

GOVERNMENT OF MADRAS,
Public Works Department,
Stonehouse, Ootacamund,

9th Dec 1879.

Sir,
I beg to submit
herewith the plans and
and the prices information
the accompanying letter
in reply to your letter of
yesterday's date explaining
the circumstances
connected with the opening

was intended that the loom
bar should always be open, but
even had I ~~known~~ known it, I doubt whether
it would have been practicable.

As regards the ultimate effect upon the
waters of the two rivers, it is of course a
matter of indifference which bar is
opened, as they are in direct connection.

It can hardly be said that the
drainage was reversed by being allowed
to use its natural outlet.

I have since been told that the
traffic on the Junction Canal was
stopped by the boats not being able

to get under the bridges; which was an
additional reason (it could have been if I
knew it at the time) for taking the
lock off by the most direct route,
instead of compelling it all to pass through
the Junction Canal.

That the Canal management requires
revision may be admitted, and I have
already suggested to you certain arrangements
for this purpose, but as regards the particular
matter in question the course followed was, I
believe, the wisest under the circumstances.

Yours sincerely
John Pung

Major P.'s note shows that
nothing was considered except-
ed by the Corps. That
was not considered in
sufficient time —

When the Corps commenced
drill was the moment
to open Sheridan's position
to allow the
water to escape Northwards
meaning to the town
& Lockman Canal

Shandy - if ~~the~~ ^{the} ~~water~~ ^{that} did
become too strong for
not suffice ~~the~~
temporary lock in South
Canal shd have been
opened - & also allowing
the water to escape via
Cordage -

The Lock bar shd have
^{if the water attains the approach to the lock}
been next cut - & then
only if current proved
too strong for Canal
shd Ayres bar have

been touched - unless
the flood has been something
great - then precautions
taken in time - would
have sufficed without
cutting Ayres bar - But
if course if no steps were
taken on first rise of water
to attend to the S. Lock
locks &c - that neglect
enhanced difficulty of
regulation -
Worst measures shd be
taken to instantly close

The Ayer bar - &
save what water there is
in the form -

With that the Ayer
bar reported to be very
open the night before
last -

The sand water from
Cochran's canal all
draw outwards into form
bed -

Orders as to Ayer shed so by

Wm. By 11/9

I quite agree in the
propriety of proposed
details being left to
professional men.
but they must keep
the drainage of Madras
out of the Ayer

L.R.

Yes - & the whole of
this question was
argued out last year
in the notes I made
in regard to the
Ayer bar. The
arrangement - The

to the W. H. Huddstone
the space to the

For order

In continuation of
the notes which have
already passed in
regard to the late
opening of the Ayer
bar I beg to submit
herewith extract from
a despatch received
yesterday from Major
Pennington explaining
in a very clear manner
the position of matters.

As it will be observed
that the Ayer bar
was closed on the
9th instant it has been
unnecessary for me to
communicate the orders
instructions to this effect
by telegraph as directed

in his River last
note in the Subsit-
while I received abt.
the same time as
Major Pennycook's
conveying this information

In connection with
the Estimate for the
Buckingham Canal
which is about to be
submitted to the Gov.
of India I have directed
the Supr. Engineer to
study carefully the
proposal for building
locks at the extremities
of all portions of the
canal connecting the
débouchures of the
different rivers, and
he will necessarily
therefore have in this
way to deal with the
questions arising out
of the junction canal
and the floods of the

Adyana & Coom river
But it is clear that
until this question has
been thoroughly worked
out, and the permanent
regulation of these floods
not only decided on but
the useful works carried
out, temporary expedients
must of necessity be
resorted to

Major Pennycook's notes
shows very clearly what
the difficulties are and
how they can best be
met; and I have no
hesitation in saying
that not only is his
supposition correct, but
that he has exercised
a proper judgment in
all he has done

The questions involved
are I will hardly say
of a purely engineering
character, and I will
therefore now enter the

utmost deference
~~would~~ venture to
submit in consideration
whether the disposal
of such questions should
not be left by Government
in the hands of its
Professional Engineering
Advisers

12-9-79

W

question of
establishing the
lock at Adyar
in the Canal
and cannot admit
the consideration of
a large & costly
system of locks
as suggested over
the whole length
but as was long
since noted be dealt
with separately & at
me

16/9

Ex tract from a letter under date
16th September 1879 from Major Penny-
cuck about the opening and closing
of the Adyar bar, Madras.

The opening of the Adyar bar
was really necessary; as it was, the
mere filling of the Coornu bed from
the Adyar by the Junction Canal
has considerably damaged the bed
of the latter, and has affected the
foundations of some of the bridges,
I only heard of this yesterday. I have
not the least doubt that more than
one of those bridges would have
come down altogether if the canal
had had to pass water to the open
Coornu bar.

There was a paragraph in the
"Mail" on Monday evening which
contains as many misstatements
as sentences; no inconvenience

whatever has actually happened from
the bar having been opened; I
drive for three quarters of a mile
along it every morning and crop
it at another place every afternoon,
and there is not the shadow of a
stink. And I am informed by a
resident on the very bank of the
Adzaur that the only annoyance
they have experienced was for the
first day or two, when the water
was leaving the ground which it
had covered over and above its
regular bed.

The Adzaur bar was closed again
yesterday.

It ought to be understood that when-
ever more than a very moderate
amount of rain falls, the Adzaur
must be placed in communication
with the sea somehow; we cannot
impose in the beds of the two rivers
the whole of the water which they bring
down.

Once

Once in communication with the sea
whether by the Coom bar, the Adzaur
bar, or the Southern Canal, the beds
must empty until the tide level is
reached, and so far as concerns the
ultimate condition of the two rivers
it is a matter of entire indifference
which exit is adopted. And we
may therefore adapt, without any
reference to this point, the exit which
is most convenient under the cir-
cumstances.

To attempt to pass Adzaur floods
by the Coom bar, or Coom floods
by the Adzaur bar, will infallibly
result in serious injury to the
puncture Canal, and should not
be attempted.

It is also as well to correct another
rather erroneous impression, namely,
that the opening of the bars tends to
empty the Coom. In former days
when the Coom was entirely empty,
it was, unless my memory is
wrong, when the bar was closed

and not when it was open. As long as the bar is open the level is regulated by the tide, and cannot sink below a certain level. When it is closed, the level depends upon the proportion of supply and evaporation; in rainy weather it will be higher, and in very dry weather lower, than when the bar is open.

This year has been an abnormally rainy one, and the supply has been well kept up, and in any case, now that the Casum has free communication with the Adzur and the Southern Canal, it will probably never, in the driest weather, sink as low as it used to do when it had to depend upon its own water supply. In fact the unusually high level of the last two months has been due to the unusual rain, and the more moderate, but still pleasantly high level, of the previous hot weather, was due to the connection with the

Adzur and the Southern Canal, and not to the fact of the bar being shut, but rather in spite of it. In fact it is higher now than it was then.

The best proof that the opening of the bar does not per se cause an unpleasant lowering of the water level, nor the closing of it per se cause a raising thereof, is found in the fact that the water level is now, ten days after the opening of the bar, higher than it was three months ago, though considerably lower than it was ten days ago. It suits the writer in the "Mail" to ignore this, if indeed he knows it, which I doubt.

(Signed) J. O.

GOVERNMENT OF MADRAS,

Public Works Department,

Stonehouse, Ootacamund,

5 Sept 1879.

My dear Mr. Widdistun

I have say that

His Grace might wish
to see the enclosed for
Major Pennington's explaining
the circumstances under
which it became necessary
to open the Adyar
bar
Yours very truly
C. H. Stanley

To Mr.

A joint report by
Cols. Paard, Kestel,
and D'Connell - in
Council with Dr. Carnish,
the Sanitary Commissioner,
was prepared with reference
to G.O. No. 4544-N of
27/11/78, which might
be of use now.
An receipt, His Grace
ordered it to be
transferred to Mr

Cer 12-9-79. Ptd 17-9-79
O.L. Shul: 25 Sept

The work is unintelligible
to me - The water arrangements
were decided to cutting (over)
the first - I cannot
Shedya (open) - I cannot
have sufficient water -
it seems to me that the Canal
is out in any proper charge -
and as a consequence all
system is gone
+ the drainage
reverted -
M.C. - 579

GOVERNMENT OF MADRAS,

Public Works Department,

Fort Saint George,

187

My dear Colonel

As His Grace will
probably wish to hear about the
of the Akoya bar, I think it as well to
let you know the facts -

As you know, we have had almost
no rain during the last fortnight, and
on Thursday morning, Conductor Jones,
who is in charge of the Canal Office during
Mr Ottoman's absence came to me (I being
being away from Madras) for instructions

Mr. Hospital
Dun. Pen. &
Madras
look? and
reformation
preparation
to be cut in due time

17/9/79

Cer 12.9.79. Rtd 17.9.79
O.L. Shul. 25 Sept

as to the best way of relieving the
Adjan which had already risen to an
inconvenient height, and rendered the
temporary lock unworkable -

I was very unwilling to allow the
bar to be opened, and therefore told him
just to fall to break the bund leading
into the Sadras canal, by which means
a portion of the Adjan water would be
conveyed to the sea at Coralong; I also
told him on no account to touch the
bar without further instructions -

This had the desired effect, of stopping

further rise of the Adjan, for some time,
but heavy rain fell during Thursday, Friday
and Saturday, and by Saturday evening the
river had risen to 4' 6" above M.S.L
(4' being about the greatest height which it
is considered safe to retain) and was still
rising (having risen 9 inches in the previous
12 hours), while there was every prospect
of continued rain - Under these cir-
cumstances the opening of the bar became
a necessity and was accordingly carried
out -

It is greatly to be regretted that the
bar could not be kept closed until the

See 12.9.79. Alld 17-9.79
O.L. Shiel: 25 Sept

H. E. monsoon, when it rains in any case
have been opened, as the Canal, the only other
means of egress, can never carry off even a
moderate flood from the Adyar -

A writer in last night's 'Mail' speaks with
very natural regret of the "fine sheet of water"
in the Adyar, but I fancy his admiration
for the sheet would have diminished
when he found it beginning to enter his
drawing room windows -

Mr Call's report has not been
received yet; I will send it up as soon as
it arrives -

Yours sincerely
P. B. S. S. S.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

27th November 1878, No. 4,544 W.

Buildings and Roads.
Civil Works.

Read the following papers:—

No. 328. From Major ROSS THOMPSON, R.E., Executive Engineer, Presidency
Division, to the Chief Engineer, Buildings and Roads, dated Madras, 11th
November 1878, No. 4,674.

With reference to your memorandum No. 3,512 of 9th August 1878, I have
the honor to submit letter No. 3,052 of
2nd November 1878 (with plans and
estimates therein referred to) from Mr.
Faulkner, General Superintendent, Public
Works Stores and Workshops. These
plans and estimates have not been checked
or examined in my Office, but are for-
warded just as they were received, as you have called upon me to expedite their
submission as much as possible.

2. Paragraph 1 of your memorandum under reply. I am of opinion that
neither a weir nor a channel is necessary at the site of the proposed lock to allow the
Cooum water to pass towards Ennore during moderate rains when the Cooum Bar
is not open; on sanitary grounds I think the Cooum should always be kept as full
as possible, and it should as frequently as possible be scoured out by cutting its bar
when the river level has attained a sufficient height to secure a good scour out. To
secure this however, locks are required both in Cochrane's Canal and in the Junction
Canal, because, if the Ennore and Adyar Bars happen to be open and the Cooum Bar
closed, sufficient vent for ordinary freshes in the Cooum is found through the Junction
and Cochrane's Canals to keep the water in the Cooum at a level below that at which
a good scour could be secured by opening the bar.

3. As regards paragraph 2 of your memorandum, Mr. Faulkner has in his plan
No. 21 placed the lock in the cut past the Penitentiary, between Law's Bridge and St.
Mary's Bridge. This site appears to be as good as any other.

4. Paragraph 3.—Mr. Faulkner explains that the level of the lock sill in his
proposed lock is the same as that of the Shadiancoopum Lock on Cochrane's Canal.

5. Paragraph 4.—Mr. Faulkner estimates the cost of valves in the masonry to
be greater than if placed in the gates, and considers that in such a low lift lock very
simple gearing and valves would suffice.

6. With his letter now referred to Mr. Faulkner submits plans and estimates
for a new foot bridge over the Cooum, either close alongside the Wallajah Bridge, or
on and over the proposed weir.—Vide his plan 21; designs for this foot bridge have
been called for by and submitted to Government from time to time. Mr. Faulkner's
designs for the foot bridge appear to me somewhat more substantial and expensive
than necessary.

Cer 12-9-79. Ptd 17-9-79
O. L. Shul. 25 Sept

No. 328-A. Memorandum by the Chief Engineer, Public Works Department.

THE Executive Engineer, Presidency, forwards plans and estimates of the following works :—

For a lock to be built west of St. Mary's Bridge	RS.
(or with two pairs of gates and walled chambers, Rupees 47,530).	35,000
For a weir to be built between St. Mary's and Wallajah Bridges ...	14,800
Small foot bridge for working shutters of weir	3,000
Foot bridge for passengers over weir	15,270

2. During the last two years an earthen bund has been put across the canal near the Hospital Bridge, with a view to keep up the level of the water in the Cooum and to keep the discharge from certain sewers out of the Cooum.

3. As regards keeping up the level of the water, the bund has answered its purpose; but, on the other hand, by preventing the flow of water towards Ennore, the portion of the canal opposite the Railway Station becomes very foul, and is only cleansed by a sudden rise of the water in the Cooum. Until the opening of the Junction Canal there was no exit for the Cooum water while the bar was closed. But now the water can pass from the Cooum to the Adyar even though the bund near the Hospital Bridge prevents its passage northwards. More than twenty years ago a lock was built at Shadiancoopum, six miles from Madras, to keep up the level of the water in the Cooum. Another lock should not, therefore, be required at Madras. The bed of the artificial portion of the canal being throughout at the same depth below mean sea level, locks should, if possible, be dispensed with altogether.

The dam proposed to be built between St. Mary's and the Wallajah Bridges is likely to cause the silting up of one branch of the Cooum, and the portion of the canal and river between the lock, dam and Hospital Bridge is likely to become very foul.

The Chief Engineer recommends that no masonry works be commenced *at present* in the limits of Madras. The small floods in the Cooum will temporarily raise the level of the water in the mouth of the river, and the surplus will gradually pass off northwards or southwards. At least once every year the Cooum Bar will have to be cut for the passage of floods which the canals cannot carry off. A periodical cleansing of the river will thus be ensured. For the removal of shoals in the river and the maintenance of a proper depth of water in the canals adjoining, it will be necessary to have a dredge.

The reports on portions of the canal during the last twenty years show a considerable difference of opinion as to the value of locks on the canal.

19th November 1878.

(Signed) E. A. FOORD, Col., R.E.,
Chief Engineer, P.W.D.

No. 328-B. Note by His Grace the President.

No. 328-C. Note by the Honorable W. Hudleston.

No. 329. ORDER THEREON, 27th November 1878, No. 4,544 W.

THE questions noticed in the papers now before the Government are, in a sanitary point of view especially of much importance to Madras. The Governor in Council desires therefore at the earliest possible date to have before him a matured professional opinion as to what is necessary and essential to complete the canal works in such a way as to effect the objects originally contemplated securing the sanitary condition, and also having regard to the security of the works at Mylapore as well as the

navigation. With this end in view it is resolved to appoint a Committee, comprising the following Officers, to report upon the subject :—

Colonel E. A. FOORD, R.E., President,
" P. O'CONNELL, R.E., } Members,
Lieut.-Col. J. O. HASTED, R.E., }

and that the Sanitary Commissioner be requested to confer with the Committee for the purpose of advising on the sanitary questions involved.

2. A copy of the Note by His Grace the President will be furnished to the Committee as a guide to the points to which the Government desire them most especially to direct their attention.

(True Extract.)

(Signed) E. A. FOORD, Colonel, R.E.,
Secretary to Govt., P.W.D.

To the Chief Engineer, Public Works Department, } With copy of Note by His Grace the
To Colonel O'Connell, R.E., } President, and papers in original.
" Lieut.-Colonel Hasted, R.E.,
To the Sanitary Commissioner.

Exd. E. C. Shunker.
Spare Copies

BUILDINGS AND ROADS
CIVIL WORKS.

★
Govt. of (1878) Madras.

PUBLIC WORKS.

To

THE CHIEF ENGINEER,
PUBLIC WORKS DEPARTMENT.

&c., &c., &c.

Dated November 27th.

Issued

Recd.

Encl.

G. O., 27th November 1878, No. 4,544 W.

NOVEMBER

Nos. 323-329

Miss No 989 of 7/12 April/81

*Construction of Lock, &c., across the
Cooum.—A Committee appointed with the
view of obtaining matured professional
opinion as to the —.*