.

6. With reference to paras 6 and 7 I have the honor to state that the work of connecting our system with pipes from the Seven Wells will not be commenced without the sanction of Government in the Public Works Department, and I shall apprize you, when application is made for permission.

As regards para 10, Mr Lee states that the tap, which is to deliver filtered water, will be smaller than the others, and painted differently. It is experience of the working of this system, is that the people very readily find

find out the object of this tap, and resort to it only when drinking water is required.

8. The reason of making it smaller than the others, is to prevent a resort to it for all purposes, and thereby exhausting the pure-water chamber, before the water could infilter into it. As for the filtering material to be eventually used throughout. I have in my former letter mentioned, that the selection would be made after careful and extended experiments. I should feel obliged by your obtaining for me the result of the experience gained at Bangalore with Animal Charcoal. Mr. Lee states, that he has read carefully Dr. Nicholson's report on it, and has also personally inspected the works repeatedly, and that he is not very favorably impressed with the success. I am also afraid that caste prejudices would prevent our using it in the native quarters of the town.

I have &c.

Signed J. F. Ritherdon
Off. President
Munpl. Comn.

True Copy

H. M. Lee
Exc. Engineer

763

Office of Sanitary Commissioner
Madras 29th June 1872

From

The Sanitary Commissioner
for Madras.

To

The Acting President
Municipal Commission
Madras

Sir,

In returning the plans &c. accompanying your letter No. 88 of 13th Instant, I have the honor to state that the proposed arrangements in regard to the Water Supply of the Pycroft Barracks meet with my approval.

2. The proposed method of supplying the Depôt Regiment with water, I have objected to on sanitary grounds, and Government has been pleased in G. O. No. 1934 of 12th Instant to cancel the order regarding the filling of the tank in Rundalls road.

3. In regard to the use of existing earth tanks for the Red Hill water, I should advise the Municipality to proceed with extreme caution. These tanks have nearly all been constructed to receive surface drainage and will continue to receive such drainage in rainy seasons. The beds

beds of such tanks and surrounding soil are often tainted with organic impurities. The water in them is liable to be fouled and abused in every conceivable manner and if the system of pouring clean water into such receptacles is extensively practiced, the population of Madras may yet discover that their water supply may become a curse instead of a blessing.

4 If for any temporary purpose it be necessary to conduct Municipal water into any of these existing tanks, I think it is highly desirable that the tanks selected for this purpose should in the first instance be cleaned out and puddled with fresh clay, that their sloping banks should be turfed and that such tanks should be efficiently guarded to see that the water is not defiled by the washing of the clothes, dirty pots, dirty human bodies or cattle.

5 I say nothing on the subject of the enormous waste of water from evaporation and soakage, that the employment of such tanks will occasion, but I am quite sure of this, that if the Municipal Commissioners seek to improve the health of the inhabitants of the town, they must take means to ensure that the drinking

water they are providing with so much labor and cost, be not contaminated before it reaches the consumer. That the water will be often dangerously polluted in open tanks I make no doubt, such pollution in fact is inevitable where the tank is frequented by large numbers of natives.

6. I infer from your letter under reply that although provision has been made for connecting the present distribution pipes from the Seven Wells with the Municipal pipes, that the work will not be undertaken without further reference to Government.

7. I shall be glad to learn if this is the case, for it seems to me that the subject will have to be very carefully considered in all its bearings before we give up the Seven Wells water for the use of the troops and General Hospital, and to substitute for it an unfiltered water, which although ordinarily quite pure, may at times contain a good deal of silt and other impurities in suspension.

8 The storage capacity of the reservoirs in the fort and the provision probably of extra settling tanks for the

deposit

deposit of silt, will have to be considered before it can be judged whether the new water supply will be an improvement on the old or the reverse -

9. The arrangements proposed to be adopted by the Municipal Engineer for the supply of filtered water at the drinking fountains may be sufficient but I have very grave doubts if when several taps are available at a fountain the public will seek the particular one that supplies filtered water - Experience alone can decide whether the passage of water through the filtering material will be rapid enough for the draught - At the Alnwick Water Works the best filtering material is found to be animal Charcoal, coarsely broken into lumps - Its manufacture in this country is quite easy, and I would suggest a trial of this substance for packing between the layers of Ransom's stone -

10. I shall be always ready to co-operate with the Municipal Commissioners in advising as to the distribution of water in a condition of purity, and I beg the favor of your keeping me informed of any questions arising from time to time as to extension of the water supply.

I have &c

Signed / H. R. Cornish T.R.C.E.
Sanitary Commr for Madras

True Copy

H. Rd Lee
Col Engineer

Cd. C.T.R.

5 A7

1872
Finances Department

Sanitary Commission
Canada
1872

29 June 1872
3 July 1872

2 Encs
G 6/19 2 July 72 Recd
GS 1208

Remarks on enclosure
from Sanitary Commission
dated on the subject
of the quarters of Private
Corbillis of the Army
at the Rifle Camp
at Point Levis

Watter and Eden

Read Nos 1206 and 1207
Botacanmund 4th July 1872 No 912

Comm[d] the Engr. Dept.

Sir Lord Letter
to your with
the
Comm[d] (comm:
letter of 3d
July A.G.

Inspector Brigade Staff Engineer
the works &c. the Quebec Municipality may
cause at the several points brought
under their [illegible]
Comm[d] E.D.

Sanitary
Inspector
Quebec

50(2490

Military Dept
Provincial Secret
Sanitary Commission

G 6/19 July 72 No: 81

Govt. of {1872} Madras.

Financial

To
The Military Dept.
Sea.

Dated July. 19. }
Read: } Encl.

G. O. 19 July, 1872, No. 912.

Nos. 85. 87.

Awaiting the Resn. of the Govt.
especially on the subject of
filling in the surface fed
tanks of the Madras Town objected
to by the Sanitary Commr.