16-11-28 ✓

L. & M.
9,000-3-3-96.

# Local & Munl. (1896) Department.

MISCELLANEOUS.

**G.O., No.** 480 M

**DATED** 21st March 1896

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[Despatch Abstract.]

Prevention of the fouling of the Buckingham Junction Canal with sewage.

Passing orders on the ---------- .

## BACK PAPERS.

| G.O. | No. | Department. | Date. | G.O. | No. | Department. | Date. |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## FURTHER PAPERS.

| G.O. | No. | Department. | Date. | G.O. | No. | Department. | Date. |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

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[7]

# INDEXED.

*Miscellaneous.*

LOCAL AND MUNICIPAL DEPT.

G.O., DATED 21-3-96.
No. 480 M.

*When given for copying.*

[Despatch Abstract.]

Prevention of the fouling of the Buckingham Junction Canal with Sewage

Passing orders on the —

✓

BACK PAPER, No. OF 189

READ AGAIN ORDER OF GOVERNMENT, DATED 189 , No. , MISCELLANEOUS.

FURTHER PAPER, No. Cir 2910 L / 96 OF 189

ENCLOSURES.

CURRENT No.

STATEMENT WITH DITTO.

ORDER OF GOVERNMENT

STATEMENT WITH DITTO.

PAPERS NOT FILED UP, BEING MEANT FOR DESPATCH IN ORIGINAL (not paged).

N.B.—
A — Copy in full.
B — Not to be copied.
P — Copy abstract only.
Q — Copy heading only.

Copied by MKG

Examined by

---

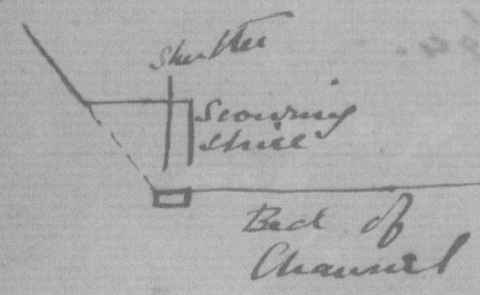
N.B. Mr Russell
[illegible] this entry
BB

## Fouling of Junction Canal with Sewage.

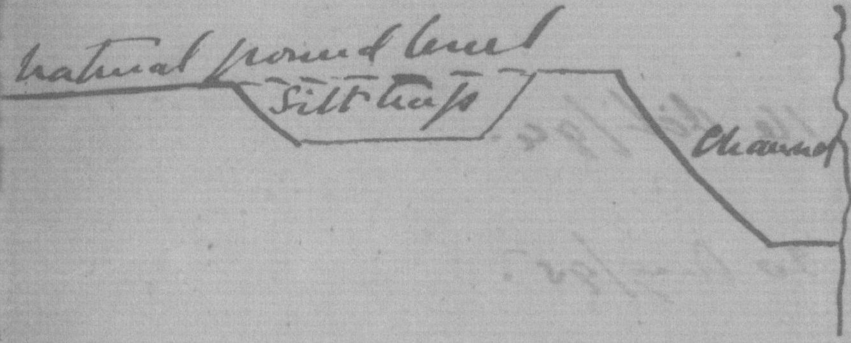
Elementary hydraulic principles

I. Scouring Sluice

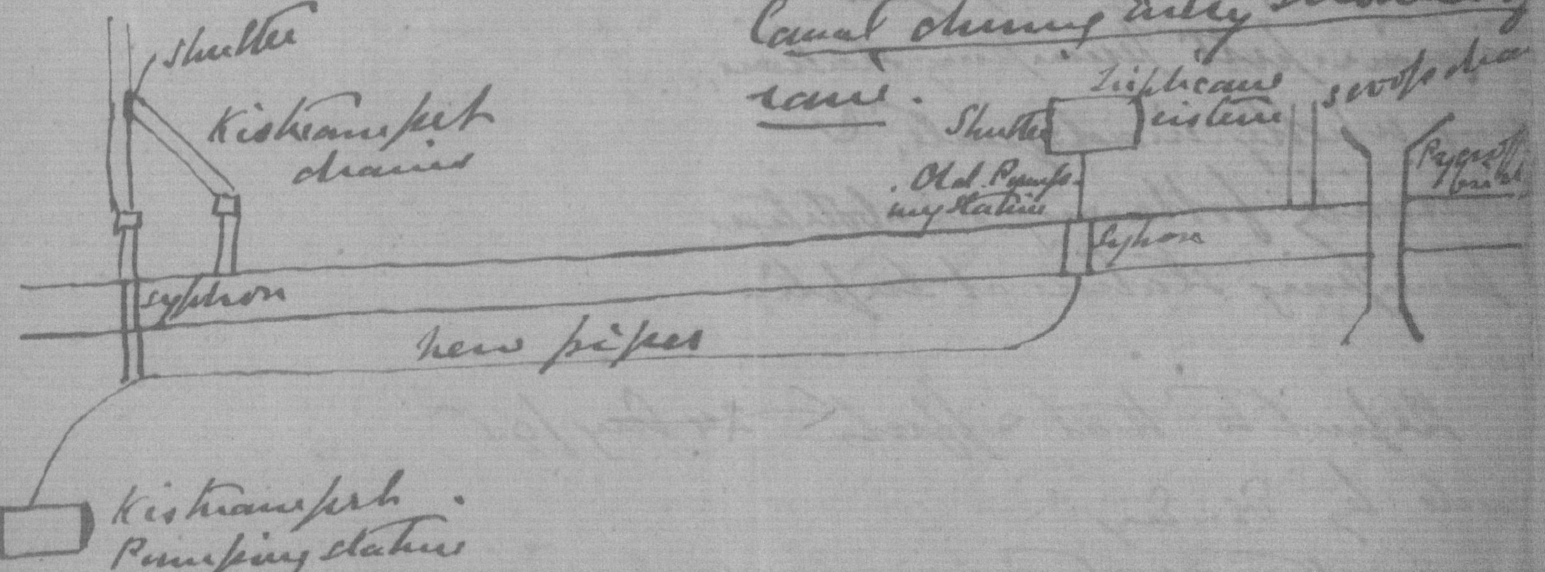
With sill flush with channel bed. Designed to scour silt out of Canal



II. Silt traps or settling reservoirs. Designed to catch matter carried by flowing water, and thus to cause deposits in traps instead of in channel.



Elementary principle II ignored in design of Municipal drains at Kistnampet & Triplicane, & principle I deliberately adopted. Municipal arrangements thus wholly inefficient, since they pass as much sewage as possible into Canal during every shower of rain.



## Précis of correspondence.

20 April/92
16 June/92

Chief Engr obtains assurance from Municipality that pump at Triplicane shall not be interrupted, & that walls of cistern on both sides of Canal shall be raised.

Natural conditions of high tides & freshes.

[illegible]

---

D. O.

Chief Engineer,
Irrigation

FORT ST. GEORGE,

27th February 1896

My
Dear Drake Brockman

As Hon. Mr. Bliss wishes to personally inspect the Buckingham Canal & Kistnampett pumping station with reference to your No 3999 C of 14th Decr. 1895, I am to request you to kindly depute Mr. Russell, or some other officer who can represent

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P.W.
I.

P. W. No. 2253

MUNICIPALITY OF MADRAS,
Public Works Department,

Madras, 16th January 1896.

CURRENT No. 176 M

From

LIEUT.-COL. G. M. J. MOORE, C. I. E.,
*President, Municipal Commission.*

To

The Chief Secretary to Government
Fort St. George.

SIR,

Enclosures two

With reference to your endorsement No 1814 dated 20th December 1895 on current number 3732 M (herewith returned) I have the honor to forward the accompanying note by the Engineer Madras Municipality. From this it will be seen that everything that can be done by the Municipality has been done.

2 The pumping station at Triplicane has been abandoned. The sewage has been diverted from the west bank of the Canal along the eastern one and led into a new well specially constructed for the purpose at Kistnampett, where the Engines have been duplicated and pumping is carried on for 14 hours out of the 24.

3 I am perfectly satisfied that no sewage escapes into the Canal except in rainy weather and then it is only the overflow of sewage and storm water, which it was originally intended should so escape.

4 I must emphatically protest against the tone of the Executive Engineer's letter of 24th August 1895 and that of the note by the Chief Engineer for Irrigation. They both cast the imputation upon me of most serious neglect and even go further by saying that "beyond empty promises nothing can be got from them". This I distinctly deny.

In

5 In the face of these most uncalled for allegations I consider that I have a right to a reply to the following questions:

When the Executive Engineer signed his letter No I238 dated 24th August I895, was he aware of the alterations that had been made by the Municipality? When the Joint Secretary to Government P.W.D. passed his order on the note by the Chief Engineer for Irrigation, was he aware of these facts? Had he ever seen the drainage arrangements from Triplicane to Kistnampett?

6 If these Officers were aware of these arrangements, I maintain that neither ought the letter to have been written nor the order passed. If they were not aware of the facts the answer is obvious.

7 Under any circumstances I submit that the tone of the letter and the order is most objectionable and I venture to request that Government will order them both to be withdrawn and substituted by others of a tone more suitable to official correspondence and more in consonance with facts.

I have the honor to be,
Sir,
Your most obedient servant,
Moore Lt.-Col.
President, M.M.C.

---

O. M. No 2240

TO

The President,
M. M. C.

Sir,

Re-Endorsement No I8I4 on current No 3782 M. L & M.

I. In his report on the junction canal Major S.C. Clarke R.E. refers to the question of drainage thus:

(i) "The question of disposing of the drainage, both that of the sewers and the rainfall, since the canal line would obviously intercept the same throughout, had to be well weighed and cogitated over, before a practical suggestion could be submitted to the government. The original proposition was to conduct the whole by means of under-ducts of masonry or iron under the canal bed, but when the cost of such an expedient was put on paper, it was shown that there was no limit to it, for no Engineer could foresee to what extent the sewage water might not swell during the periods of a cyclonic storm. Serious objections were raised to the idea of admitting the sewage water into the canal and thus it was necessary to determine how these difficulties were to be got over".

(ii) "The unprecedented heavy fall of rain in May, demonstrated the folly of attempting to under-duct the whole of the surface or sewer drainage, for the small channels were, within 24 hours, converted into mill streams, flowing with tremendous velocity so much so, that it was with the greatest difficulty that one could cross them on foot. The idea then of constructing spacious under-ducts was entirely abandoned, and in lieu of such it was suggested that only a portion of the stream should be carried under the canal, and that the overflow or storm water should be shot into the canal, over a stone-faced weir".

(iii) "The two-fold difficulty has thus been (it is hoped) successfully overcome".

(iv)

form

(iv) "The canal passes through the sewage farm of Kistnampet, the property of the Madras Municipality".

(v) "As adverted to, in one of the former paragraphs of this report, the sewage, the product of the sweepings of houses, and surface drainage of the suburbs of Kistnampet and southern end of Triplicane had to be conveyed under the canal. And for this purpose, a Cast Iron pipe (dia.27") has been laid down,connecting the two wells built on the banks of the canal".

(vi) "In connection with this sewage channel, a stone weir with a broad channel leading to it, has been formed, to carry off the surplus or storm water. The bed level of the sewage channel being set 2½ feet lower,than that of the other".

(vii) "It will not be irrelevant to state here, that this Sewage Syphon has answered admirably, and that the sewage stream flows through without any interruption; but owing to there having been no excessive heavy downpour of rain, up to the present date, the working of the storm water channel and the method proposed of diverting the stream partly, as soon as it reaches a sufficiently high level, have not yet been practically tested"

(viii) "It has been so arranged, that when the sewer is running full, or overflowing, that the upper portion of the stream which after 24 hours rain, generally appears to consist entirely of surface drainage,is to be diverted down the storm water channel, leaving the lower portion containing the sewage to continue its course into the syphon, thus to find its way, into the sea eventually or into the reservoir formed, on the east side of the canal".

(ix) "It is hoped that the Conservancy Establishment will attend to the explicit orders given, on this particular point, or otherwise some of the sewage may find its way into the canal".

2. In addition to the syphon above referred to there is another further north opposite the old Triplicane Farm.This

farm was abandoned after the opening of the canal and the sewage was intercepted on the west side of the canal and pumped into a high level pipe and conveyed to the Kistnampet Farm.

3. In this connection I would refer to paras II9, I20,I2I of the Administration Report I886-87 copied below for reference.

II9.TRIPLICANE DRAINS.-At the end of March I886 Government decided to proceed with the removal of the fishing village on the Beach just to the south of the Presidency College and the new site selected for the village was a portion of the Triplicane Farm on the west bank of the canal. Government decided also to take up the portion of the farm on the east bank and in order to effect these improvements it was necessary to find some other outlets for the sewage coming from the portion of Triplicane lying North and South of Pycroft's Road.

I20. This was done by providing arrangements (at present six picottahs) to lift the sewage at the Triplicane outlet to convey it to Kistnampet Farm. To effect this a I2" pipe 2,750 feet in length was laid along the west bank of the canal which discharges into the head of the syphon leading into Kistnampet Farm. At the farm itself a large tank was constructed 235 feet by II0 feet which will contain at a depth of 7feet I,26,000 cubic feet or 7,87,500 gallons of sewage thus allowing of the sewage being baled during the day and the tank being filled at night from the picottahs at Triplicane when sewage cannot without nuisance be distributed for irrigational purposes. At the same time the farm at Kistnampet was extended along the east bank of the canal for a distance of 667 feet and 252 feet in breadth on land handed over to the Commissioners in the year I877 but which up to this time had been unutilized.

I2I. In addition to the above works provision was also made for the alteration and diversion of the drain that brings down the sewage to the first set of picottahs from Picroft's road.

The drain that previously existed consisted of 447 feet of open masonry drain and 700 feet of ditch drain. The object of the alteration and diversion was to find greater accomodation for the fishing village and to remove the nuisance of the ditch drain. The open masonry drain was altered into a barrel drain 3 feet in diameter and the ditch drain was replaced by a barrel drain of the same size. The total estimated cost of these works and the proportion of the cost paid by Government vide G.O.No 63I of 9th March I886, and No 7I3 of I7th March I886 was as follows:

Go 248h / 13-3-86
281h / 23-3-86

| Particulars. | Estimated cost. | Contribution by Government. |
|---|---|---|
| | Rs | Rs |
| Diversion and alteration of Triplicane Drain . . . . | 7,330 | 4,886 |
| Extension to Kistnampet . . . . | I5,000 | 7,500 |
| Total | 22,330 | I2,386 |

4. Now as regards complaints received and other improvements effected.

5. On the 3rd April I892 the Chief Engineer wrote a letter saying we had removed the syphon at Triplicane and to take its place had laid a line of pipes along the west bank of the canal to the Kistnampet sewage farm, that the fall along the line of pipes was not sufficient to enable the sewage to pass along it unless it be artificially raised at its commencement near the site of the abandoned syphon and to effect this artificial raising, a steam pump had been provided and he requested to be informed if this pump was kept constantly working or for what periods it was supposed to work and whether it was not the case that when it was not working the whole sewage which came to the place was turned into the canal. He further states that on inspection on the 2nd April he found that this must have been the case an hour or two before his visit and that the state of the canal indicates that it was frequently the case.

6. A reply was sent on the I4th April I892, informing him that the syphon had not been removed and that the Triplicane pump was worked continuously, except from Saturday I2 P.M till 6 P.M. on Sunday, when picottahs were used in-stead, and that on rainy days the pump was stopped and all drainage allowed to enter the canal.

7. On the Ist June I892 the Chief Engineer for Irrigation wrote complaining that the sewage in the open channel on the east side of the canal at Kistnampet was constantly percolating into the canal and that slips were not infrequent and requested that the channel might be moved back some little distance to the boundary between the canal land and the land belonging to the farm. He also called attention to the syphon cisterns on both sides of the canal, their dilapidated state, and the lowness of their side walls which caused a large quantity of sewage to flow into the canal.

8. These matters received attention, the syphon was cleared of silt and the cisterns were repaired. The ~~bank~~ Channel was subsequently moved in December I894 at a cost of Rs 2I9.

9. We wrote on the I5th November I892 that pending the execution of the work every endeavour would be made to prevent any damage being done.

I0. On the I9th May I893 the Executive Engineer wrote as follows, evidently without going through the correspondence.

"In letter No 955 dated I5th November I892, from the President, Municipal Commission, to the Ag.Chief Engineer for Irrigation, the President Madras Municipality, stated that every endeavour would be made to prevent sewage being poured into the Canal at the Triplicane Pumping station."

2. "I have waited to see what improvements were effected, and now bring to your notice that the state of things formerly complained of is just as bad as it ever was. Pumping

is still neglected, and sewage consequently flows into the canal. Invariably also after rain, the canal is absolutely blocked with sewage. I speak from my own personal knowledge, as follows:-

3. "Towards the end of December 1892, and in the middle of March last, traffic in the canal was totally blocked, after a shower of rain opposite the Triplicane Pumping station. The Engine Driver admits that no attempt is made to do any pumping on Sunday nights, and once a week the canal is consequently partially blocked with sewage. Pumping on Nights of week days though it is supposed to be done, is also frequently neglected. I have detected two cases myself, and numerous other cases have been detected by my staff".

4. "At places other than the Triplicane Pumping sewage, for want of more efficient arrangements, also comes into the canal, as for instance, inter alia, the refuse from cess-pools which is deliberately thrown on to the canal slopes, and is of course washed into the canal with the first showers of rain".

5. "Owing to the way in which sewage has been poured into the canal as above shown, for a long time past, the canal is yearly becoming more and more polluted with sewage, to the great risk of public health in Madras".

6. "The cost of removing sewage from the canal, even sufficiently to enable traffic to pass along, is very heavy, and it is difficult to get coolies to remove such sewage, even on payment of exorbitant rates. I am keeping an account of the outlay thus thrown upon Government, and it is my intention, unless the Municipality rectify the present very unsatisfactory state of affairs, to represent to Government that all the charges on this head should be debited properly to the Municipality".

7. "If you could arrange to meet Asst. Engineer Mr Bond, Madras Sub-Division, Buckingham canal, he would point out to you what is required, and I have no doubt that some satisfactory arrangements might then be made by you for the future".

II. The first paragraph is misleading, the letter quoted was in reply to one from the Executive Engineer dated 3rd April 1893 in which no complaint was made to neglect in pumping at Triplicane or pouring sewage into the canal there.

I2. The second paragraph refers to a state of things said to have been complained of, and speaks of pumping still being neglected but it will be noted that up to this date pumping had been carried on day and night except on Sundays when Picottahs were used instead. As regards the Canal being blocked after rain, it is only natural considering the arrangements made for dealing with storm water charged with silt and sewage at the time of construction.

I3. Mr Loane met Mr Bond at Triplicane as requested in the last paragraph of the Executive Engineer's letter and as a result of the meeting reported as follows:-

"As arranged on the 28th ultimo, I met Mr Bond, Assistant Engineer of the Buckingham Canal on the Ist Inst. at Triplicane and then went on to Kistnampet. We think the only way to prevent to a very great extent, the sewage from entering the canal at the pumping stations at Triplicane and Kistnampet, will be, to build cisterns large enough to hold I2 hours sewage at the former and 3 hours at the latter (we have large storage tanks on the east bank at Kistnampet) and that the machinery be duplicated at both stations".

"Estimates are attached for constructing the cisterns which will be I00' X 60' X 5' inside at Triplicane and I00' X 60' X 3' at Kistnampet capable of holding 30,000 and I8,000 respectively".

"The cisterns will be on the western bank of the canal where the drains terminate".

"The total cost for cisterns, duplicate machinery and Engine House accomodation will be about Rs 9,390 made up as follows:-

| | Rs | |
|---|---|---|
| Cisterns. | 4,390 | |
| I-8 H.P.Engine with Boiler &c complete. | --------- | One we have to spare from th Fort Station may be used here |
| I-4 H.P.Engine with Boiler &c complete. | 3,000 | |
| Engine House accomodation at Triplicane. | 800 | |
| do do at Kistnampet. | I,200 | |
| Total Rupees . . . . . . | 9,390 | |

I4. In August I893, the Executive Engineer Buckingha Canal was informed that the matter was receiving attention.

I5. I went into the matter on my return from leave in November I893 and proposed that a low level drain should be laid from Triplicane to Kistnampet on the east side of the canal to fall into a new well at Kistnampet. That the pumps at Triplicane be stopped and that the pumps at Kistnampet be worked night and day. This has been practically carried out. The drain and well have been constructed and the Engines at Kistnampet have been duplicated and work for I4 hours instead of 7 as formerly. The cost of the work amounted to Rs I7,000 and was completed in May I895.

I6. It will be seen that Major Clarke himself says that the overflow arrangements had not been tested and also states that such overflow will be principally surface drainage. Now surface drainage contains a large amount of silt and sewage, especially when flowing at the high velocity referred to. The idea of separating sewage and surface drainage in times of flood by a dam 2½ feet high, placed in the drain, is one that no Engineer would maintain as sound. That it was considered permissible that sewage so diluted might be let into the canal, appears to have been the factor that weighed with the Engineers in tryin to overcome the difficulty they had to meet. But the fact that such an arrangement must cause silting up should have been considered at the time the canal was constructed and it useless to say now that it is owing to neglect on the part of the Madras Municipality. The question of removing silt entering the canal is dealt with in the 3rd para of G.O. No I694 dated 6th April I880.

I7. As far as I know all the complaints have been dealt with; the improvements render pumping at Triplicane unnecessary, as all sewage is carried direct to Kistnampet, and as stated above, pumping at the latter station is carried on for I4 hours instead of 7 as formerly. I do not remember ever seeing sewage flowing into the canal since the improvements have been carried out, except in times of rain.

Public Works Dept. )
Municipal Office, )
Madras, I5th Jan 96 )

R. E. Ellis

Engineer, M.M.C.

1/178 Mo 896

No. 39996

[illegible] cipal Dept.
RENT No. 3782/M

Government of Madras.

# PUBLIC WORKS DEPARTMENT.

## MEMORANDUM.

*Dated Madras,* 14th December 1895.

Letter from the Executive Engineer, Buckingham Canal Division, No. 1238 dated 24th August 1895:-

In continuation of this office letter No. 2912 dated 15th March 1894, intimating that the Municipal Engineer had - written to say that the improvements necessary to prevent fouling the Junction Canal with sewage at the Kistnapatam and Triplicane pumping stations will be put in hand at an early date, and with reference to this office endorsement No. 3001 of 24th idem, I have the honor to bring to your notice that the Municipality has at length effected so called improvements, and the result is absolutely nil in lessening the deposit of sewage in the Junction Canal. They have not done the improvements I was led to believe would be undertaken; they neglect pumping altogether at night, as they have systematically neglected it for years; and fouling of the Junction Canal with sewage is in consequence as bad as ever, with the result that the bed is more lined than ever with sewage, and the keeping open of navigation is becoming more and more difficult and expensive year by year. I forward copies of recent report received from the Sub-Division officer on the subject.

2. It is sheer waste of time for me to address the Municipal officers. I have repeatedly done so and no results - have yet been achieved by so doing. The Junction Canal is as I

have frequently reported, fast becoming worse every year, and its present state is a standing menace and disgrace to Madras, owing to the way in which the Municipality systematically foul it with sewage, and neglect to undertake the most obvious and elementary precautions and improvements. The Municipality are in fact the chief and worst offenders against the public health, and beyond empty promises nothing can be got from them.

3. I have reported over and over over and over again on the matter, and ~~xa~~ now request that Government may be addressed, and orders may issue that the Municipality shall no longer be allowed to foul the canal. Unless pressure is put on the Municipality by Government there is little chance of ever getting anything out of them. I fail also to see why canal funds should year after year be burdened with outlay for removal of pure sewage the greater portion of which would never come into the canal at all but for sheer neglect on the part of the Municipality. The clearance of sewage is a legitimate charge against the Municipality, and if this was so ruled, that body would be more careful in their disposal of sewage. The present arrangement is simply an incentive to the Municipality to neglect their duty, and to get rid of sewage free of expense to themselves, but at the cost of Government and canal funds.

4. Under the scheme submitted by Mr. Smyth, the bed of the junction is to be cleared only to 2'-9" ~~M.S~~. below M.S.L., while the canal is to be scoured out daily by tidal action. The result will be, as I have elsewhere pointed out, that it will be impossible that navigation can proceed, when the tides are low. Even as it is, with the surface water level artificially held up, and never falling below M.S.L., it is becoming a most difficult matter to keep up navigation, and if the Junction Canal is made tidal during the low tides of the hot weather, traffic will be stopped, except possibly at high tide. The very heaviest floods of the North East Monsoon do next to nothing to remove sewage, and the comparatively feeble

flow obtained by the arrangements proposed in Mr. Smyth's scheme will do infinitely less.

5. Unless the Municipality are directed by Government,

(1) To undertake pumping by night as well as by day,

(2) To forthwith effect such works as shall prevent the constant deposit of sewage that now goes on in the Junction Canal, and unless,

(3) The bed of the Junction Canal, if it is to be scoured by tidal actions, is cleared to its original bed level of 3 feet below L.R.T. or,

(4) In default of such clearance, the idea of scouring it by tidal water is abandoned, and the surface water level artificially held up, as it practically is at present, since the canal is never now tidal except by a very brief period when tides are unusually high,

the large sums hitherto spent by Government on the Junction Canal will be wasted, and the canal will erelong become unnavigable.

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Endorsement thereon by the Superintending Engineer, II Circle, No. 198 B.C. dated 13th September 1895:-

Forwarded to the Chief Engineer for Irrigation, in continuation of this office No. 1 B.C. dated 2nd April 1894.

2. As the Executive Engineer points out that the result of the meeting with the Municipal officers, ordered in Memo No. II/23 B.C. dated 27th April 1893, from the Chief Engineer for Irrigation, and of protracted correspondence on the matter with the Municipal officers, is, that no real steps whatever have been taken by the Municipality to prevent fouling of the Junction Canal, it is suggested that definite orders of Government may now issue calling on the Municipality, (1) to execute without further delay the works necessary to prevent fouling of the canal, (2) to carry out pumping night and day wherever

necessary to prevent fouling, and (3) to bear in future the cost of clearance of sewage entering canal.

3. The Junction Canal is principally used by salt boats, and great complaints will be made by the Salt Department should it become unnavigable-a contingency that is now within reasonable distance. It is useless to estimate for improvements so long as the Municipality are permitted to pour sewage into the canal, as they please, and to thus cause frequent blocks to navigation. If such fouling is now stopped by order of Government, it is recommended that the Executive Engineer be called upon to submit a complete estimate for the thorough improvement of the Junction Canal, the requirements of the canal as regards navigation having been ignored in making the scheme for the improvement of the Cooum and there now being an ample balance for execution of the work, consequent on the recent orders on the Completion Estimate of the Buckingham Canal contained in G.O.No.623 I. dated 8th August 1895.

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Note by the Chief Engineer for Irrigation, No. 196 I. dated 25th October 1895:-

When the Junction Canal was under construction a cast iron pipe syphon was provided to pass, under the canal, the sewage that flows from the suburbs of Triplicane and Royapettah and crosses the canal line between Soonkavara Street and Pycrofts Road. In connection with this sewage channel a stone weir with a leading channel was constructed to carry off storm water, its bed being kept 2½ feet higher than that of the inlet to the syphon in order to exclude sewage while admitting storm water into the canal. The arrangement was that when the sewer was running full, or overflowing, the upper portion of the stream, which after 24 hours rain would presumably consist of surface drainage, should be diverted down xx the storm water channel over the weir into the canal, leaving the lower portion containing the sewage to continue its course to the syphon and to eventually find its way into the sea. Major S.E. Clark, R.E. from whose History of the Buckingham (Junction) Canal the above

information

information is taken adds "it is hoped that the Conservancy Establishment will attend to the explicit orders given, on this particular point, or otherwise some of the sewage may find its way into the canal".

2. From the above it will be observed that the non-fouling of the Junction Canal by sewage depended on the instructions for its disposal being carefully carried out, but instead of this it will be observed that the Executive Engineer has made frequent complaints that it is next to impossible to keep the canal open for navigation and the Municipality, while making many promises, have not done anything to improve the state of affairs though all that is necessary is, according to reports received in this office, proper supervision and continuous pumping. To such an extent is sewage poured into the canal that the Executive Engineer reports that it is quite useless to improve it until some means are taken to force the Municipality to prevent the entrance of sewage. That it is the duty of the Municipality to take the necessary steps to abate the nuisance is evident from the wording of G.O. dated 12th June 1877, No. 224 W. in which it is stated that as the canal was designed and sanctioned before the existence of the sewage farms no compensation could be claimed by the Municipality for any loss, expense or inconvenience caused by its construction. Further in letter No. 22 dated 24th July 1880 printed with G.O. dated 6th September 1880, No. 1694 Financial, the President of the Municipality admits that in so far as a nuisance is caused by the discharge of sewage into the canal, it is clearly the duty of the Commissioners to abate such nuisance as far as lies in their power.

3. As, in the present instance, the fouling of the canal is reported to be entirely due to the action of the Municipality in not providing for continuous pumping it is suggested that the Executive Engineer, Buckingham Canal Division, may

be authorized to clear the bed of sewage and to recover the cost from the Municipality.

(Signed) R.R.E.Drake-Brockman, Col.R.E.,
Chief Engineer for Irrigation.

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Transferred to the Local and Municipal Department with the request that the question of taking action under section 64 Act I of 1884 may be considered at an early date.

R.R.E. Drake-Brockman

Colonel, R.E.,
Joint Secretary to Government, P.W.D.
Irrigation Branch.

To

The Local and Municipal Department.

Local & Municipal D
1895. CURRENT No. 3782 M
Public Works Department.

1694 SDD 6-9-80
224 W 12-6-77

CHIEF SECRETARY
15 DEC. 1895
GOVERNMENT OF MADRAS

No. 3999 C
Dated 14-12-95
Despatched
Received

SUBJECT.

Transferring note by the Chief Engineer for Irrigation on the question of the prevention of the fouling of the Buckingham (Junction) Canal, with sewage.

(with Encl)

50—2,000—21-12-94.

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No. 1814

Referred to the Municipal Commissioners, Madras, for early remarks.

(By order)

W. W. Phillips
Ag. Assistant Secretary.

V. R.
20/12/95

Fort St. George
20th Dec. 1895

PUBLIC WO
21 DEC. 95
MADRAS MU

To
The President, Municipal Commission
Madras.

18/12 a/
19.12.95

Local & Municipal Dept.
N.S. CURRENT No. 176 M

23/3/86 No 2813 ...
9/2/86 No 120 ...
6/9/80 No 1694 ...
12/6/77 No 224 W

1896.

**Madras Municipality.**

From

The President,
Municipal Commission,
MADRAS.

To

The Chief Secretary
to Government
Fort St. George

P. W. No. 2253

Dated 16th
Despd. 16th
Recd.

January 1896

CHIEF SECRETARY
16 JAN. 1896
GOVERNMENT OF MADRAS

3782 M of 1895

Subject.

Forwarding the Note by the Engineer Madras Municipality with Endorsement No. 1814 dated 20th December 1895 on Current No. 3782 M offers his remarks thereon.

27/1
a/30/1/96

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LOCAL AND MUNICIPAL DEPARTMENT.

Again G.O., dated 189 , No.
Current No. 3782 M of 1895, dated 14th December/95 from the Public works Dept
Current No. 176 M of 1896, dated 16th January/96 from the President, Munl. Commn. Madras.

FOR ORDERS.

I can't make head or tail of this business in the absence of local knowledge & have therefore arranged to make an inspection on Monday morning, starting with Col. Moore from the [illegible] Hospital at 6.45 A.M. — Please arrange with the P.W.D. that Mr. Russell, or some officer who can represent his side of the case, may meet us there & there; & return me the file at once so that I may have it with me on Monday.

27/1/96

There are 3 places at which, when the sewers are flushed with rain water, sewage may be, and I should think must be, carried into the canal. Whether it is possible entirely to prevent this, I doubt; but some improvement can probably be made. One of the three places is what Mr. Russell, in the note he gave me, calls the scour drain near the bridge over the canal on Pycroft's Road. This is a new drain formed to carry off the storm water overflow from the Triplicane drains. It is on a sharp gradient. The only thing that can be done to prevent ~~the~~ silt & the heavier sewage matters from being carried down is, apparently, to construct some drops in it which will act as sewage traps. Col. Moore is willing to do this if he should be asked to do so. The other two places are near, respectively, the old & new Kistnampett pumping stations, where the sewage is carried under the canal by syphons. At both places there are small reservoirs to hold the sewage which ~~[illegible]~~ accumulates when pumping is not in progress.

In the first of the currents read above the D.P.W. forward with a note by the C.E.I. a complaint against the Madras Muny. by the Executive Engr., Buckingham Canal. He states that owing to the neglect of the municipal servants, in spite of repeated requests to remedy it, the Canal is being fouled with sewage at the Kistnampett & Triplicane pumping stations, to such an extent as almost to obstruct navigation. This was referred to the Mun. Commrs. for remarks which are submitted in the second current.

2. The Prest., M.C., protests strongly against the imputation of neglect & submits a report from the Munl. Engineer with reference to the fouling complained of. The chief complaint is that pumping is not carried on continuously, but Mr. Ellis says that it is for 14 hours daily at Kistnampett, while the Triplicane sewage is carried to Kistnampett by a low-

level drain, & the engines at that place have been duplicated. These works were completed in May 1895. Mr Ellis admits that sewage flows into the canal during & after rain. But from Maj. Clarke's History of the Buckingham Canal quoted in para 1 of the Muncl. Engineer's report, it appears that when the canal was constructed, the difficulty of dealing with the sewage was greatly felt, as the line of the canal intercepted the whole line of drainage in Madras. It was however thought sufficient to dispose of the ordinary amount of sewage by pumping, & as it would have been very difficult to deal with storm water as well in this way, a storm water channel, the bed of which was 2½ ft. higher than the bed of the sewage ~~[illegible]~~ channel, was constructed to carry off storm water into the canal. It was considered that the main portion of the sewage would run along the lower part of the channel, & that only storm water & diluted sewage would be carried down the storm water channel, & that the silting up thereby caused, would be harmless; but this was not tested then, & as Mr Ellis

Both these reservoirs are provided with sluice gates, the opening of which would cause all the sewage coming down the drains to pass into the canal. Mr Russell says these gates are opened when the drains are flushed by rain water; Col. Moore says not. But, there is no reason for their existence. It would be safe, I think, that they should be replaced by walls which cannot be opened. The Muncy should be asked to do this; and also, as these reservoirs are so small as to afford hardly any margin for the accumulation of even a small supply of sewage, to raise their walls. If this is done, there is no reason, I consider, to doubt that, as the accumulation of sewage during the night is not large, the pumps will be able to deal with it all, when its volume is not augmented by rain water, if worked, as at present, from 5 A.M. to 8 P.M. —

As to the disposal of the surface drainage when it rains, the pumps cannot deal with this. It must be allowed to pass into the canal, and all that is possible, in order to secure that it carries with it as little sewage as possible, seems to be to construct silt traps over which the storm water will flow. There seems to be no difficulty about this & Col. Moore raises no objections to the Canal officers carrying out these works, which I think they should do, as ~~they~~ works are rendered necessary by the fact of the construction of the Canal across the natural drainage.

As regards the personal question raised by Col. Moore, I consider that the language used by the P.W.D. officers was stronger than was necessary, because, although it is clear that improvements which are necessary to minimise the risk of the Canal being fouled by sewage have not been carried out, I cannot find that the Muncy were at all bound to carry out all these works or that they have ever been distinctly & definitely asked to carry out all those which it was their duty to carry out. The only exception appears to be the raising of the walls ~~at~~ of the sewage reservoirs at the old & new pumping stations. These works should, I take it, have been carried out, but at the same time I am unable to say that actual mischief has up to the present time been caused by the fact of their not having been carried out. The mischief done at these two places has been caused by want of proper silt-trap arrangements, which it was rather the duty of the Canal to provide than of the Muncy.

2/8/96

G.O. 1694 Irr.
6.9.96

points out in para 66: "The idea of separating
"sewage & surface drainage in times of flood
"by a dam 2½ ft high, placed in the drain,
"is one that no engineer would maintain
"as sound. That it was considered permissible
"that sewage so diluted might be let into
"the canal appears to have been the factor
"that weighed with the Engineers. —
"but the fact that such an arrangement
"must cause silting up should have
"been considered at the time the Canal
"was constructed".

3. This then is the cause of a good deal of the fouling of the canal, & appears to be the result of the system introduced when the canal was made, & is hardly the fault of the municipality — but rather the result of defective provision for the disposal of surface drainage containing silt & sewage. From the Ex. Engr. report it seems clear that this should be remedied in order to keep the canal open for navigation. The new drainage scheme might remedy this, but to wait for this ~~would~~ will be to wait for some time.

4. As to the cost of removing the sewage, it was held that the charges should be fairly apportioned between the Municipality & the Canal. ~~should~~ (para 5) But in his letter dated ~~24th July in G.O. 1694 Irr.~~ in this G.O. the President admits that if the sewage

causes a nuisance, it is the duty of the Municipality so far as lies in their power to remove it.

It is now undoubtedly a nuisance, but it is open to question whether the Muni. should pay the entire cost of removal as it appears to be due to defective arrangements previously sanctioned & approved.

5. Mr. Ellis denies the charge of ~~at~~ neglecting pumping, & no specific instances are now put forward. But in a letter dd. 15.5.93 the Exec. Engr. mentions two instances observed by himself, & others by his staff. It is noticeable that this last complaint is dated 24.9.95, i.e. before the N.E. Monsoon was on, which according to Mr. Ellis is the principal ~~only~~ time that ~~drainage~~ sewage runs into the canal, & just after the completion of the improvements in May '95. It appears therefore that there must be something defective somewhere, & it may be that pumping is not continuous when not constantly supervised.

WWD
12.ii.96

H.M.
For orders
E.V.R. 22/2/96

176 m

FOR ORDERS.

Note for H.M.

A d.o. has been sent to the P.W.D and the papers are resubmitted to H.M. as desired.

V.R.
25/2/96

WWD
28.ii.96

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Papers to be read in Proceedings:—

Again G.O., dated 189 , No.

Current No. 3782 M of 1895, dated 14th December '95 from the Public Works Department.
Current No. 176 M of 1896, dated 16th January '96 from the President, Municipal Commission, Madras.

Order. No. 480 M Mun dated 21.3.96.

In the papers read above the Public Works Department charge the Mad~~ura~~ras Municipality with neglect in carrying out its drainage arrangements with the result that the Buckingham Canal has been considerably fouled with silt and sewage, and request that Government will consider the question of taking action under section 64 of Act I of 1884, and in answer to this the President refutes the charge which he alleges to be absolutely unwarranted and unjustifiable.

2. ~~It~~ There appear~~s~~ ~~from inspection of~~ the ~~canal and~~ the ~~drainage works that there are 3~~ to be three places at which, when the sewers are flushed with rain water, sewage may be, and probably must be carried into the canal. It is doubtful whether this can be entirely remedied, but some improvement, ~~is certainly~~ ~~may~~ the Govt considers, ~~may~~ can probably be effected ~~possible~~. One of these three places is the scoop drain near the canal bridge on Pycroft's road, which has been built to carry off storm water from the Triplicane drains. If drops were constructed in this drain, which is on a ~~very~~ steep gradient, so as to ~~form~~ act as a kind of sewage trap, the quantity of silt and heavier sewage matter carried into the canal would be

considerably reduced. The Municipality will therefore be requested to be good enough to carry out this improvement at an early date. The other two places are near the old and new Kistnampet pumping stations, respectively, where the sewage is carried under the canal by means of syphons. Here there are small reservoirs to ~~which~~ hold ~~in which~~ the sewage ~~can be accumulated~~ when pumping is not in progress, and in each of these reservoirs there is a sluice gate, the opening of which would let the accumulated sewage into the canal. The Canal ~~Executive~~ Engineers complain~~s~~ that the gates are opened when the drains are flushed by ~~with~~ rain water, but this is denied by the President of the Municipality. If the latter is the case ~~statement is correct~~ there appears to be ~~is~~ no sufficient reason for retaining these gates ~~their existence~~, and it seems safer therefore ~~to obviate all possibility of the gates being opened they~~ to ~~should be~~ remove~~d~~ them and replace~~d~~ them by walls. This the Municipality will be requested to do, and at the same time to raise the height of the reservoir walls, for at present the reservoirs are so small that they afford hardly any margin for an excess accumulation of sewage. When these improvements have been carried out, the pumps, if worked, as at present, from 5 A.M. to 8 P.M., will doubtless be able to cope satisfactorily with the whole of the sewage, when it is not augmented by rain water.

3. The question of how to dispose of storm water and surface drainage when it rains is more difficult, and there is no doubt that the pumps cannot deal with it and ~~it~~ must be allowed to pass into the canal, as was proposed when the canal was constructed. The only improvement that can be carried

out

out is apparently the construction of silt-traps over which the storm water will flow so that as little sewage as possible shall be carried into the canal. ~~The President raises no objection to this, but~~ This work, the Government considers, ~~that this work~~ should, with the permission of the Mty, be carried out by the Public Works Department as it is rendered necessary by the fact that the canal has been constructed across the natural drainage of the town.

4. With regard to the personal question raised by Col. Moore in his letter, the Government is of opinion that the language used by the officers of the Public Works Department in the correspondence in question was stronger than was necessary because, although improvements, which are necessary to prevent fouling of the canal by sewage, have not been carried out, it does not appear that the Municipality was at all bound to carry out all of them nor indeed that it was ~~has it~~ ever distinctly & ~~been asked~~ specifically asked to undertake ~~[illegible]~~ those which it was their duty to carry out. ~~do so.~~ It was certainly the duty of the Municipality to raise the walls of the sewage reservoirs at the two pumping stations, but still it cannot be definitely shown that the omission to do this has up to the present caused any actual mischief. The mischief which has been caused there is due rather to the want of proper silt-trap arrangements ~~there~~ to deal with storm water and surface drainage, which, however, it was the duty of the canal officials rather than of the Municipality to provide.

(From orders).

Pd 1st & of 2nd P.O.

To
The Public Works Department
& Resident Municipal Commissioner,
Madras.

P.O.
Wrote 24/3/96

WWS
7.3.96

11/8/3

Recd 15/3

3782 & 1768

C.S.

(Home Order)

To D.P.W.
for counterinitials – vide
para. 3 of Draft.
S.R. 11/8/6

D. I.

B.R.
12.3.56

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*When given for copying* ______
*When copied* ______
*When examined* ______
*When signed* ______ } 189 .

READ AGAIN G.O., No. DATED 189 ,

CURRENT No.

ENCLOSURES TO C. No.

ORDER OF GOVERNMENT .. .. .. A A A A A A A

LETTER OF GOVERNMENT.

STATEMENT WITH DITTO.

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