Archives I 10,006—16-8 77.

(1) Number of pages 88

(2) Date of repair 7.1.87

(3) Initials of the Referencer

MIL NADU ARCHIVES

ERNMENT OF TAMIL NADU

P.W DEPARTMENT

G.O. No. / B.P. No.	1217-1218 W	Press. / Mis.
Dated	21.5.1880	

folded or roughly handled

1217-18
1

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

21st May 1880, No. 1,217 W.

Buildings and Roads.
Military Works.

Read the following papers :—

No. 53. From Major H. M. VIBART, R.E., Superintending Engineer, Third Circle, to the Chief Engineer, Public Works Department, dated Chepauk, 5th February 1880, No. 622.

Four Plans.
One Detailed Estimate.
One Abstract Estimate.
One Report and Specification.

With reference to paragraph 3 (Item 16) of G.O., No. 2,769 W, dated 5th November 1879, I have the honor to forward the enclosed plans and estimate amounting to Rs. 18,000 for the proposed improvements to the Dumaloor tank.

2. The whole estimate consists of the following :—

	Rs.
(1) Earthwork and an undertunnel with shutters	1,420
(2) Concrete lining for the main sewer	16,580
	18,000

The larger item for concrete lining for the sewer might be postponed for a time, but it is considered that this should also be carried out as soon as money can be made available.

3. As regards the second work, it is necessary to state that the Cantonment sewer is lined with masonry up to the point G. (*vide plan*) about 600 feet from the Madras road. In the estimate originally prepared by Colonel Moberly, R.E., late District Engineer, Bangalore, provision was made for continuing the masonry by a concrete lining up to the point A., where the proposed new channel to carry off the drainage of the swamp above-mentioned will join the sewer. The medical authorities, however, are of opinion, after an inspection of the locality lately by the senior medical officer in the Cantonment, that it is necessary to line this sewer wholly, and provision has been accordingly made in the estimate for carrying the concrete lining down to the outfall of the sewer beyond the Dumaloor tank.

4. The swamp if drained would probably be utilised for dry cultivation, while the effect of turning the drainage of the swamp into the sewer will be to flush this channel below the point A. I request therefore that sanction may be granted at once for the immediate execution of work (1) alluded to in paragraph 2 above estimated at Rs. 1,420.

Memorandum from Colonel R. H. SANKEY, R.E., Chief Engineer, Public Works Department, to the Superintending Engineer, Third Circle, dated 10th February 1880, No. 473.

BEFORE submitting for the sanction of Government the estimate, amounting to Rs. 18,000, which accompanied your No. 622 of the 5th instant, in dealing with some objectionable swamp ground north of the Dumaloor tank at Bangalore, I should wish to be furnished with further proof that the concrete lining of the main sewer which forms by far the larger portion of the estimate (Rs. 16,500) is essential.

2. In the report attached to the estimate it is said that much of the malaria complained of is believed to emanate from the sewage sinking into the ground along this portion.

3. The first question is—what are the proofs of this? To clear up the point I should wish to have a rough ground plan of this part of the Bangalore Cantonment showing—

(a) All the features of the ground in the barracks, private houses, &c.;
(b) The buildings (and dates for a few years) in which there have been fatal seizures of malafious fever;
(c) Directions of the prevailing winds during the years to which the deaths refer.

And further to be informed if there is anything along the course of this portion of the main sewer to show that the ground is saturated with sewage or that there is any such fœtid swamp in process of formation as would lead to the conclusion that the present channel is at fault in the manner presumed.

4. The second question is (but admitting the latter fact) whether the essential work cannot be done in a very much cheaper manner. To my own knowledge the discharge from the main sewer excepting for a very few days each year is so trifling that a very small central duct or invert would do all that is needed, and indeed it is very doubtful whether a well-punned earthen channel with a paved or metalled invert would not suffice.

5. As it may take some little time to dispose of the points now raised and as it is certainly desirable that the swamp should be drained in the manner proposed, the work to this extent, viz., Rs. 1,420, may at once proceed.

6. An assignment of the requisite funds will be made on demand.

No. 53-A. From Lieutenant F. J. ROMILLY, R.E., Executive Engineer, Bangalore Division, to the Superintending Engineer, Third Circle, dated Bangalore, 20th March 1880, No. 568.

* * * * *

4. As regards the information concerning the sewer called for in paragraph 3 of the letter from the Chief Engineer, I have the honor to state that almost invariably when I have had occasion to visit this part of the channel there has been a strong and unmistakable odour emanating from it. The channel however runs some 4 feet below the surface of the fields, and its contents are confined entirely to the channel bed and cannot spill over and saturate the surface of the adjacent ground so as to form a fœtid swamp except at its outfall beyond the south end of the Dumaloor tank where it does discharge its contents upon the fields.

5. I would however wish to bring to your notice the manner in which this channel is annually cleared and which, I think, demands attention. It appears that about this time of the year portions of the channel are let out to the owners of the adjacent fields, who on payment of so much per length are allowed to excavate the silt from the channel bed and remove it to their fields for manure. I saw this in progress a day or two ago, and observed that the work was being carried out without any regard to properly maintaining the *régime* of the channel. In some parts the channel was being dug very deep and the sides were being undercut to such an

extent that portions had fallen in; lengths of the channel were also left untouched so that dams would remain at intervals, but these are, I understand, to be cleared away by the Municipality when the ryots have finished excavating as much of the silt as they require. Such a system cannot but prove injurious to the proper working of the channel, and by the varying levels and falls that will result in the channel bed cause the deposition at points along its course of accumulations of sewage that would otherwise be carried away to its outfall.

6. I would beg to suggest that the channel be properly levelled and trimmed and small masonry walls built across it at intervals to indicate the proper level of the bed at these points. In future all clearing might be referred to these B. Ms., and the ryots required to fill in all hollows that they may excavate below these levels. But I think it would be better that the clearing of the channel should be carried out by the Municipality under proper supervision and not by the ryot, who should be allowed only to remove the excavated silt from the banks or berms of the channel where it might be stacked for removal.

No. 53-B. From the Superintending Engineer, Third Circle, dated 31st March 1880, No. 1,590.

No. 53-C. Memorandum by the Chief Engineer, Public Works Department, dated 2nd April 1880.

No. 53-D. From Major H. M. VIBART, R.E., Superintendent of Works, Presidency, to the Chief Engineer, Public Works Department, dated Chepauk, 12th May 1880, No. 603.

I HAVE the honor to forward the enclosed copy of letter, No. 78, dated 7th instant, received from the Assistant Engineer, Bangalore, bringing to notice the obstructions caused to the flow of water in the main sewer near the Dumaloor tank by dams put up by the owners of adjacent fields and the evil resulting therefrom. The state of matters as represented by Lieutenant Romilly must, if allowed to continue, prove highly injurious in a sanitary point of view. I request that you will be so good as to address the Mysore Government on the subject, and move them to take such steps as will put a stop to the evil complained of. The matter will meanwhile be brought to the notice of the Military Authorities, Bangalore.

From Lieutenant F. J. ROMILLY, R.E., Assistant Engineer, Bangalore, to the Superintendent of Works, Presidency, dated 7th May 1880, No. 78.

I HAVE the honor to report to you that yesterday when inspecting the main sewer near the Dumaloor tank I found in more than one place that the flow in the channel was entirely obstructed by dams thrown across it by the owners of the adjacent fields who utilise the water in the channel to irrigate their crops. One earthen dam that I noticed was quite 9 inches above the water level in the channel. It is at this season of the year that the contents of the sewer are least diluted and most offensive, and therefore it is of the highest importance that the flow in the channel should be unchecked. The existence of these dams of course renders a steady flow out of the question, and so long as they are allowed to remain the sewer from the point where it crosses the Madras road to its outfall near the Dumaloor tank, instead of performing the duty of a channel to convey the sewage away, becomes in point of fact a long cesspool, or series of cesspools, in which the offensive matter is retained in proximity to a portion of the Cantonment where there is a large European population. I noted the existence of these obstructions in March and reported the matter

in my letter No. 503, dated 20th March 1880, when forwarding information called for by the Chief Engineer in connection with the Dumaloor tank.

2. Obstructions existed then and probably for some time previous to my inspection in March and they exist now, and I have no hesitation in saying that for the past three months at least a great portion of the sewage of the Cantonment has been steadily deposited in this part of the channel. I think no time should be lost in clearing and regulating this channel, and that this once done all interference with its *régime* by the owners of adjacent fields should be strictly prohibited.

No. 53-E. Endorsement of the Acting Secretary to Government in the Military Department, dated Ootacamund, 15th May 1880, No. 3,084.

From Brigadier-General H. O'CONNELL, Quartermaster-General, to the Acting Secretary to Government, Military Department, dated Ootacamund, 13th May 1880, No. 180.

IN returning documents referred to the Commander-in-Chief under your No. 2,334, dated 12th April 1880, I have the honor, by order, to report that the question of drainage and improvement of the low ground leading to the Dumaloor tank at Bangalore being a sanitary one, the whole of the correspondence was forwarded to the Surgeon-General, Army Medical Department, for his opinion.

2. I am directed to forward the reply from Surgeon-General Sir A. Home, V.C., K.C.B., No. 180, dated 6th instant, with enclosures. His Excellency the Commander-in-Chief concurs in the conclusion arrived at by Sir A. Home, viz., that the drainage of the Dumaloor tank be deferred until it can be comprehended in some general scheme of district drainage, but that the reformation of the sewer be undertaken at once and thoroughly.

From Surgeon-General Sir A. HOME, V.C., K.C.B., Army Medical Department, to the Quarter-Master-General, dated Fort St. George, 6th May 1880, No. 180.

IN answer to your letter No. $\frac{1217}{1}$ of 24th ultimo, requesting my opinion regarding some proposed works at Bangalore "for remedying the ill effects supposed to arise from the existence of swampy ground leading to the Dumaloor tank there," I have the honor to state that by collating the letter of the Deputy Surgeon-General, Mysore Circle, of 20th February last, with that of the Executive Engineer at Bangalore of 20th March, it appears that the object specially aimed at is the abatement of the prevalence of *malarial fevers* in certain of the barracks at Bangalore to be effected —

(1) by draining the Dumaloor tank; and
(2) by straightening and regulating (canalising ?) a "sewer" which has an outfall beyond the south end of the Dumaloor tank, its contents being discharged into an adjacent field causing a noisome swamp.

* * * * * *

5. I observe in one of the reports forwarded with the correspondence that *enteric fever* has been classed with malarial fever as if it were thought that the removal of the assumed cause originating the last named would avail to repress the other; it may be right to remark that it is not so. The two forms of fever have very different originating causes. Perhaps this fact *was* recognised in the proposal of the Executive Engineer to improve the channel of the sewer alluded to: with this part of the project I entirely concur, only I deem that the means contemplated (straightening the course and levelling the bed) would be quite insufficient. I gather that the "sewer" is a natural water-course into which house sewage has been led or has been permitted to drain; the proper remedy for this I submit would be to divert the sewage and carry it to a suitable outfall, either in an open brick (and rendered) culvert or in a so-called "sanitary pipe" of size adequate to the volume of the sewage and provided with means of ventilation and of flushing. If an outfall cannot be secured

at an innocuous distance, then the sewage should be filtered and be precipitated by one or other of the ways in ordinary use and the clarified water be allowed to flow into the nearest water-course, unless indeed it were found that the sewage had some fertilising value and would be taken for irrigation.

6. To state shortly the conclusions in this letter, I would recommend that the drainage of the Dumaloor tank be deferred until it can be comprehended in some general scheme of district drainage, but that the reformation of the sewer be undertaken at once and thoroughly.

TRANSFERRED to the Public Works Department, and the referred papers returned.

(By Order.)

(Signed) H. N. D. PRENDERGAST, Col., R.E.,
Acting Secretary to Government.

No. 54. ORDER THEREON, 21st May 1880, No. 1,217 W.

ORDERED that the Chief Commissioner of Mysore be addressed.

(Here enter No. 1,218 W., dated 21st May 1880.)

(True Extract.)

Major, R.E.,
Under Secy. to Govt., P.W.D.

Exd. E. C. Shanker.
Spare Copies

BUILDINGS AND ROADS.
MILITARY WORKS.

Govt. of (1880) Madras.

PUBLIC WORKS.

To

Dated May, 21st.

Issued

Read. *Encl.*

G. O., 21st May 1880, No. 1,217 W.

MAY.

Nos. 50-51.

Main Sewer of Bangalore passing the Dumaloor Tank.—Ordered that the Chief Commissioner of Mysore be addressed regarding the condition of the portion of the —.

1217-18/4

PUBLIC WORKS DEPARTMENT.

Buildings and Roads.
Military Works.

No. 1,218 W.

No. 55.

FROM

THE SECRETARY TO THE GOVERNMENT OF MADRAS,
Public Works Department,

To

THE CHIEF COMMISSIONER OF MYSORE.

SIR,—In forwarding the accompanying communications having reference to the condition of that portion of the main sewer at Bangalore passing the Dumaloor tank, I am directed to request that this Government may be favored at early convenience with an expression of your opinion as to the feasibility of the suggestions contained in paragraph 6 of Lieutenant Romilly's letter, No. 568, of 20th March 1880, and that in any case the earliest possible measures may be adopted with a view to effectually check the serious mischief brought to notice by that officer from excavations made by ryots along the course of the channel which give rise to objectionable cesspools and the stoppage of the free flow of the sewage to its outfall.

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

Major, R.E.,
Under Secy. to Govt., P.W.D.

FORT ST. GEORGE,
21st May 1880.

Exd. E. C. Shunker.
Spare Copies

BUILDINGS AND ROADS.
MILITARY WORKS.

Govt. of [1880] Madras.

PUBLIC WORKS.

To

THE CHIEF COMMISSIONER OF
MYSORE.

Dated May, 21st.

Issued

Read. *Encl.*

G. O., 21*st May* 1880, *No.* 1,218 W.

PLAY.

No. 55.

ADDRESSING on the condition of the portion of the main sewer at Bangalore passing the Dumaloor tank.

No. 129 By Surgeon General of Madras
Ulgaree Circle
Bangalore 20th February 80

From

The Deputy Surgeon General (12/2/80)
B. & M. Ulgaree Circle

To,

The Executive Engineer
Bangalore Division
Utladrug P. O. B.

Sir

I am forwarding herewith
(for the information & guidance
of your letter No 506 of 19th instant
(the enclosure of which is herewith
returned as requested) I have the
honor to inform you that Surgeon
to give any opinion of the amount
of sickness occasioned in the houses
occupied by officers in the Civil Lines
which are of all the houses situated
nearest to the Dumaloor tank in
Bangalore, all of these houses are said to
be very unhealthy and in one of them
a severe case of Remittent fever has
recently occurred.

2. On a visit to the drainage
of the tank, I found an open ditch
from the nullah close to the
Cantonment Police Station the neighbourhood
Rice water of a most offensive
character breeding mosquitoes as well as

Surgeon

acting as a deacon from any
ordained Bishop in any ancn.

I have the honor to be
Sir
Your most obt Hble Sert
C. Mackenzie
Bishop designate of
Oxford

Statement of deaths from Malarious fevers among the men of the Cavalry and Royal Artillery at Bangalore during the year 1876–1879.

Year.	Month.	Number of Seizures.	Building.	Mean direction of wind for month	Remarks.
1875		Nil			
1876		Nil			
	January.	1	Agram Barracks	E by S	Unfavourable winds blow from January to March and October to December.
	May.	1	Do	S.W.	
	June	2	Ulsoor Barracks	W.S.W.	
1877	July	1	Agram Barracks.	W by S.	
	October	1	Agram Barracks	Not recorded.	Wind during these months would be unfavourable.
	November	1	Do		
	December	1	Do		
1878	June	1	Do	W.S.W.	
1879	February	1	Do	SE. by E.	Favourable winds blow from April — September.
	June	1	Do	W by S.	
	August.	3	Do	W by S.	
	Total	14			

F. Romilly LRL
Pr. Dep
20. 9. 80.

12/7-18

LE. 2/3 W.K.B.

These papers will be
plan should be sent
to Colln Chief Engr.

23/3/80 Asst
Engr

P.W.D.
21MAR80
No.

W. Dept.

1212-18
/79

Memorandum.

In submitting letter from the Deputy Engineer 3rd Circle No: 622 of the 5th February 1880 sending up estimate amounting to Rs 18,000 for certain work to the Dumaloo Tank at Bangalore which is stated to be considered emergent and important by both the Military and Medical Authorities, the undersigned has the honour to transmit the correspondence as per margin and the facts were cleared.

Chief Engrs: Secrets: No 473 of 10th Feby: 80.
Engineer Dy: Bangalore No: 129 of 20th Feby 80
Engrs: Engrs: No. 588 of 20th March 80.

2. The necessity for expending this large sum of money on

the Bank in question is based on the cases of Mahamino Jeewa supposed to be traceable to the position and condition. Lieut. Romilly's letter and the accompanying plan do not however appear to afford any proof that the Bank in question is the immediate cause of the disease which has shown itself in buildings which are the furthest removed from the Bank, and to influence, and 2nd at periods of the year when for the most part any miasma that it may have given rise to would have been carried away from, not to the buildings in question.

3. At a time when such rapid reasoning has the appearance of Military expenditure it seems to the undersigned that there are at least primâ facie grounds for going carefully again over the ground that has led to the early prospect being put forward, and that the Military authorities should be asked to examine the foregoing on the information afforded by Lieut. Romilly's letter and plan.

C. M. Lawley Colonel R.E.
Chief Engineer P.W. Dept.

2nd April 1880.

2280

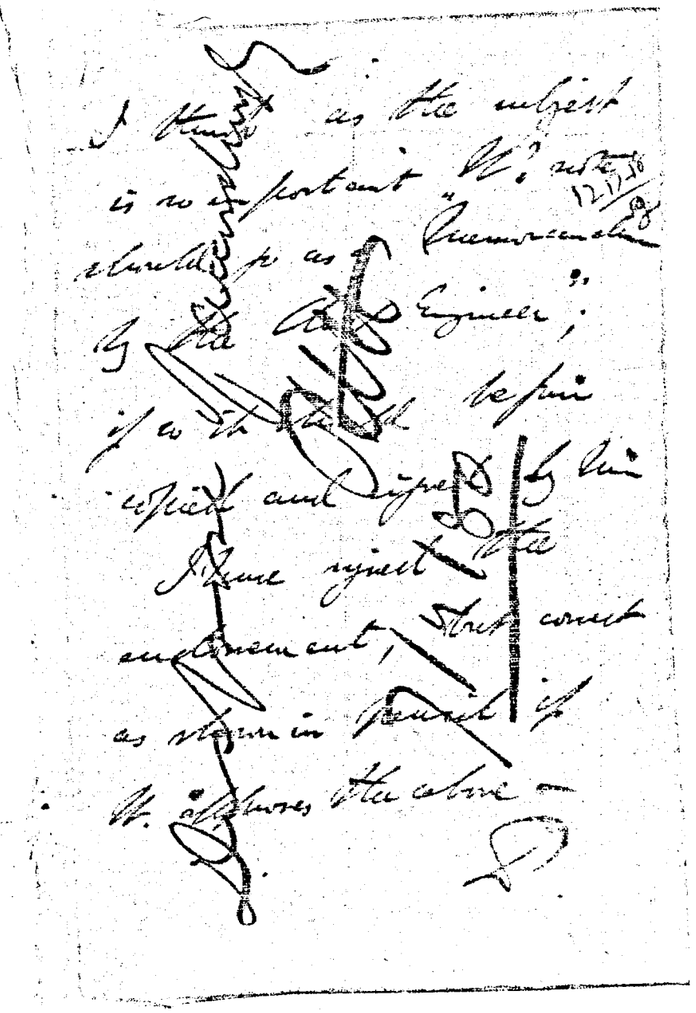
12-12-18

Q. V.

A paper with
some note may
now be ~~sent~~ sent
to the Military
Dept. for further
Enquiry?

J.V. 6/12

Lt Dyce 55854



1212-18
13

Chief Engineer's Memo;
No. 473 dated 10/2/80;
Agree dy. Surgeon General
No. 129 dated 20/2/80.
Executive Legis No. 568 dated
20/3/80.

Approved

[illegible]

2.3.4.80.

Lt. St. Remy's letter
and the accompanying
plan as it appeared
desirous to afford any
proof that could
be existing in the minds
of the Chevalier
that the plan itself
or the buildings which on
the portage
in the Lake of the
Woods and Red
River of the year
when he left that
country to which
any reference could be
made by which
the same
could be ascertained
if so the certificate

12/2-15
15

forwarded by Lt. Governor
Simmons, and that the
Solicitor authorized
be asked to procure
the evidence in the matter
alluded to by St. Remy
letter and plan

2/4 80

P. W. D.

No. 1072

1217-15/15

Letters from the Supg Engineer Third Circle Nos 622 of 5th Febr and 1590 of 31st March 1880.

Memorandum by the Chief Engineer P.W.D. dated 2d April 1880.

Referred to the Military Dept for further Enquiry.

Chepauk 10 April/80

Jas Pennyquick Major R.E. Under Secy to Govt P.W.D.

To The Military Department.

F Ayd

No 822 3rd Corps Quartermaster General's Office
Charlton 5th February 1880

From
The Superintending Engineer
3rd Corps

To
The Chief Engineer
Aldershot Division Southern District

Enclosures
1 Plan
1 Detailed Estimate
1 Abstract Do
1 Report and
Specification

Sir,

I have to request that you will cause the necessary Buildings mentioned in the accompanying Estimate to be erected for the Troops at the Dumbarton Camp, at the earliest practicable moment.

2. The whole expenditure connected with the proposed Buildings will be defrayed out of Local Funds.

I have &c.
(Signed) Samuel Archer Lt Colonel
Commanding Royal Engineer

Dumbarton Camp
5th February 1880

Approved for submission
to the Quarter Master General
Aldershot 6th February 1880
(Signed) Wrottesley Lt Col RE
Commanding Royal Engineer

No 2334

Returned to the Superintending Engineer 3rd Corps Chatham
The Commander in Chief has given
his approval to the Proposals
contained in this Letter
(By Order)
Wrottesley Lt Col RE
Commanding Royal Engineer
Aldershot 12th April 1880

From
The Secretary
War Office
10th April 80.

Forwarded for further
necessary action
connected with
the Contract
for Construction of Bar-
racks at

No 622 3rd Circle Superintendent's Office
Chepauk 5th February 1880

From
The Superintending Engineer
3rd Circle,

To
The Chief Engineer
Public Works Department

Enclosures
4 Plans
1 Detail Estt.
1 Abstract Do
1 Report and Specification

Sir,

With reference to para 3 Circular (6) of G.O. No 2763 dated 5th November 1879, I have the honor to forward the enclosed Plans and Estimate amounting to Rs 18000— for the proposed improvements to the Dumlapur Tank.

2. The whole estimate consists of the following:

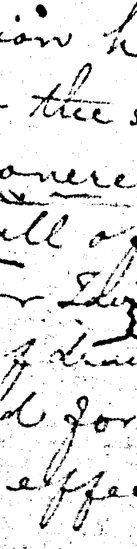
i.	Earthwork and one under-tunnel with shutters	1420—
ii.	Concrete lining for the Main Lemm	16,580—
		Rs 18,000—

Both of these works are considered very important by the Revenue and Medical authorities, but as the Revenue is considered sufficient to meet the interest on the Estimate, the Lining for the Main Lemm Channel and the Lining for the Lemm might be postponed for a time, but it is considered that they should also be carried

out as soon as money can be made avail-
=able.

3. The first work is - as will be seen - for carrying out the arrangements pro-
=posed for draining the Swamp at the North end of the Lake. As regards the second work it is necessary to state that the Cantonment Sewer is lined with Masonry up to the point G. (vide Plan) about 600 feet from the Madras Road. In the Estimate originally prepared by Colonel Moberly R.E. late District Engineer Bangalore - provision was made for continuing the Masonry by a Concrete lining up to the point A. where the proposed New Channel to carry off the drainage of the swamp above mentioned will join the Sewer. The Medical authorities however are of opinion after an inspection of the locality lately by the Senior Medical Officer in the Cantonment that it is necessary to line this Sewer wholly and provision has been ac-
=cordingly made in the estimate for carrying the concrete lining down to the outfall of the Sewer beyond the Dam or Lake.

4. The Swamp if drained would probably be utilized for dry cultiv-
=ation, while the effect of turning



the drainage of the swamp into the sewer, will be to flush this Channel below the point A. I request therefore that sanction may be granted at once for the immediate execution of works alluded to in para 2 above. estimated at Rupees 1420-0-0.

I have the honor to be
Sir
Your most obedient servant

Major R.E.

Ag. Supg. Engineer 3rd Circle.

1880

From

The Superintending Engineer
P.W.D.
3rd Circle

No

No 622

Dated 5th February
Received 7 1880

Enclosures

Dunlop Bank

Forwards for sanction
Plan & Estimate for
the improvement to the

No 473 d/10 Feby: 80

12/2/85
18

To the Chief Engineer
3rd Circle

Sir

Before submitting the
for Sanction of Government
the Estimate amounting
to Rs 18,000 which accompanied
your No 622 dated 5th inst.
in dealing with some
objectionable Encroachments
made in the Dunlop
Bank at Bangalore I
should wish to be
furnished with further
information on the points
arising out of the main
issues which may be
put to before finally
the Estimate (Rs 18,000)
is submitted.

In the Report attached
to the Estimate the
Land that would be
taken in should be
shown and explained

of is believed to emanate from the Lavatory sinking into the ground along this portion

The first question is what are the powers of this? To those of the Sanitary Board wish to have a Complete Control Plan of this part of the Bangalore Cantonment showing.

(a) All the fractures of the ground into Barracks Privates houses &c.

(b) The building (and date of the a few years) in which there have been fatal Cases of malarious fever

(c) Directions of the Levelling made during the year 1878 to which the disaster refer

The next Question is how shall it be formed

and further to be informed if there is anything along the course of this portion of the Cantonment to show that the ground is saturated with Sewage or that there is any such fetid Sewage

in process of formation as would lead to the conclusion that the present channel is at fault in the manner presumed

The Second question is (the admitting the latter fact) whether the essential work cannot be done in any more Economical manner

To my own knowledge the discharge from the Cantonment for a few days each year is so trifling that a small central duct or invert would do all that is needed and indeed it is my doubtful whether a well planned (planned) earthen channel with a paved or metalled invert would not suffice

Or it may take some little time to discover if the Trouble was real and as it is certainly

desirable that the Lines should be drained with the ground presented to the north to the extent of Rs 1480 being all that can be covered from assignment of the present funds the balance to be provided for in the next

2/12/20

No. 568

Executive Engineer's Office,

Bangalore, 20th March 1880.

From

The Executive Engineer,

Bangalore Division,

Madras D. P. W.

1217-16/20

1217-18/21

To

The Superintending Engineer

3rd Circle

Madras.

Memo to your Memo No 792 dated the 8th instant forwarding Surgeon General Hamilton's report on the portion of Bangalore Comprising the Barracks and the Civil Station marked on the plan are marked which have been fatal to fevers during the past year showing the direction of the winds during the months to which they refer, I beg to state as follows in reply to paras 3b and 3c of the letter No 473 from the Chief Engineer to which the above memo is endorsed.

From a Comparison of the data recorded in the R.H.A. which are the nearest

No. 568

Executive Engineer's Office,

Bangalore, 20th March 1880.

From

The Executive Engineer,

Bangalore Division.

Madras D. P. W.

To

The Superintending Engineer
3rd Circle
Madras.

Sir,

Enc: 3
1 Plan
1 Statement
1 Letter
3

With reference to your Memo No 792 dated 14th ultimo I have the honor to forward a letter from the Deputy Surgeon General A.M.D. together with a plan of the portion of the Cantonment of Bangalore comprising the Ulsoor and Pgraden Barracks and the Domlur Pauk. On this plan are marked the buildings where there have been fatal seizures of malarious fevers during the past five years, and a diagram showing the direction and duration of the winds during the years to which the details refer, being the information called for in paras 36 and 38 of letter No 473 from the Chief Engineer on which the above memo is endorsed.

2. From a Comparison of the data record-ed it appears that in the R.H.A. Barracks which are Closest

closest to the Bank and Sewer there have been much fewer Cases of Malaria than in the Agrain Barracks which besides being situated at a greater distance from the Bank, also stand on High ground.

3. It is also worthy of note that in the majority of Cases the seizures have occurred when the winds were blowing in a direction from the barracks to the Bank and Sewer, and that the Westerly or favourable winds are of longer duration than the unfavourable.

4. As regards the information concerning the Sewer called for in para 3 of the letter from the Chief Engineer, I have the honor to state that almost invariably when I have had occasion to visit this part of the channel there has been a strong and detestable odour emanating from it. The Channel however runs below four feet below the surface of the fields and its contents are confined entirely to the Channel bed and cannot spill over and saturate the surface of the adjacent ground so as to form a foetid swamp except at its outfall beyond the

the Southend of the Dumlur Bank where it does discharge its contents upon the fields.

5. I would however wish to bring to your notice the manner in which this Channel is annually cleared and which I think demands attention. It appears that about this time of the year portions of the Channel are let out to the owners of the adjacent fields who on payment of so much per length are allowed to excavate the silt from the Channel bed and remove it to their fields for manure. I saw this in progress a day or two ago and observed that the work was being carried out without any regard to properly maintaining the regime of the Channel. In some parts the Channel was being dug very deep and the sides were being undercut to such an extent that portions had fallen in lengths of the Channel were also left untouched so that dams would remain at intervals but these are I understand to be cleared away by the Municipality when the ryots have finished excavating as much of the silt as they require. Such a system cannot but prove injurious to the proper working

working of the channel, and by the varying
level and falls that will result in the
Channel bed cause the deposition at points
along it Course of accumulations of sewage
that would otherwise be carried away to its
outfall

P.W.D.
21/6/10
No.

6) I would beg to suggest that the channel
be properly levelled and trimmed, and
small masonry walls built across it at
intervals to indicate the proper level of the
bed at these points. In future all clearing
might be referred to these B.M^s, and the
Ryots required to fill in all hollows that
they may excavate below these levels. But
I think it would be better that the clearing
of the Channel should be carried out by the
Municipality under proper supervision and
not by the Ryot, who should be allowed only
to remove the excavated silt from the banks
or berms of the Channel where it might be
stacked for removal.

I have the honor to be,

Sir

Your most Obedient servant

F. J. Connilly Lieut R.E.

Executive Engineer

No. 1590

3rd Circle, Superintending Engineer's Office,
Chepauk, 31 March 1880.
Recd 1st April 1880

1217-18/24

From

The Superintending Engineer,
3rd Circle,

To

The Chief Engineer
Public Works Department.

Sir,

With reference to your letter No 473, dated 10th February 1880, I have the honor to forward in original the papers noted in the margin, received from the Executive Engineer Bangalore Division furnishing the information called for by you regarding the Cantonment Main Sewer & that Station.

1 Letter from the Executive Engineer Bangalore No 568 dated 20th March 1880.
1 Letter from the Dy Surgeon General Mysore Circle No 129 of 20th February 1880.
1 Statement of Deaths
1 Plan

I have the honor to be
Sir
Your most obedient servt
H. Ewart Nuttall Major R.E.
Asst Superintending Engineer 3rd Circle.

Lo. No. 2969 W. 5-11-79.
C.E. - 473. 16-2-80

P.W.D.
RECEIVED
No.
1880

From

The Superintending Engr
3: Circle

№ 1590

Dated 31st. March
Recd 1st April } 1880.
—do—

Enclosure-1
vide Memo № 553
4/16-10-80.
Contonment Main Sewer
Bangalore — Forwards
original papers regarding —

C. S. 4.80.

№ 78.

7 May 1880.

To,

The Superintendent of Works,
Presidency.

12/17-16/25

Sir -

I have the honor to report to you that yesterday when inspecting the Main Sewer near the Dumloor Tank, I found in more than one place that the flow in the channel was entirely obstructed by dams thrown across it by the owners of the adjacent fields who utilize the water in the channel to irrigate their crops. One earthen dam, that I noticed, was quite 9" above the water level in the channel. It is at this season of the year that the contents of the sewer are least diluted and most offensive, and therefore it is of the highest importance that the flow in the channel should be unchecked. The existence of these dams of course renders a steady flow out of the question, and so long as they are allowed to remain the Sewer from the point where it crosses the Madras Road to its out-fall near the Dumloor Tank, instead of performing the duty of a Channel to convey the sewage away, becomes a point

of

of fact a long cess-pool, or series of cess-pools, in which the offensive matter is retained in proximity to a portion of the Cantonment where there is a large European population. I noted ~~it~~ the existence of these obstructions in March and reported the matter in my letter No. 568 dated 20th March 1880 - when forwarding information called for by the Chief Engineer in connection with the Dimlur Tank.

Obstructions existed then, and probably for some time previous to my inspection in March and they exist now, and I have no hesitation in saying that for the past 3 months at least a great portion of the sewage of the Cantonment has been steadily deposited in this part of the Channel. I think no time should be lost in clearing and regulating this channel, and that this once done all interference with its regime by the owners of the adjacent fields should be

strictly

strictly prohibited.

I have &c.

Sd/ F. J. Romilly, Lieut. R.E.
Assistant Engineer, Bangalore.

(True copy)

Alexander Gibbon Major R.E.
Supdt of works
Pres Y.

W.S.L. 12.

P.W.D.
12 MAY 80
No.

No. 603

Madras,
Chepauk, 12th May 1880.

1217-16/27

From

The Superintendent of Works,
Presidency,

To

The Chief Engineer,
2. P.W.

Sir,

Enclosures.
One.

I have the honor to forward the enclosed copy of letter No 78, dated 7th instant received from the Assistant Engineer, Bangalore, bringing to notice the obstructions caused to the flow of water in the Main Sewer, near the Dumloor Tank by dams put up by the owners of adjacent fields, and the evil resulting therefrom. The state of matters as represented by Lieutenant Romilly must, if allowed to continue prove highly injurious in a sanitary point of view. I request that you will be so good as to address the Mysore Government on the subject, and move them to take such steps as will put a stop to the evil complained of. The matter will meanwhile be brought

to

to the notice of the Military authorities.

Bangalore.

I have the honor to be
Sir,
Your most obedient servant
Alexr Scott Lieut. Major &c.
Supdt of Works
Coorg

&c &c.
12.

P.W.D.
12MAR80

From, No.

The Supdt of Works,
Presidency.

No 603

Dated 12th May 1880.
Recd
Encl.

Main Sewer near the Dumlour
Tank, Bangalore.

Submits copy of report from
the Asst Engr Bangalore, bringing
to notice the obstructions caused
to the flow of water in the

C.E. No 1072 7 April 1880
P.W.Q.C. 6 Nov 179 No 2769 W.
Q.C. 57 340 9 Nov 1880

Cir 15.5.80 Ctd 17.5.80
Cur 13.6.80

12-12-18
29

No. 180/80

Army Medical Department
Surgeon General's Office
Fort Saint George, 6th May 1880.

From The Surgeon General A. M. D. 1212/30

To The Quartermaster General
Ootacamund

Sir,

In answer to your letter No. 53/3554 of 24th Ultimo requesting my opinion regarding some proposed works at Bangalore "for remedying "the ill effects supposed to arise "from the existence of swampy ground "leading to the Damlur tank there;"
I have the honor to state that by collating the letter of the Deputy Surgeon General, Mysore circle of 20th Feby last with that of the Executive Engineer at Bangalore of 20th March it appears that the object specially aimed at is the abatement of the prevalence of malarial fevers in certain of the barracks at Bangalore

Ewh 13.6.80

Bangalore to be effected—

(1) by draining the Damlur tank, and

(2) by straightening & regulating (canalising 2/3) a "sewer" which has an outfall beyond the south end of the Damlur tank, its contents being discharged into an adjacent field causing a nuisance swamp.

2. There is a general consent of opinion in all countries that as drainage is carried out, and is effectual, the diseases in question decrease and tend to die out altogether. I do not doubt that were the Damlur tank efficiently drained, the level of ground water in the localities from which it is fed would be lowered somewhat, but I should not look for a notable diminution of malarial fever in these localities as the result of a very partial—a fragmentary operation undertaken without regard to the general drainage of the neighbourhood.

3. I do not notice in the correspondence forwarded with your

12/7/78

your letter that any reasons are given for the conclusion arrived at that the Damlur, is more hurtful in respect of inducing malarial fevers, than the Ulsoor, the Sampengy and other tanks in the cantonment of Bangalore having similar conditions of undefined margin, varying depth of water &c. I have endeavoured to determine from the records in this office whether it can be shown that it is so, and for the purpose have ascertained the incidence of malarial fevers in the various barracks in Bangalore for the last three complete years 1877-78-79. For the whole of the troops at Bangalore during the period (strength of 4576 men Commissioned officers and men) there were 403 admissions into hospital for Ague and remittent fever being in the rate of 88.1 per 1000 men; of 1016 Cavalry in the Agram Barracks the admission rate was 38. per 1000 men; for 890 Royal Artillery in the same barracks the rate was 16.8 per 1000 men; for 455 Royal Horse Artillery in Barracks near the

the Ulsoor tank the rate was 109.9 per 1000 men; for 1914 Infantry the rate was 127.5 per 1000 men. For the sake of comparison it may be stated that the rate of [illegible] of malarial fevers in the Native troops at Bangalore for the same years, was 475.9 per 1000 men.

4. Before accepting these data as absolutely conclusive of the relative prevalence of malarial fevers in the various barracks in Bangalore, it would be necessary to analyse minutely the comparative composition of each of the corps referred to as regards age and period of residence at the station, of their constituent members &c; in a rough way however they indicate that the greatest prevalence was in the Infantry barrack; that is, in the one, furthest from the Dandiya tank.

5. I observe in one of the returns forwarded with the correspondence, that enteric fever has been classed with malarial fever, as if it were thought that the removal of the assumed cause originating the last named, would avail to repress the other; it may be

Cutch 13.6.80 R.H.

be right to remark that it is not so. The two forms of fever have very different originating causes. Perhaps this fact was recognised in the proposal of the Executive Engineer to improve the channel of the sewer alluded to: with this part of the project I entirely concur, only, I deem that the means contemplated (straightening the course, and levelling the bed) would be quite insufficient. I gather that the "sewer" is a natural water-course, into which house sewage has been led or has been permitted to drain; the proper remedy for this I submit would be to divert the sewage and carry it to a suitable outfall either in an open brick (and rendered) culvert or in a so called "sanitary pipe" of size adequate to the volume of the sewage & provided with means of ventilators and of flushing. If an outfall cannot be secured at an innocuous distance, then the sewage should be filtered and be precipitated, by one or other of the ways in ordinary use, and

the

the clarified water be allowed to flow into the nearest water-course; unless indeed it were found that the sewage had some fertilising value and would be taken for irigation.

6. To state shortly the conclusions in this letter, I would recommend that the drainage of the Dumbur tank be deferred, until it can be comprehended in some general scheme of district drainage; but that the reformation of the tanks be undertaken at once and thoroughly.

I have the honor to be
Sir
Your most obedient servant

A. B. Hearle
Surgeon General
A. Ar. D.

Sanitary works.

115

QUARTERMASTER-GENERAL'S OFFICE,
Ft. St. Octacamund
13th May 1880.

12-12-18
34

No. 180.

From

BRIGADIER-GENERAL H. O'CONNELL,
Quartermaster-General,

To

Colonel H. et D. Pendugast C.B. V.C. R.E.
Acting Secretary to Government
Military Department.

SIR,

In returning document referred to the Commander in Chief under your No. 2334 dated 12th April 1880, I have the honor, by order, to report that the question of drainage and improvement of the low ground leading to the Dumlur tank at Bangalore being a sanitary one the whole of the correspondence was forwarded to the Surgeon General, Army Medical Department, for his opinion.

2. I am directed to forward the reply from Surgeon General Sir A. Home, V.C. K.C.B. No. 180 dated 6th instant with enclosures. His Excellency the Commander in Chief concurs in the conclusions arrived at by Sir A Home, viz that the drainage of the Dumlur tank be deferred until it can be comprehended in some general scheme of district drainage, but that the reformation of the sewer be undertaken at once and thoroughly

P.W.D.
21?360

From
Surgeon General
To
The Quartermaster General
Calcutta

No. 180
SD

Fort St. George, the 6th May 1880.

Sir,

I have the honor to forward, for the information of the Quartermaster General, a copy of a letter from the Officiating Civil Surgeon of Bangalore, dated the 22nd ultimo, with enclosures, on the subject of the drainage of the Dumlur tank at Bangalore.

I have &c.

Thank the Honorable
Sir
Your obedient Servant
J. T. Connell Registrar
Queens College Cork

1217-16
26

To The Chief Commissioner
of Mysore

Sir,

In forwarding the accompanying communications having reference to the condition of that portion of the Main Sewer at Bangalore passing the Dumalore tank, I am directed to request that this Govt may be favored at early convenience with an expression of your opinion as to the feasibility of the suggestions contained in para: 6 of Lieut: Ranilly's letter No 568 of 20th March 188

P.W.D.
SECRETARIAT
3 MAY 1883

To
The Chief Secretary to Government
Public Works Department

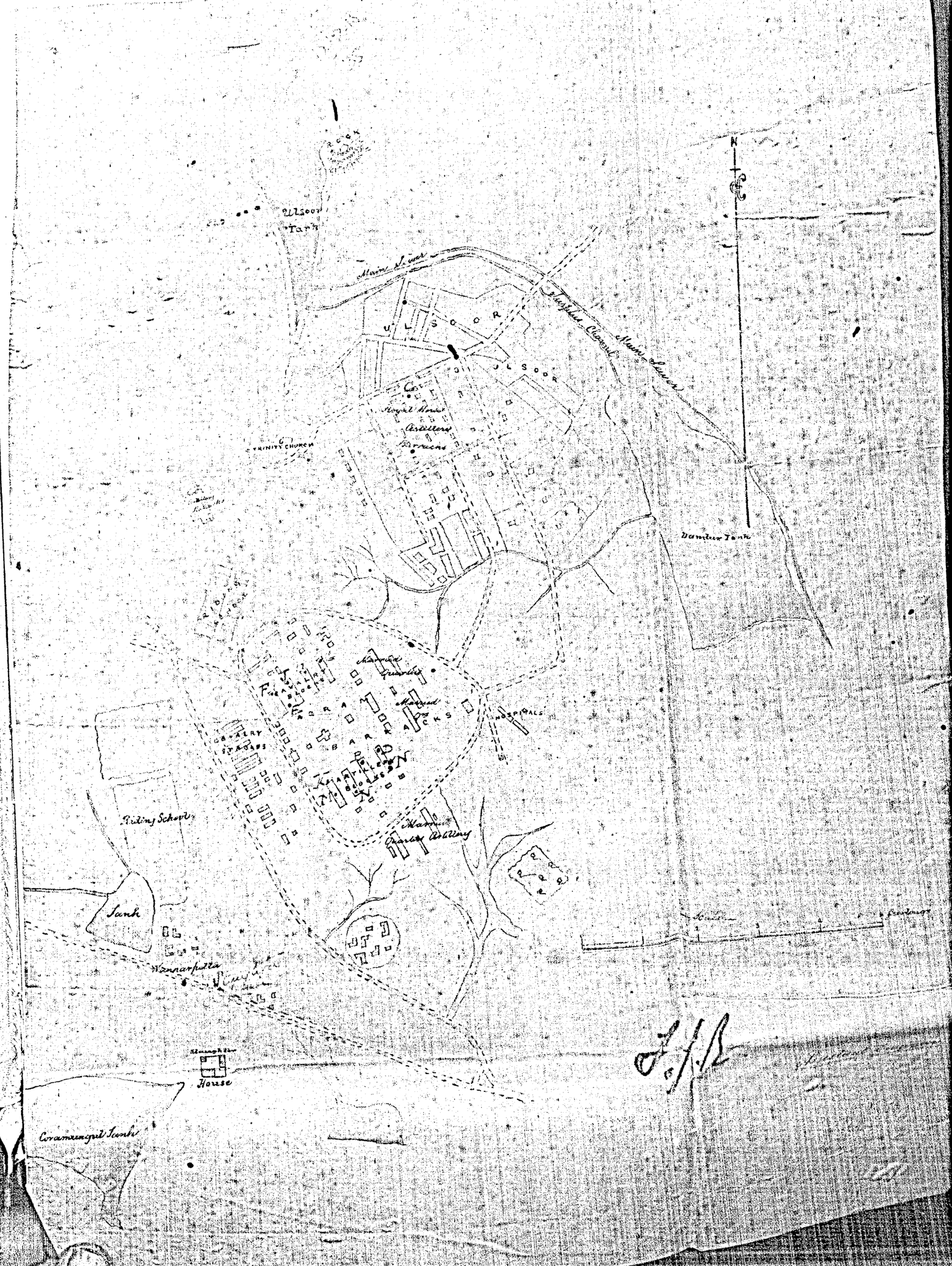
Sir,

In forwarding the accompanying communications having reference to the condition of that portion of the Main Sewer at Bangalore passing the Dumalore tank, I am directed to request that this Govt may be favored at early convenience with an expression of your opinion as to the feasibility of the suggestions contained in para: 6 of Lieut: Ranilly's letter No 568 of 20th March 188

R 11-5
Col E.E.S. Nilly R.E.
C. Sheet 35 Jan

and that in any case the earliest possible measures may be adopted with a view to effectually check the serious mischief brought to notice by that officer from excavations made by pipes along the course of the channels which give rise to objectionable cesspools and the stoppage of the free flow of the sewage to its outfall.

1875/80


N
Ulsoor Tank
Main Street
Trinity Church
Royal Horse Artillery Barracks
Bowring School
Sankey Tank
Wannarpetta
House
Coramangala Sankey
Hospitals

12.12.15
/39

1st Hussars

Return exhibiting the Buildings & dates, the last 5 years of fatal cases from Natural & and other causes &c.

Regt No	Rank & name		Disease	Date of death	Buildings — Agrom. Barracks
853	Private	Rowe	Enteric Fever	9 . 1 . 77	D Incop. Hock
1275	"	Weatherly	Do	24 . 10 . 77	K " "
1559	"	Browne	Do	5 . 12 . 77	D " "
1496	"	Belcher	Do	22 . 1 . 78	A " "
1580	Lc/pl	Strutt	L C Fever	24 . 6 . 78	B " "
1156	Pte	Elder	Do	22 . 2 . 79	C " "

Bangalore
29th April 1880

Surgeon Major Army
Med Officer in charge 1st Hussars

12-D-15
48

Royal Artillery

Return of fatal cases from Malarial and other Fevers at Bangalore for the first 5 years from May 1875 to April 1880.

Bangalore 29th April 1880

Year	Corps	Building	Names	Descrees	Date of Death
1875			None		
1876			None		
~~1877~~	~~3/6 Ra~~	~~Agram~~	~~Bomb Burke~~	~~Ch C~~	~~12th June 1877~~
1877	3/6 Ra	Ulsoor	Gnr Howell	Enteric Fever	12th June 1877
	C/3 R4a	"	Sgt Watson	Enteric Fever	14th June 1877
	3/6 Ra	Agram	Gnr Digby	Enteric Fever	12th July 1877
			Drvr Mitchin	Enteric Fever.	6th August 1877
1878			None.		
	3/6 Ra	Agram	Drvr Nelson	S.C Fever	28th July 1878
	"	"	Gnr Jeffs	Remitt Fever	16th August 1879
1879	3/6 Ra	Agram	Gnr Barton	S.C Fever	2nd September 1879
	3/6 Ra	"	Gnr Robinson	~~N.C.~~ Fever	5th September 1879
1880	3/6 Ra	Agram	Gnr Cook	Remitt Fever	12th April 1880

Death arose in the above case I think from abscess of the liver (vide Weekly Return of 3/6 Ra for week ending about 16:80) C.D.M.

Abstract of the above

Year	Building	Malarial Fever	other Fevers
1877	Agram	"	3
	Ulsoor	"	2
1879	Agram	1	3
	Ulsoor	"	1
1880	Agram	1	"

Dalzell Cockburn M.D.
Surgeon Major Actg Supt Ral Ra

12172-18
41

C. A. W.

2365 15/10/30

The despatch transmitting memorial from one Veerasawmy Naidu, which was sent up to Ooty for signature of members has been returned. The spare copies and copy signed by the Secretary are herewith.

Sd
23/10/30.

№ 1217 W 1217-18/42

PUBLIC WORKS DEPARTMENT.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

UNDER date the 21st May 1880

Read the following :—

From the Supdg Engr, 3d Circle (H E No 622 d/5 Feb 80)

Memo: from the Chief Engr B&R to the Supdg Engr, 3d Circle. } d. 473 d/10 do

From the Exec Engr, Bangalore, to the Supdg Engr 3d Circle. } d. 568 d/20 Mar/80

From the Supdg Engr, 3d Circle (d. 1590 d/31 Mar/80)

Memo: from the Chief Engr, B&R (d. ——— d/2 Apl/80)

Letter from the Cmdt Engr, Bangalore, to the Secy to Govt, Public Works Department } d. 785 d/7 May/80

Letter from the Secy to Govt, Public Works Department (d. 603 d/12 do)

Letter from the Surgeon General, Army Medical Board, to the 2d Mr General } d. 180/80 d/6 do)

Endorsement on the Secy: Board's letter No 180 dated 13 May 1880 ——— } H.E. No 3084, dated 15 May/80)

P17

Ordered that

the Chief Commissioner
of Mysore be addressed.

(H.S. No. 1213 W. dt. 21. May 1868

PUBLIC WORKS.

Gen. Schuyler 1212 lbs
1218 lbs.

Ken. 53-52 9/55

Main Sewer at
Bangalore passing
the Drainboo Gulf.

Resolved that the
Chief Engineer of
Improvements be directed
to provide the sanction of
Govt — 2/W

Referring Regarding
the Condition of the
Sewer Portion of the —
2/W