

(1) Number of pages 26
 (2) Date of repair 23-1-87
 (3) Initials of the Referencer RCM

TAMIL NADU ARCHIVES

GOVERNMENT OF TAMIL NADU

P.W. DEPARTMENT

G.O. No.	606	Press.
B.P. No.		Mis.
Dated	9. 3. 1881	197.

A.H.

Not to be folded or roughly handled

606
1

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

9th March 1881, No. 606 W.

Buildings and Roads.
Civil Works.

Read the following papers:—

No. 16. From Lieutenant-Colonel J. BEATTY, R.E., Superintending Engineer, Third Circle, to the Chief Engineer, Public Works Department, dated Trichinopoly, 2nd November 1880, No. 616 S.A.

I HAVE the honor to forward herewith Captain Smith's report called for in your No. 2,266 of 7th ultimo, and having on 20th ultimo personally inspected the site of the present bar, &c., at Cuddalore, I venture to offer a few remarks.

2. Three questions present themselves for consideration:—

- (1) What is the best site for the bar;
- (2) should anything now be done to fix it; and,
- (3) if an attempt should be made to fix it, what works would probably be most effectual.

3. The bar is now travelling slowly northwards, which is the natural tendency of all bars on the Coromandel Coast, under the joint action of the tides flowing into and out of the backwater, and the littoral current, which during the greater part of the year is up the coast.

4. Contrary to the statement* of the Master Attendant, that "no change is as yet perceptible" since the "bar was cut in 1877," the fishermen and old residents were unanimous in stating that the bar has already moved upwards of one hundred yards to the north; and they know the reason why it has not moved faster is that "there has been no fresh of any consequence in either river since the alteration of the bar."

Paragraph 6, line 8.

5. The boatmen and others who have lived there many years do not share the Master Attendant's opinion, that "if a serious flood occur the two bars might open simultaneously" and cause a complete silting up of the channel opposite the town of Cuddalore.

Paragraph 6, line 10.

6. On the occurrence of any serious flood the two bars are open simultaneously; the Gadilam bar either opens of itself or is cut by the people in its neighbourhood; but the complete silting up opposite Cuddalore has not occurred, and the Gadilam bar always closes of itself as the flood in that river begins to subside.

7. What the boatmen do not wish is that "further action" should "be awaited," and the bar allowed to travel further north. The best site for the bar, according to them, is where it was placed when a cut was made for it in 1877, because that gives them the straightest course from the Custom House into the open sea.

Paragraph 3, line 13.

Every yard that the bar travels to the north makes the approach to it from the river more difficult, owing to the shoaling that occurs off the fishing village at E, and the greater distance they have to travel.

8. What will "certainly follow," as the result of any "serious flood" if "further action be awaited," is that the bar instead of travelling slowly northwards at the rate of 100 yards in three years, will suddenly be found at one of the old mouths A or B, thus travelling possibly 1,500 yards in twenty-four hours.

9. If the floods should form a new mouth at A, it is certain that flagstaff hill would be in serious danger and would have to be protected at considerable expense.

10. As however it is not desirable that the bar should be allowed to travel at all towards the north, Captain Smith proposed to fix it by revetting the northern face of the opening at D, where the erosion is now very perceptible, not at C, where the sand ridge is steadily forming. He also proposed to throw a bund across at F, so as to prevent the floods breaking out at one of the old mouths. These proposals appear to me judicious, but the revetment and bund would need to be substantial.

11. Groynes on one or both sides of the mouth would be a very expensive remedy for merely fixing the bar; and would, in my opinion, have no effect whatever in preventing the floods on the occasion of "freshes of any consequence in one or both of the rivers" forming a new mouth for themselves at A or B.

12. The Master Attendant speaks of the "deep water course of both rivers as at present constituted" being "further north," apparently meaning further north than the present bar, but as the drainage area of the Gadilam is more than double that of the Paravanar, it is difficult to understand how he has formed this opinion. Apart from the action of the tides and littoral current, the heavier floods from the Gadilam would naturally tend to move the "deep water course of both rivers" further to the south.

13. I think that the Master Attendant has been led to form erroneous conclusions in the matter owing to the want of a good sketch map of the locality drawn to scale, such as that now furnished by Captain Smith.

From Captain A. C. SMITH, R.E., Executive Engineer, South Arcot Division, to the Superintending Engineer, Third Circle, dated Cuddalore, 30th October 1880, No. 760.

In reply to your No. 580 S.A., dated 20th October 1880, I have the honor to state that I regret having missed the Chief Engineer's memorandum No. 2,266, dated 7th October 1880, which I took to mean that I was to

report on my proposals for the port of Cuddalore.

2. However I now have the honor to report as follows on the proposals of Mr. Taylor, Master Attendant.

3. In the first place I must premise that, in the absence of the sketches mentioned by that officer, I am at a loss to understand part of his text, but I enclose a rough tracing from the Revenue Survey map, which is as accurate as possible and is drawn to scale, and on which I have also shown existing and past conditions of the bar, which will serve to illustrate how I have arrived at conclusions differing from those of Mr. Taylor.

4. Mr. Taylor commences by saying that the flagstaff is much safer now than it has been at any previous time; no one will doubt this, but if the bar is allowed to break out north again, in either of its old sites A or B, where the spit is very narrow and low, the flagstaff will again be endangered, and this action might take place in very heavy floods. The mound is protected by prickly-pear and growth towards the east or directly in front of the platform of the flagstaff, but there is a dangerous scarp portion unprotected just south of this, which the groyne (mentioned by Mr. Taylor) unless enlarged will do very little to protect in heavy floods.

5. It is true that if the state of things that have obtained since the new bar was cut in 1877, still goes on, the bar will, as Mr. Taylor says, take some time to travel north to its old position; but Mr. Taylor ignores the possibility of sudden change from high floods, and as already stated the spit at A B is very narrow and low.

6. Mr. Taylor says no change is as yet perceptible; now, so far is this from being the case, that not only has the bar moved at least 100 yards north from its original cut in 1877, but the

fact of its travelling is obvious to any one acquainted with the appearances caused by water on river banks, &c.; the spit at C being a well-grown rounded knoll evidently not disturbed at all by water action, that at D being undermined and cut away.

7. I cannot make out exactly where Mr. Taylor's mark on his plan may be, but I am certain from all I can gather that the further south the bar is kept the better, not only for the flagstaff, but for the fishing village E and for the trade in general. *All the boatmen pray that the bar may not come further north* and expose them to the hardships they formerly had to endure by the shoaling at F F. I am at a loss to know what place it is that Mr. Taylor has marked as the deepest water except it be just at G, and this deepening is caused by the tidal current from the south which flows for the greater part of the year and causes the action at D above described; but this deepening at G would occur relatively at any site where the bar might be fixed during the southern current, sand being deposited as shown by the fan shaped dots on the plan.

8. It is this *tidal silling alone* that is complained of by the boatmen now, and this has gradually accumulated since 1877 (on the cutting of the bar) simply because we have had no floods in the rivers since then.

9. I do not agree with Mr. Taylor's "groynes or revetment," in paragraph 4, for the south side only. I should run out a groyne at C if at all, but I should revet D very strongly; this is the only way to prevent the travelling north.

10. I certainly agree with Mr. Taylor in the employment of a hand-dredge, supposing such a machine being workable to any moderate depth to clear the shoaling shown by the dotted lines and to assist the scouring action of the floods when they occur.

11. In his paragraph 6 Mr. Taylor seems to think that the opening of the Fort St. David bar is an uncommon occurrence not within the memory of man, whereas, on the contrary, it is the normal condition of things in high floods, and if not opened spontaneously by the flood it is cut by the villagers or Municipal authorities, and the channel opposite the town of Cuddalore never suffers thereby as will readily be seen from the map; the proper bed of the Gadilam river turns down south; near Fort St. David and from thence east to the sea it is one vast shallow, and the Fort St. David bar merely relieves the Gadilam river of what may be called its surplus waters in flood, the main volume flowing to the south in front of Cuddalore, and directly the floods abate the Fort St. David bar closes; in fact it cannot be kept open.

12. The Gadilam drains 740 square miles and the Paravanar 360, the latter draining as it does extensive rice plots and being formed by the surplusing of large tanks is more constant than the former, which, coming from high ground and bordered for some length by rising ground and hills, is more of a mountain torrent, thus a sort of see-saw action is maintained which is further complicated by the tidal action.

13. What the harbour wants, in my opinion, is annual floods and a bar fixed at C D or even further south. Distance is nothing to the boatmen compared to the inconvenience of rounding a corner over shoals, and they prefer the straight run from the Custom House to the bar.

14. I cannot understand what Mr. Taylor means by his last sentence in paragraph 6, nor where the spot "in the deep watercourse of both rivers as at present constituted" is. The natural deep watercourse of both rivers is if anything further south of C D, the deepening at G and shoaling inside the harbour mouth being caused by tidal action.

15. My proposal was to prevent the floods, more especially those of the Paravanar, from breaking out north by running a bank across F and continuing it and revetting it with piles, &c., round G D to fix the bar at C D. The Conservator, from whom Mr. Taylor imagines I got my ideas, formed a similar plan to mine, only he had further protection for the fishing village E and also proposed a scheme for running a deep channel, hugging the groyne K K and extending this groyne and channel till opposite the existing bar, and thus, by avoiding the silling action of the sea, getting a minimum of shoaling for the boats to pass over; this seems a good plan, and if the Salt Department think of further protecting their pans they and the Port authorities might carry it out conjointly; the only doubt is what action the fresh water floods might have on such a channel.

No. 2,454.

FORWARDED to the Master Attendant for remarks.

(Signed) J. PENNYCUICK, Major, R.E.,
Under Secy. to Govt., P.W.D.

6th November 1880.

4 PUBLIC WORKS DEPARTMENT, 9TH MARCH 1881, No. 606 W.

No. 16-A. From J. H. TAYLOR, Esq., Lieut. R.N.R., Master Attendant, Administrative Department, to the Secretary to Government, Public Works Department, dated Madras, 1st March 1881; No. 1,931.

Letter from Executive Engineer, South Arcot Division, to the Superintending Engineer, Third Circle, No. 760, dated 30th October 1880.

Letter from Superintending Engineer, Third Circle, to the Chief Engineer, Madras, No. 816 S.A., dated 2nd November 1880. One Plan.

IN returning the papers as per margin I have the honor to inform you that the sanction of Government for the construction of the hand-dredge for Cuddalore having been received it will be put in hand at once. The other points in the correspondence call for no remarks at present.

No. 17.

ORDER THEREON, 9th March 1881, No. 606 W.

ORDERED to be recorded.

(True Extract.)

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

To the Marine Department.
,, Superintending Engineer, Third Circle.

Exd. S. T. Austin.
Spare Copies

BUILDINGS AND ROADS.
CIVIL WORKS.

Govt. of (1881) Madras.
PUBLIC WORKS.

To

THE MARINE DEPARTMENT.
&c. &c. &c.

Dated March, 9th.

Issued

Recd.

Encl.

G. O., 9th March 1881, No. 600 W.

MARCH.
Nos. 16-17.

Port of Cuddalore.—Correspondence relative to the — and the construction of a hand-dredge, recorded.

No. 616 S A.

From

Buildings
and Roads

To

Lieut. Col. J. Beatty R.E.

Superintending Engineer, 3rd Circle,

Encl 012.

1. Letter with
Sketch -

I have the honor to forward herewith Captain Smith's report called for in your No. 2266 of 7th ultimo; and having on 20th ultimo personally inspected the site of the present bar at Cuddalore, I venture to offer a few remarks.

2. Three questions present themselves for consideration; (1) What is the best site for the bar; (2) Should anything now be done to fix it; and (3) if an attempt should be made to fix it, what works would probably be most effectual.

3. The bar is now travelling.

slowly northwards, which is the natural tendency of all bars on the Coromandel Coast under the joint action of the tides flowing into and out of the back water, and the littoral current, which during the greater part of the year is up the coast.

4. Contrary to the statement of the Master Attendant that "no change is as yet perceptible" since the bar was cut in 1877, the fishermen and old residents were unanimous in stating that the bar has already moved upwards of one hundred yards to the north; and they know the reason why it has not moved faster is that "there has been no fresh of any consequence in either river since the alteration of the bar".

vide his letter para 3, line 18

para 6. line 8

5. The boatmen and others who have lived these many years do not share the Master Attendant's opinion that "if a serious flood occur the two bars might open simultaneously" and cause a complete silting up of the Channel opposite

the town of Cuddalore."

6. On the occurrence of any serious flood the two bars are open simultaneously; the Gadilam bar either opens of itself or is cut by the people in its neighbourhood; but the complete silting up opposite Cuddalore has not occurred, and the Gadilam has always closed of itself as the flood in that river begins to subside.

7. What the boatmen do not wish is that "further action" should be awaited, and the bar allowed to travel further north. The best site for the bar according to them is where it was placed when a cut was made for it in 1877, because that gives them the straightest course from the Custom House into the open sea. Every year that the bar travels to the north makes the approach to it from the river more difficult owing to the shoaling that occurs off the fishing Village at E, and the greater distance they have to travel.

8. What will "certainly follow," as the result of any "serious flood," if "further action be awaited," is that

the bar instead of travelling slowly northwards at the rate of 100 yards in three years, will suddenly be found at one of the old mouths A or B, - thus travelling possibly 1500 yards in 24 hours.

9. If the floods should form a new mouth at A it is certain that Flag Staff hill would be in serious danger and would have to be protected at considerable expense.

10. As however it is not desirable that the bar should be allowed to travel at all towards the north, Captain Smith proposed to fix it by reworking the northern face of the opening at D, where the erosion is now very perceptible; not at C where the sand ridge is steadily forming. He also proposed to throw a bund across at F so as to prevent the floods breaking out at one of the old mouths. These proposals appear to me judicious, but therevetment and bund would need to be substantial.

11. Groynes on one or both sides of the mouth would be a very expensive

remedy for merely fixing the bar; and would in my opinion have no effect whatever in preventing the floods on the occasion of "freshes of any consequence in one or both of the rivers" forming a new mouth for themselves at A or B.

12. The Master attendant speaks of the "deep water course of both rivers as at present constituted being" further north, apparently meaning further north than the present bar, but as the drainage area of the Gadilam is more than double that of the Paravani, it is difficult to understand how he has formed this opinion. As to the action of the tides and littoral current, the heavier floods from the Gadilam would naturally tend to move the "deep water course of both rivers" further to the south.

13. I think that the Master attendant has been led to form erroneous conclusions in the matter owing to the want of a good sketch map of the locality drawn to scale such as that now furnished by Capt. Smith.

I have the honor to be
Your Most Obedt. Servt.
P. Reatty. Lt Col. R.E.
Supt Engineer & Clerk.

No 2457,

Forwarded to the
Master Attendant for
remarks.

John P. [Signature]
Major R.E.
Under Secy. to Govt.
P.W. Dept.

6 Nov 80

2.10.80 to 22.10.80
7-10-80 22.10.80

The Master Attendant in
original to be returned.

P. W. D. 3RD CIRCLE.

From
P.W.D.
The Superintending Engineer,
5000
3rd Circle.
To
The Chief Engineer,
P. W. D.

No. 6165A.
Dated 2nd } Nov 1880
Received }
Enclosures. 2

Port of Cuddalore
Forwarding Captain
Smith's report on the
Master Attendant's pro-
posals regarding the
— and offering a few
remarks thereon.

Forwarded

No 760

South Arcot Dist Office
Camp Cuddalore
30 October 1880
Despatch 30-10-80

From
The Executive Engineer
South Arcot Division
To
The Superintending Engineer
3rd Circle.

Sir,

In reply to your No. 580. Sa
20-10-80 I
have the honor to state that I regret
having missed the Chief Engineer's
Memo No. 2266
7-10-80 which I took to
mean that I was to report on my
proposals for the Port of Cuddalore.

2. However I now have the honor
to report as follows on the proposals
of Mr. Taylor Master Attendant.

3. In the first place I must
premise that in the absence of the
sketches mentioned by that Officer I
am at a loss to understand part of
his text, but I enclose a rough tracing
from the Revenue Survey map which is
as accurate as possible and is drawn
to

to scale, and on which I have also shown existing and past conditions of the bar which will serve to illustrate how I have arrived at conclusions differing from those of Mr. Taylor.

4. Mr. Taylor commences by saying that the Flag Staff is much safer now than it has been at any previous time; no one will doubt this, but if the bar is allowed to break out north again in either of its old sites A or B, where the spit is very narrow and low, the Flag Staff will again be endangered, and this action might take place in very heavy floods. The mound is protected by prickly pear and growth towards the east or directly in front of the platform of the Flag Staff, but there is a dangerous scarped portion unprotected just south of this which the groyne (mentioned by Mr. Taylor) unless enlarged will do very little to protect in heavy floods.

5. It is true that if the state of things

606
things that have obtained since the new bar was cut in 1877 still goes on, the bar will, as Mr. Taylor says, take some time to travel north to its old position; but Mr. Taylor ignores the possibility of sudden change from high floods, and as already stated the spit at AB is very narrow and low.

6. Mr. Taylor says no change is as yet perceptible; now so far is this from being the case, that, not only has the bar moved at least 100 yards north from its original cut in 1877 but the fact of its travelling is obvious to any one acquainted with the appearances caused by water on river banks &c; the spit at C being a well grown rounded knoll evidently not disturbed at all by water action that at D being undermined and cut away.

7. I cannot make out exactly where Mr. Taylor's mark on his plan may be, but I am certain from all I can gather that the further south the bar is kept the better, not only for the Flag

SP 10
Flag Staff but for the fishing village
E and for the trade in general. All
the boatmen pray that the bar may not
come further north and expose them to
the hardships they formerly had to endure
by the shoaling at FF. I am at a loss
to know what place it is that Mr. Taylor
has marked as the deepest water except
it be just at G, and this deepening
is caused by the tidal current from the
South which flows for the greater part
of the year and causes the action at D
above described; but this deepening
at G would occur relatively at any
site where the bar might be fixed
during the southern current, sand being
deposited as shown by the fan shaped
dots on the plan.

8. It is this tidal silting alone that
is complained of by the boatmen now,
and this has gradually accumulated since
1877 (or the cutting of the bar) simply because
we have had no floods in the river
since then.

9. I do not agree with Mr. Taylor's
groynes

606
"groynes or revetment" in para 4 for the
south side only; I should run out a
groynes at C if at all but I should revet
D very strongly this is the only way to
prevent the travelling north.

10. I certainly agree with Mr. Taylor
in the employment of a hand dredge
supposing such a machine being
workable to any moderate depth - to
clear the shoaling shown by the dotted
lines and to assist the scouring action
of the floods when they occur.

11. In his para 6 Mr. Taylor seems
to think that the opening of the Fort
St. David bar is an uncommon occur-
rence not within the memory of man,
whereas on the contrary it is the normal
condition of things in high floods, and
if not opened spontaneously by the flood,
it is cut by the villagers or Municipal
authorities, and the channel opposite the
town of Gundalore never suffers thereby
as will readily be seen from the maps;
the proper bed of the Gundalore river turns
down south; near Fort St. David and
from

from thence east to the sea it is one vast shallow and the Fort St. David bar merely relieves the Guddelam river of what may be called its surplus water in flood, the main volume flowing to the south in front of Buddalore, and directly the floods abate the Fort St. David bar closes; in fact it cannot be kept open.

12. The Guddelam drains 740 sq miles and the Paravanas 360, the latter draining as it does extensive rice plots & being formed by the surplusing of large tanks is more constant than the former, which, coming from high ground and bordered for some length by rising ground and hills is more of a mountain torrent; thus a sort of see-saw action is maintained which is further complicated by the tidal action.

13. What the harbour wants in my opinion is, annual floods and a bar fixed at CD or even further south. Distance is nothing to the boatmen compared to the inconvenience of rounding

rounding a corner over shoals, and they prefer the straight run from the Custom house to the bar. 606/10

14. I cannot understand what Mr. Taylor means by his last sentence in para 6 nor where the spot "in the deep water course of both rivers as at present constituted" is. The natural deep water course of both rivers is of anything further south of CD. the deepening at G and shoaling inside the harbour mouth being caused by tidal action.

15. My proposal was to prevent the floods more especially those of the Paravanas from breaking out north, by running a bank across F and continuing it and revetting it with piles & round GD fix the bar at CD. The Conservator, from whom Mr. Taylor imagines I got my ideas, formed a similar plan to mine only he had further protection for the fishing village E and also proposed a scheme for running a deep channel, hugging the groyne KK and extending this groyne & channel till

ML

2.10.80 h. 2284 W.
 7.10 -- 2266 Ch
 23.10 - 2445 W
 6.11 - 2454 Ch

St. C. 1393.
 From
 The Master Attendant,
 Admin. Department
Madras

To
 The Secretary to Government
 Public Works Department
Madras

No. 1981.
 Dated 1st March 1881.
 Recd. 5th

Vol. 3
 No. 1

Port of Puddalore. — Returning
 Correspondence relative
 to the same stating that
 a hand check is being
 constituted.

13.5.81
 12606 W of 9 March 81
 Ordered to be recorded
 118

§
 Marine Dept.
 L. G. & Co. with 1844
 14-3-81

1393.

Cobl. of 1881. ~~standing~~

PUBLIC WORKS.

To

Dated

Issued

By

S. O. 9 Mar 1881. No. 606 W.

No. 1357

Port of Cuddalore

Correspondence relative to

the — and the construction

of hand dredge, recorded