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(3) Initials of the Referencer

MADRAS RECORD OFFICE.

Government of Madras.

Public works **DEPARTMENT.**

G.O. No. 3607-08 Press Mis.

229-30

Dated 10 - 11 1869.

Not to be folded or roughly handled

Proceedings of the Madras Government, Public Works Department,
10th November 1869.

No. 228. Read the following letter from the Deputy Secretary to the Government of India, Public Works Department, (Buildings and Roads—Military,) to the Secretary to the Government of Madras, Public Works Department, dated Simla, 5th October 1869, No. 1,043 B.M:—

I AM directed to forward for information the documents marginally noted, on the subject of water supply to the Military Stations of Madras by means of water roofs or "aquatects," and to request that the Government of India may be favoured with an expression of the views and wishes of the Government of Madras thereon.

Copy of Despatch from the Secretary of State, No. 52, dated 3rd June 1869, and of its enclosures, with the plans in original, to be returned.

No. 229. ORDER THEREON, 10th November 1869, No. 3,607.

MILITARY WORKS, No. 12.

ORDERED that the following letter be sent:—

(Here enter No.3,608, dated 10th November 1869.)

(True Extract.)

(Signed) CHARLES A. ORR, Colonel, R. E.,
Secretary to Government.

Exd. S. T. Augustin.

-tacle a description which I am sure you will read
with surprise.

PUBLIC WORKS DEPARTMENT,
FORT ST. GEORGE, 10*th November* 1869.

No. 230.

No. 3,608.

To

THE SECRETARY TO THE GOVERNMENT OF INDIA,
PUBLIC WORKS DEPARTMENT.

MILITARY WORKS, No. 13.

SIR,—In reply to your letter No. 1,043 of the 5th October 1869, I am directed to make the following observations.

2. His Excellency, the Governor in Council, is fully alive to the importance of a pure supply of water for troops, and has already had under consideration the advisability of collecting the rain which falls on the roofs of the barracks in Fort Saint George; but he has been compelled to abandon the idea on the ground of expense. It has been found that it would cost more than 2½ lacs of rupees to supply five quarts of water per head per diem to the garrison consisting of 1,500 souls.

3. Mr. Ormsby's project to erect glass roofs, termed "*aquatects*," is not objectionable except on the same ground of expense. The water would undoubtedly be pure but not appreciably purer than what might be obtained from the barrack roofs which would form quite as good catchment areas as any specially prepared surfaces. It would be superfluous to erect "aquatects" at any station where there were barracks, as the roof area of these buildings would be a sufficiently extensive gathering ground for all practical purposes.

4. It is observed that Mr. Ormsby merely estimates for the cost of the roof, its conveyance to Madras, and its erection. But these are only a few of the items in the complete project. The cost of the reservoirs, of the masonry ducts, of the walls to support the roof, of the pipes leading to the barracks, of the distributory apparatus, etc., has been entirely omitted. If the expenses for these works be considered, it will be found that the far cheaper plan will be to utilize the barrack roofs and not to incur the expense which "aquatects" would involve. His Excellency the Governor in Council is, therefore, of opinion that it would not be advisable to adopt Mr. Ormsby's project either in Madras or in any other station in this Presidency.

I have the honour to be,
Sir,
Your most obedient servant,

Colonel, R.E.,
Secretary to Government.

Ex.l. S. T. Augustin.

*-tach a description * which. I am sure you will read with surprise.*

Estimate and Proposal Regulations } accompany

Parliament Street Westminster 3
May 10th 1869.

To

The Under Secretary of State for India

Sir

Referring to my letters and your replies dated July 3rd and November 21st 1867, I have the honor to submit herewith three drawings and an estimate of the cost of constructing a water roof, or Aquatects, at two Military Indian Stations, both of which Stand greatly in need of a Supply of pure water.

2. I beg to solicit for my plan a fair trial, & with this object in view, that you will be so good as to bring this question under the notice of the Right Honble His Grace the Duke of Argyll, Secretary of State for India, as I am convinced that aquatects of this discription would prove invaluable to the European & Native Population of India.

3. From my own experience during four years residence there, I can say that nothing can be worse than the Water Supply generally, as it is either taken from rivers which are the burial places of the Native population or from Wells Sunk in the compound of each dwelling which are open to the reception of innumerable impurities, and if further proof be required as to the necessity that exists for an improved Supply of water it may be obtained in the Report of the Sanitary Commission and those of the Civil and Military Surgeons attached to each Cantonment, Stations a description of which I am sure you will read with surprise.

4. Health is the first of human blessings, at it is really surprising how much we live under conditions that are at variance with the preservation thereof; food, drink, light, air exercise and clothing are all equally necessary for the health of the Army, and it depends upon the climate how far the absence of any one of them may produce either fatal or permanently injurious results.

5. So far as my observation goes I can say that all these requirements of health appear to be attended to with the one important exception of drink, and it is to meet this demand that I have brought forward my plan for supplying the Cantonments and Cities of India with pure water.

6. I attach hereto a copy of a letter from the Director General of the Army Medical Department giving his opinion as to the work of my plan and I have no doubt whatever that the work I now submit for official sanction will be one of the most popular, because one of the most necessary, that can be undertaken by the Government of India

I have &c.

Lt. Col. A. Ormsby C.E.

Eb.

There cannot be a more terrible instance of the fatal effects of bad water than the example afforded by Ceylon at present, for the rate of mortality there is 34.59, and the constantly sick 86.7 per thousand, which is largely in excess of that at any other Station of the British Army, while the reason of this appalling death and invalid rate is to be found in the following extract from the report of Staff Assistant Surgeon Martin, M.D., at page 283 of the Parliamentary paper already referred to wherein he says—

"The almost direct source whence most of the wells are supplied is the lake, the water simply percolating through the intermediate soil, which is of a light sandy nature. This is shewn by the water in the wells and in the lake being precisely of the same level. This lake is nothing more or less than an enormous cesspool, the receptacle of every possible kind of filthy matter that can be conceived. On almost every side are the native pettahs and villages, with their swarming populations existing totally regardless of, in fact with habits diametrically opposed to all hygienic principles. Its banks are resorted to by thousands of natives, who after bathing, commit the most disgusting nuisances close to the water's edge. Horses and bullocks are daily taken to be bathed in it and all the dhobeys make use of it for washing their clothes. Moreover in close proximity to four of these wells are the common latrines made use of by all the native troops and their families. These latrines, or rears, are formed by wooden platforms erected just at

at the edge of the lake, the excreta simply dropping on its banks [during the months of April and May the lake is frequently almost entirely dried up leaving its bed to be acted upon by the sun, which is at this time just passing over the island. The consequence of which is that the most horrible stenches arise from the disengagement of the various noxious gases generated, filling the surrounding atmosphere with their effluvia] or when this mode cannot be adopted pits of about 10 to 12 feet deep are dug in the ground and floored over, in which the feculent matter collects, and is allowed to accumulate until these pits become inconveniently full, when on application being made, they are emptied. This occurs on an average between every two and three years."

"This state of things having gone on for many years, with immense numbers daily making use of these vaults, as a natural result, the ground in the vicinities for many yards must be completely saturated with the fluid portions of the excrement in a decomposed condition; and especially when the sandy soil is borne in mind and when the sides and bottoms of these are unlined."

"The amount of organic matter present in the best of these wells, is by far more than can be admissable in even indifferent drinking-water. Means ought at once to be taken to remedy this great source of evil, for the consumption cannot go on without causing the most baneful effects, and producing very serious detriment to the health of the troops. It is advisable that the whole of these wells be abandoned and fresh ones made."

It is with great reluctance that I have dragged this very unattractive extract from the obscurity of a "blue book," and I have only done so with the object of arousing sympathy for the gallant and devoted sufferers, and that the strongest expression of opinion may be given against the continuance of such a disgraceful state of affairs in our colonies.

I do not agree with the writer in suggesting that the present wells should be filled up and others opened, because the source of the supply is so utterly vile and polluted that "Who can bring a clean thing out of an unclean not one; and I therefore conclude that if there is one place more than another, where my plan of obtaining pure water for the supply of populations is applicable (and urgent), it is at the Fort of Colombo in Ceylon. The rainfall is so considerable that it would only be necessary to cover in less than two acres so as to supply two gallons per head per diem to a population of 3,000 persons, and, in addition to that, to fill the storage reservoirs, the making of which would be the principal source of expense.

W. A. Ormsby.

Proposed Regulations
for the distribution of pure water at Madras and Colombo.

It is proposed that the reservoir shall be 35 feet deep, that there shall be a hand pump in a convenient place in the Cantonment from whence water may be fetched in the same manner as from the Spring at present. Each man will be the bearer of a ticket authorising him to draw the number of gallons to which he may be entitled for himself and dependants.

2. Single men living in Barracks will be supplied from a reservoir in the building which will contain the requisite quantity of water from which they will be able to draw by means of a hand pump at the rate of two gallons per man per diem for both purposes a Sentry being placed there to prevent the cooks overdrawing; but the men will be permitted to drink at the pumps at discretion.

3. Where the present custom is to draw from a well in the compound, those living in Separate dwellings must supply themselves from the general pumps (See para 1) but the Barrack buildings will be supplied as stated in para 2.

4. In all cases where the site of the collecting ground is above the level of the Cantonment a much more simple method of supply may be arranged upon the principle of gravitation.

In every case of water supply Tanks and Pipes must be provided and this expense will be much less important under the application of the more absorbing

absorbing system as respects pipes, water channels &c in consequence of the source of supply being brought close to the place of consumption.—

Tanks exist in many places and require only to be covered over to prevent impurities entering from above— at all events they must be thoroughly secured from the entry of drainage in any direction— the size will depend upon the number of troops to be supplied— taking as an example a Cantonment of 3000 men the Tank must be 100×50×35, the expense of construction would not be considerable and would give each man two gallons of pure water per diem.

It is proposed that there shall be be at each Cantonment a Water Committee, composed of the Surgeon, the Adjutant, and the Executive Engineer who may make regulations applicable to each Cantonment & vary them as circumstances may require.

Lt Col A. Ormsby

London
May 10th 1869

96

Army Medical Department.
23rd July 1869.

To

Arthur A. Ormsby Esqr.

Sir

I have the honor to acknowledge the receipt of your letter of the 6th instant, enclosing a copy of a pamphlet on Water Supply, which you have been good enough to forward me and which I have perused with interest. The importance of an ample supply of pure water, in a sanitary point of view, is obviously great, and obtains my anxious consideration.

With a view to this end, the conservancy and utilisation of rain water by any means in our power are well worthy of consideration, particularly at Stations where their water supply is defective.

The Scheme which you propose however involves financial and Engineering considerations, and on these as well as its practicability, I am unable to express an opinion.—

I have &c
Sd/ J. J. Logan
Director General

96

India Office
London, 3rd June 1869.

Public Works
No. 52

To
His Excellency the Right Honble the Governor
General of India in Council

My Lord,

Para: 1. With Sir Stafford Northcote's Despatch to your Govt. No. 53 of 31st May 1867, was forwarded copy of a pamphlet on a new scheme for the supply of drinking water in India by Mr. Ormsby, Civil Engineer.

2. I now transmit copy of a letter* from Mr. Ormsby, together with three illustrative drawings and estimates for the construction, on his principle, of water roofs or "aquatects" for the Military Stations of Madras and Colombo.

3. Mr. Ormsby's plan seems to me to be deserving of your consideration, and if it can be carried into effect at any thing like the cost he supposes, may I think, be worth trying at Madras or at some other station in India. I should be glad, therefore to have your Excellency's opinion regarding it.

I have the honor to be &c
(Sd) Argyll

* Dated 15th May 1869

Recd 19th July 69.

46

Pub 351 1869

10

No 1043 B. M.

It is requested that the reply to this letter be addressed to the Secretary to the Government of India, in the P. W. Department

GOVERNMENT OF INDIA.

PUBLIC WORKS DEPARTMENT.

Buildings and Roads.

(Military)

To

The Secretary to the Govt of Madras.
in the Public Works Department

Simla, 5th October 1869.

Sir,

I am directed to forward for information the documents marginally noted,* on the subject of water supply to the Military stations of Madras by means of water roofs or "aquatects" and to request that the Government of India may be favored with an expression of the views and wishes of the Government of Madras thereon.—

I have the honor to be,
Sir,
Your most obed. Servant,
W Hammeken Colonel.
Deputy Secretary to the Govt of India.

* Copy of despatch from the Secy of State, No 52 dated 3d June 1869 and of its enclosures with the plans in original, to be returned.

96

49

Rec'd.

No 3607

Proceedings of the Right Hon'ble the Governor in Council of Bombay:-
dated the 18th October 1869.

From the Secy: to Govt
Public Works Dept:

Ordered that the
following letter be
Recorded:-

No 3608

To the Secretary to the
Government of India
Public Works Dept.

Sir,

I am directed to
forward for the
information of the
Government of India
a copy of the
letter No. 1743 of this
date, with
its Enclosure, on
the subject of the
Water Supply to
the Military
Stations in this
Presidency.

I have &c.
(Sd) W. Lee
Secy to Govt.

No 228
C. 30th Oct 1869 R. 5th Nov

Govt of India.
No 6 Oct 69.
Rd 16 " "
Ent 8 Pt 10436

Forwarding
documents on the
subject of the Water
Supply to the Military
Stations of the Madras
Presidency by means
of water works or
"Aquatects"; and requesting
the views of this
Government thereon.
No 3607 & 3608 - 6 Nov 69

C. Gov. Oct 1869 R. 5 hrs

No 360 of 360-10-Encl 2/3

the following observations.

His Excellency the Governor in Council is fully alive to the importance of a pure supply of water for troops and has already had under consideration the advisability of collecting the rain which falls on the roofs of the barracks in Fort St. George; but he has been compelled to abandon the idea on the ground of expense. It has been found that it would cost more than 2½ lacs of rupees to supply five quarts of water per head per diem to the garrison consisting of 1500 souls. Mr. Ormsby's project to erect glass roofs, termed aqueducts, is not objectionable except on the same ground of expense. The water would undoubtedly be pure but not appreciably purer than what might be obtained from the barrack roofs which would form quite as good catchment areas as any specially

prepared surfaces. It would be superfluous to erect ~~water~~ aqueducts at any station where there were barracks as the roof area of these buildings would be a sufficiently extensive gathering ground for all practical purposes.

It is observed that Mr. Ormsby merely estimates for the cost of the roof, its conveyance to Madras, and its erection. But these are only a few of the items in the complete project. The cost of the reservoirs, of the masonry dams,

of the walls to support the roof, of the pipes leading to the barracks, of the distributory apparatus, to has been entirely omitted. If the expenses for these works be considered it will be found that the far cheaper plan will be to utilize the barrack roofs and not to incur the expense which "aqueducts" would involve. His Excellency the Governor in Council is therefore of opinion that it would not be advisable to adopt Mr. Ormsby's project either in Madras or in any other station in

14.

Resp: 11/11/69 avec thanks.

Mr Pleasants

?

W.

C. Jan Oct 1869 Ch. U. Rings

Rec 4364

Govt. of [1869] Madras.

PUBLIC WORKS.

To The Secretary to the Govt of India

Dated

Rec'd

No. 5

G. O. 10-Nov 1869, Nos 8607 to 8607

Nos. 228-229-9230

Water supply Paying orders on the letter from the Govt of India forwarding for observations certain documents regarding water supply to the Military Stations of Madras by means of water carts or "aquadects".

Water supply The Govt of India communicated under the orders of the Madras Govt on the subject of the water supply to the Military stations by means of water carts "Aquadects".