

MADRAS RECORD OFFICE.

Government of Madras.

Public DEPARTMENT.

G.O. No. 497

Press
Mis.

Dated 23-4-1870

Not to be folded or roughly handled

*Proceedings of the Madras Government, Public Department,
23rd April 1870.*

No. 161. Read the following letter from the Sanitary Commissioner for Madras, to the Chief Secretary to Government, Fort Saint George, dated Madras, 1st April 1870, No. 350.

My attention having been directed to the condition of the water in the Fort ditch during the past week, I have recorded a Memorandum on the subject, copy of which I have the honour to forward for the orders of Government. The putrid condition of the water has now nearly passed away.

Memorandum on the condition of the Fort Ditch.

Within the last week a phenomenon has been observed in connexion with the water in the Fort Saint George ditch which deserves to be noticed. The colour of the water about the end of last week changed from its normal condition of a dirty green to a blackish brown, and became so intolerably putrid that the fish in the moat were observed on Sunday and Monday, the 26th and 27th, to have perished by thousands. I observed a similar occurrence in the Fort ditch some years ago. Colonel Worster, R.A., informs me that it is not unusual at this season of the year, especially when a volume of rain or fresh water has been admitted into the ditch, or when the water of the Cooum flows in. The ditch derives its supply of water from the sea, from the Cooum, from surface rainfall, and from the drainage of the Fort.

2. The sudden putrescence of tank water in India is a thing of not uncommon occurrence. Some years ago when the Vehar lake, which supplies the town of Bombay with drinking water, got low towards the end of the hot season, the water changed in colour and became very offensive to smell and taste. Dr. F. N. Macnamara, Professor of Chemistry, Calcutta, gives an instance of a tank of fresh water in Calcutta becoming suddenly putrid, and of an outbreak of cholera amongst cooly emigrants following upon the use of the water. He believed the phenomenon to be due to the heating of the superficial layers of mud, which in all tanks whether of fresh or salt water is usually full of minute forms of animal and vegetable life. An accession of temperature of shallow water covering the mud would be sufficient to destroy the vitality of these organisms, and to cause their rapid putrefaction. A similar result would follow the sudden mixture of fresh and salt water, especially when a high temperature prevailed. This is one of the chief causes of the offensiveness of the Cooum river after a heavy rainfall in the hot weather, when the bar is closed. The minute animal and vegetable forms which thrive in salt or brackish waters perish in myriads when the density and other conditions of the medium they live in are suddenly altered.

3. Although these changes are every year being observed in the Cooum, it is very rare to find that the resulting putrefaction is sufficient to destroy the fish or fish ova which abound in the river. I have never myself observed such a phenomenon to happen in the Cooum. In this respect, therefore, it would seem highly probable that the bed of the Fort ditch in regard to the mud it contains, and its readiness to take on putrefactive changes, is a much more dangerous nuisance than the adjoining river. A body of water in which fish of large size are periodically poisoned by the evolution of putrid gases, cannot but be regarded with grave suspicion in respect to its possible influence on public health.

4. As regards the poisoning of the fish by changes occurring in the water itself, I think there can be no reasonable doubt. The Executive Engineer of the Fort has, however, held the opinion that the death of the fish may have been caused by fishermen purposely poisoning them so as to obtain a supply for sale. (As a matter of fact the dead and dying fish are hauled out by natives in great numbers and, I suppose, sold as food.) Against this view of the case, there is the fact that the putrid condition of the water preceded by a definite time the death of the fish. Colonel Worster, who has investigated the condition of the water microscopically on former occasions, informs me that the many varieties of *Diatoms* and *Desmids* which have their habitat in the Fort ditch are, in this putrid condition of the water, found dead. Although fishermen might by the use of narcotic drugs poison a few large fish, it is entirely out of the question that they could

*Proceedings of the Madras Government, Public Department,
23rd April 1870.*

destroy the minute animals or cause the water to change in colour and to emit foul gases. The cause of the poisoning is unquestionably the condition of the deposits in the bed of the ditch itself.

5. Another explanation has been offered by an old resident of the Fort, viz., that the death of the fish was caused by the unusual number of salutes fired during the past week. However far-fetched this explanation may at first seem, it is less improbable than the "poisoning by fishermen" theory. The repeated concussions of the ditch walls, caused by the firing of heavy guns, would probably tend to the disturbance of the muddy deposits, and to hasten the chemical changes going on in them. In this way the mud at the bottom of the ditch might have been shaken up to some extent and brought into contact with water from the surface heated by the increasing temperature of the season.

6. In giving these particulars of the condition of the Fort ditch, I do not lay any stress on the connexion between the late outbreak of cholera in the Fort and this insanitary condition. As a matter of fact the cholera preceded the putridity of the ditch by more than three weeks, and was to a great extent localised to a particular portion of the barracks. Still, as regards the sanitary aspect of the question, it is my duty to record that an artificial receptacle for water, which has become so foul as the Fort ditch now is, cannot be good for the health of those who are exposed to the emanations arising from it.

7. It seems very doubtful whether the ditch has ever had a thorough emptying and cleansing since the Fort was constructed. Colonel Worster informs me that in the many years he has been in charge of the Barrack Department, it has never been cleaned of the mud. Every year the Fort roads are repaired with laterite, the detritus of which material must be washed into and lie either at the bottom of the drains with which the Fort is honeycombed, or at the bottom of the Fort ditch. As the silt cannot get washed away, it must accumulate, though slowly, both in the drains and ditch.

8. If the volume and quality of the water in the ditch were such as to be a protection to the mud at the bottom, it would probably be better not to meddle with the deposits. But actual experience shows that, at certain seasons, the water becomes charged with gases which are fatal to the living creatures inhabiting the water, and as these gases arise from the decomposition of organic matters in the mud, it is obvious that so long as the mud is allowed to remain, so long will the water in the ditch and the atmosphere around it be liable to be tainted.

9. Various opinions have been given, on sanitary grounds, as to the propriety of cleaning out the mud at the bottom of the ditch. My own view is that it would be a difficult and disagreeable work, but if it were done at a season of the year when epidemic disease was not existent in the neighbourhood, and with the precaution of encamping the bulk of the troops elsewhere during the period occupied in the cleansing operations, no ill-consequences need be apprehended.

10. In connexion with this subject may be mentioned the very unsatisfactory condition of the drainage of the Fort. Almost, if not quite the whole of the drainage empties into the ditch where the solid matter and road detritus must continue to accumulate.

11. If Government should see fit to refer to the Department of Public Works the question of the practicability of cleaning out the mud of the ditch, I would venture to suggest that a scheme for remodelling the Fort drainage, so as to prevent further accumulations, might properly be considered at the same time.

MADRAS,
1st April 1870.

(Signed) W. R. CORNISH,
Sanitary Commissioner.

No. 162.

ORDER THEREON, 23rd April 1870, No. 497.

The letter above recorded will be referred to the Public Works Department with a request that a report be submitted to Government as to the feasibility of excluding the water of the Cooum river from the Fort ditch, and keeping the ditch supplied with salt water.

*Proceedings of the Madras Government, Public Department,
23rd April 1870.*

2. The Government are not prepared to carry out the proposal of the Sanitary Commissioner for removing the mud from the Fort ditch.

(True Extract.)

Chief Secretary.

To the Public Works Department.

„ Sanitary Commissioner.

„ Military Department.

Exd. J. Wright.

Obt. of 1870; address.

PUBLIC.

To

THE PUBLIC WORKS DEPARTMENT.
Ac., Ac., Ac.

Dated April, 23rd.

Recd.

Encl.

G. O., 23rd April 1870, No. 497.

APRIL.

Nos. 161-162.

Requesting the Public Works Department to submit a report as to the feasibility of excluding the water of the Coorn river from the Fort ditch, and keeping the ditch supplied with salt water.

I do not think Dr.
Crimm has made out
to study a case as to
his to be put in incurring
the danger & expense
of cleaning out the Fort
Ditch.

The "perforance" is,
he admits, of ~~uncommon~~
truly rare occurrence.
and he declares that
on the late occasion of
its occurrence it caused
no disaster. It is the
impression that previous
similar occurrence
was similarly per- or
the contrary would & could

61
Memo for orders.

Dr. Pomish furnishes an
interesting Memo: on
the recent & present
condition of the water
in the Fort Ditch.

This has fortunately
passed away.

Dr. Pomish recommends
a thorough cleaning
of the Fort Ditch and
a remodelling of
the imperfect Fort
Drainage. No doubt

have been stated - The
interference in fact
with there are many is nearly a "nuisance"
The Dept of Public Works of short duration - in-
might be asked to - noxious to health - and
upset the home & seldom occurring -
cost involved in cleaning ditch might indicate
the Fort Ditch and a serious outbreak of
a plan & systematic cholera - would be
of remodelling the drainage -
being expensive & would
necessitate the removal of the
~~cleaning the ditch of the~~
inhabitants and clearing
of the Fort

But it is very doubtful whether the Ditch
could be drained without the entire
removal of the
The theory seems to
be that the animals
with which the Ditch
is infested are killed by the
water becoming too hot

for them. I do not know
that there was any large
accession of fresh water
during the end of last
year. But assuming
that the theory is
that stated, it
seems desirable to
explore whether the
water could not be
maintained in the
ditch or to make it
which is necessary to
prevent the animals
from dying by asphyxiation.
It is not feasible to
cut off the supply of
water from the Comm.
and allow only salt
water to flow? The
hope & families &
perhaps the closing
of the office. There
are very serious
difficulties.
P.V.H.

No. 350

OFFICE OF SANITARY COMMISSIONER,

Madras, 1st April

1870

From

The Sanitary Commissioner for Madras,

The Chief Secy: to Government,
Public Department,
Fort Saint George.

Sir,

My attention having been directed to the condition of the water in the Fort ditch, during the past week, I have recorded a memorandum on the subject, copy of which I have the honor to forward for the orders of Government. The putrid condition of the water, has now nearly passed away. I have the honor to be,

Sir,

Your most obedient Servant

M. Morison.

Sanitary Commissioner
for Madras.

falling rain of course
cannot be kept out
but it can be neutralized
by admitting
salt water?

I could add
the Quarry - the
Quarry has been bored
the part to the D.M.
and also take the
Sept to include in
its return to the case
of removing the mud
to a safe locality

L. D. S.

I am in accord with
the Sept. M. D. S.
and would respectfully make
a further suggestion

is a good thing apparently
to keep the water of
the Quarry out of the
ditch. The proper thing
during this month
would be to

of the expense of being
about of removing the
mud (accumulated
mud which is often
unknown. If the work
is undertaken the whole
fort would have to be
evacuated for months
all its inhabitants. The
ditch is rotten through
but the effect of it is
unintended to the sewage
which deposits the
effluvia. The drainage
the fort must be
improved with the
view of preventing the
influx of rain water
into the ditch and
rain water and to the
ditch. It is possible

1870/30

27th

27th 1870

sent

Private 11/11

From

The Sanitary Commissioner

for Madras

To

M. Chief Secy. to Govt.

Public Works

at Fort St. George

Dated

Despatched 1 April 1870

Received 4

No 310

No 350

Enclosures 1

Forwarded a copy of a memorandum on the condition of the water in the Fort ditch for the Orders of Government.

W. H. St. John
Secy. to Govt.
Public Works

161 1862
The letter above mentioned will be referred to the
S.P.W. with a request that a report be submitted
to Govt as to the feasibility of excluding the
water of the town from the Fort ditch, &
supplying it with salt water.
It is not proposed to carry out the
scheme of the drainage (Govt) for covering the area
of the ditch.

Govt. of (1870) Madras.
Public

The Public Works Dept.
for

Dated *April 23.*
Recd.

Encl.

G.O. 23 April 1870, No. 497

Nos. *161, 162*

*Requesting the P. W. Dept. to
submit a report as to the
feasibility of excluding the
water of the Cooum River from
the Fort ditch, and supplying
the ditch with
salt water.*