

- (1) Number of pages _____
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MADRAS RECORD OFFICE

Government of Madras

Public Works

DEPARTMENT

G.O. No.	1477	(W)	Press
B.P. No.			Mis.
Dated	14-6-		1876

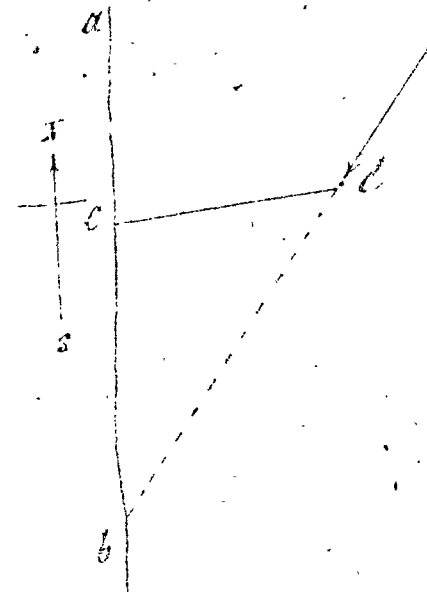
Not to be folded or roughly handled

*Proceedings of the Madras Government, Public Works Department,
14th June 1876.*

No. 234. Read the following letter from Lieutenant-Colonel R. F. OAKES, R.E.,
Superintending Engineer, Tanjore, to Major-General G. W. WALKER, R.E.,
Secretary to Government, Public Works Department, dated Tanjore, 24th
May 1876, No. 923:—

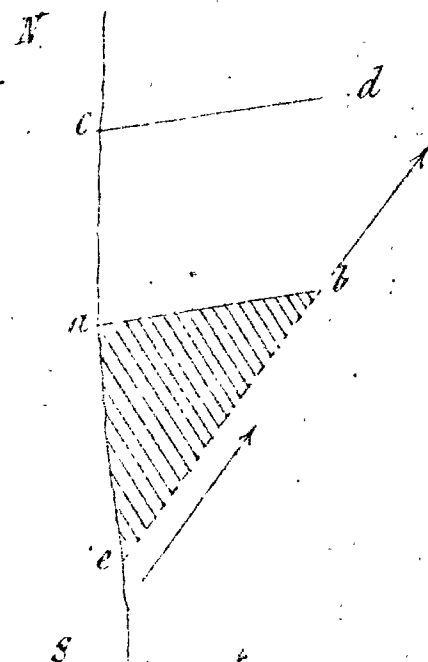
I HAVE the honor to inform you that I have learnt from the newspapers that
the sea is encroaching at Royapooram a little to the north of the groin which is
being constructed for the Harbour; from this occurring at this season, I presume there
has been a rough sea at Madras, but that it will occur during the north-east monsoon

is inevitable if measures are not taken to
protect the shore immediately north of the
groin: the reason is very simple; in the
north-east monsoon, supposing the arrow to
represent the direction of the current which
then sets diagonally on the shore, the
force of the current is sufficiently strong
in the direction of the arrow for the wave
to reach and spend its force at *b*, but as
soon as the groin or obstruction *dc* is met,
the direction of the current and of the
wave is diverted along the face of the groin
dc; and this line being much shorter than
db, action must be caused at *c* and the
shore be washed away, unless the unex-
pected force of the current and wave at
the point *c* meets with an obstacle against
which it may dash but which it cannot
remove; hence it will be necessary to protect



the shore immediately above or north of the groin which is to form the Harbour.

2. I have also learnt casually that the north arm to form the Harbour is being
thrown up first; in this I cannot but
think that an error is being made, for during
the south-west monsoon, or as soon as the
current changes and runs from the south,
as it does in April or May when what are
known as the "along shore winds" set in,
the direction of the sea current is away from
the shore, and when this current prevails
accumulations are invariably formed to
the south of any obstructions or groins as
indicated by *aeb*; and if the northern groin
is being thrown out first, the interior of
the Harbour will be filled up to a great
extent before the Harbour is completed;
while, had the southern groin been thrown
out first, the accumulations would have
been formed south of the Harbour and



Proceedings of the Madras Government, Public Works Department,
14th June 1876.

outside it, and it is possible that the southern arm would have so far protected what is to be the interior of the Harbour as to have prevented the formation of a shoal south of the northern arm when that arm was subsequently thrown out.

3. I may perhaps mention that my observations result from a careful study of the action of the sea on the shore in relation to the groins at Tranquebar during twenty years. I have observed that the shorter groins, the heads or extremities of which are met after the waves have broken, hold their own, i.e., that there is little or no cutting away on their upper or northern sides during the north-east monsoon beyond the established shore line; but that the longer groins which extend beyond the breaking of the wave, i.e., which meet the roller before the wave breaks, and which divert the wave as it rolls in towards the shore, are unable to protect the shore above or north of themselves, and artificial means of protection on that side is necessary to maintain what I term above the established shore line.

No. 235. ORDER THEREON, 14th June 1876, No. 1,477.

CIVIL WORKS, Nos. 36 & 37.

Lieutenant-Colonel Oakes is thanked for his communication.

(True Extract.)

Colonel,

Offg. Under Secy. to Govt., P.W.D.

To Lieutenant-Colonel Oakes, R.E.
To the Superintendent, Madras Harbour Works.
" Marine Department.

Exd. F. R. Bantleman.
Spare Copies

No. 923 Superintendent's Office
Tanjore 24th May 1876

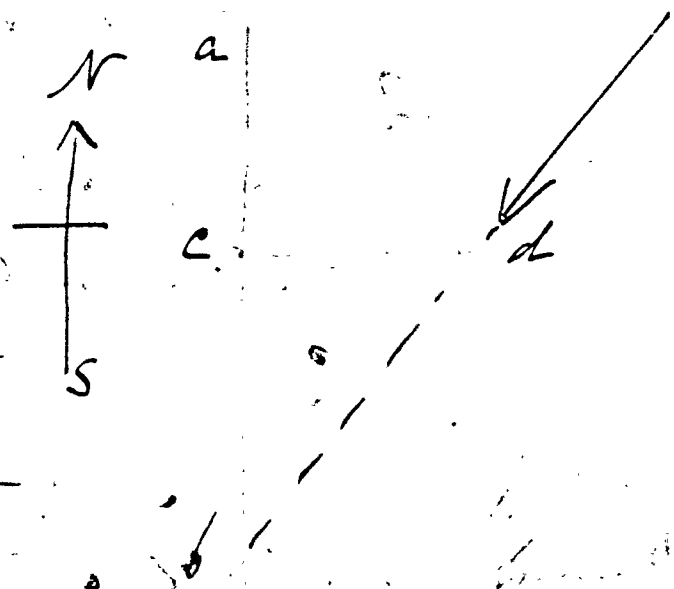
From
Lieut. Col. A. F. Oakes M.R.
Superintending Engineer Tanjore

To
Major General G. W. Walker M.R.
Secretary to Government P.W.D.

Sir,

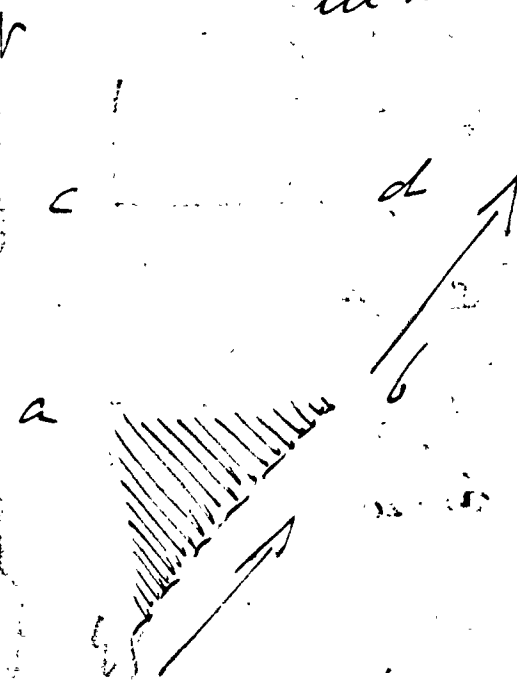
I have the honor to inform you that I have learnt from the news papers that the sea is en- croaching at Royapooram a little to the north of the groin which is being constructed for the Harbour; from this, occurring at this season I presume there has been a rough sea at Madras, but that it will occur during the North East Monsoon is inevitable. If measures are not taken to protect the shore immediately north of the groin the reason is very simple; in the North East Monsoon, supposing the

the arrow to represent the direction of the current which then sets diagonally on the shore, the force of the current is sufficiently strong in the direction of the arrow for the wave to reach and spend its force at b but as soon as the groin or obstruction dc is met the direction of the current and of the wave is diverted along the face of the groin dc and this line being much shorter than ab action must be caused at c and the shore be washed away unless the suspended force of the current and wave at the point c meets with an obstacle against which it may dash but which it cannot remove; hence it will be necessary to protect the shore immediately above or north of the groin which is to form the



Harbour

Harbour I have also learnt casually that the north arm to form the Harbour is being thrown up first; in this I cannot but think that an error is being made for, during the South West monsoon or as soon as the current changes and runs from the South, as it does in April or May when what are known as the 'along shore winds' set in, the direction of the sea current is away from the shore and when this current prevails accumulations are invariably formed to the South of any obstructions or groins as indicated by acb and if the northern groin is being thrown out first the interior of the harbour will be filled up to a great extent before the harbour is completed; while, had the Southern groin been thrown



thrown out first, the accumulations would have been formed south of the harbour and outside it and it is possible that the Southern arm would have so far protected what is to be the interior of the harbour as to have prevented the formation of a shoal south of the Northern arm when that arm was subsequently thrown out.

I may perhaps mention that my observations result from a careful study of the action of the sea on the shore in relation to the groins at Tranquebar during 20 years; I have observed that the shorter groins, the heads or extremities of which are met after the waves have broken, hold their own in that there is little or no cutting away on their upper or northern sides during the North East monsoon

beyond

at 271 W, beyond the established shore line but that the longer groins which extend beyond the breaking of the wave is which meet the roller before the wave breaks and which divert the wave as it rolls in towards the shore are unable to protect the shore above or north of themselves and artificial means of protection on that side is necessary to maintain what I term above the established shore line

I have the honor to be

Sir

Your most obedient servant

J. A. Keas
Lieut Col R.
Supr Engineer Bangalore

No 1477

Public Works Department.

PROCEEDINGS of the MADRAS GOVERNMENT.

UNDER date the 14th June 1876

Read the following:—

the Engrs. Engineer, } H.E. No 923 of 24 May 76
Tanjore - }

Lt. Col. Oakes
is thanked for his com-
munication. Experience
of the present monsoon
appears to show that
the current from the
South does fill in to
the South of the Pier that
has been thrown out;
but it causes erosion
of bank on the north
side. And it is pre-
sumed that a corres-
ponding contrary action
will be evidenced
when

12/6

The paper suggests a
trial simultaneous excavation
on both sides of the pier.

1876 Sept.
No: 2786

From
The Engrs. Engineer
Tanjore
to
The Secretary to
Government
No 923
Dated 24 May 76
Offering certain ob-
servations relative to
the present monsoon
in connection with
the Madras Harbour
works.

No 234

Ci. 6.6.76 P.W.D. 14.6.76

When the North East
Monsoon sets in.

[Faint, mostly illegible handwritten notes in the left margin]

Lt Col. Baker R.G. 7/10/17 given to Inuit to carry to
Supt. Mr. St. Wills 3 ✓ for Despatch
Marine Dept 7/17
Sept 28/17

W. x. attch

3786

~~3786~~

City of 1876: Madras.
PUBLIC WORKS.

To

Lieut Colonel Baker R.E.

Issued

Issued

Recd

204

G. O. 1876. No. 1477

No 234

But in No. 235
29-6-77

Lieut Col Baker. R.E.

Thanks for his communication, in offering certain observations relative to the groynes under construction in connection with the Madras Harbour Works