M.R.O. 1—77,006—8-6-37.

(1) Number of pages 26

(2) Date of repair 10-1-64

(3) Initials of the Referencer

22.1.64

MADRAS RECORD OFFICE.

Government of Madras.

Public works DEPARTMENT.

G.O. No. 3809 Press / Mis.

378-99

Dated 15-12 1882.

Not to be folded or roughly handled

I.

Proceedings of the Madras Government, Public Works Department, 15th December 1862.

No. 298. Read the following Endorsement of the Deputy Chief Engineer, Southern Circle, dated 24th November 1862, No. 153:—

Read the following letter from Captain G. M. PAYNE, Acting District Engineer of Madura, to Lieutenant-Colonel J. OUCHTERLONY, R. E., Deputy Chief Engineer, Southern Circle, dated Madura, 20th November 1862, No. 1,004.

SIR,

1. With reference to your Memorandum No. 113 of 6th October 1862, appended to Proceedings of Madras Government No. 2,342 of the 30th September 1862, I have the honor to forward herewith a special report on the Paumben Channel drawn up by Captain Hankin, the Officer superintending operations.

2. I beg to state that the copy of Report of Select Committee of the House of Commons will be returned to you as soon as received from Captain Hankin.

2 Reports from Captain Hankin, dated 18th October and 10th November 1862, with two enclosures.

Submitted to Government with reference to their Orders, Nos. 2,126 and 2,342, dated 5th and 30th September 1862.

(Signed.) J. OUCHTERLONY, Lieut.-Colonel, R. E.,
Deputy Chief Engineer, Southern Circle.

No. 299. ORDER THEREON, 15th December 1862, No. 3,007.

The Government will avail the reports and estimate called for in Proceedings dated 6th November 1862, No. 2,668.

(Signed.) W. I. BIRDWOOD, Colonel, R. E.,
Secretary to Government.

№ 48

Paumben 18th October 1862

From

The Officer Superintending Operations

Paumben

To

The District Engineer

Madura

Sir

I have the honor to acknowledge the receipt of your letter № 723 dated 6th Instant forwarding Extract Proceedings of the Deputy Chief Engineer Southern Circle № 108 dated 20th September 1862 calling for information as to the amount actually expended for deepening the Sand Bank Channel.

2 The sanctioned amount of this Estimate is Rupees 5,680 out of which amount Rupees 1114—0—7 has been expended as per margin

On this Year 1861-62 Rs	932—10—7	
Up to 30th Sept 1862 Rs	181—6——	
	1114—0—7	
Balance	4565—15—5	
	5,680—0—0	

On 1860-61 a Sum of Rupees 383—7—6 was spent on repairing the Steam Dredge and charged to this Estimate, but on the Estimate for the repair of the Dredge being sanctioned this sum was recovered to this heading and charged to the proper Estimates and billed accordingly.

3 This remaining sum will suffice for 9 Months working of the Steam Dredge, there remains 1,200 Rupees unexpended also out of this Year Maintenance Allowance for the Sand Bank Channel this sum will first be expended, and then the allotment of Rs 2980 in

× Returned

in this Year's Budget worked on - so that nothing -
additional will be required for this Years work -
especially as my proposal of employing the Hand
Dredge on the Angle of Reef Channel Estimate
has met with approval -

4 Should the information now supplied
will be considered sufficient I have not entered
more fully into the matter because the whole
subject will be again brought forward in the
report called for by you in your letter No 756
dated 11th October -

I have the honor to be
Your most Obt. Servant
Sir

Captain
Superintendent of Operations

To Lieutenant Colonel Pasley R.E.
&c &c &c

Sir

I have the honor to forward herewith
Report on the Paumben Channel with reference to what has been done, present state, and proposed improvement -

I am
Sir
Your most Obt. Servant

Captain
Superintendent of Operations

Dated 15th October 1862
Received
Chief Engineers Office
15/10/62

Lieutenant Spratley
Superintending the Paumben Channel
Ram Eswaram Channel

Report on the Paumben Channel with reference to what has been done, present state, and proposed improvement.

1 In 1837 when the work of improving the Paumben channel was first begun the channel was scarcely 5 feet deep, most tortuous and difficult, navigable only by the smallest dhonies since then up to April 1862 rupees 189,961 have been spent.

Report on the Paumben Channel from commencement

2 The present channels are two with a natural but intricate deep channel between; from the entrance to the channel in Palks Bay the sand stone reef has been excavated for a breadth of 80 feet to an average depth of 12 at low water; this channel is 4232 feet long, of this 2290 feet has now shingle at the bottom, the rest is rock, after passing through the Reef channel there is naturally deeper water till we get to the Sand Banks channel which for a length of 2100 feet is excavated to 12 feet at low water, this channel is 100 feet broad, beyond this to Roandookal point we have naturally

naturally a depth equal to the Sand Bank channel up to the gulf of Manaar

3 With the exception of just at the entrances where a few days dredging is required at the end of each Monsoon there is hardly any deposit in the Reef channel as the current is very strong. This current is dependent on the wind totally irrespective of the tides (these rise about 2 feet) from May till August it runs steadily from the south from November to January as steadily from the north a west wind increases the strength of the current from the south, an east wind has just the contrary effect, the current has been noted as much as 7 miles an hour, indeed it is not an unusual thing to see as many as 30 vessels detained at anchor at the north entrance of the channel in Palk's Bay for 2 or 3 weeks because from the strength of the south west Monsoon the current is too strong for them to warp through. However hard it blows from the south there is calm water at this north anchorage which is protected by the reef, while the contrary when it blows from the north the sea is often very high. The

the Sand Bank channel the current is not nearly so strong as above and sets across the channel which silts it up so fast that it is quite as much as our steam Dredge, and Hand Dredge worked by convicts can do to keep it at the already attained depth besides which banks are forming at each end.

4 The present trade through the channel is almost entirely from Negapatam to Colombo carried on mostly by square rigged vessels varying in size from 40 to 300 tons they make on an average allowing for detention, about one voyage each way per month, consequent however on rice having lately been brought from Calcutta and the northern ports of the Madras Presidency to Colombo the trade from Negapatam has decreased. 37 vessels alone have been taken this year off the line to go to Singapore very few vessels pass through the channel that are not bound to or from some Ceylon port.

5 As during the south west Monsoon there is so very heavy a sea on entering

entering from the Sand bank channel
the gulf of Manaar that no native
vessel will venture out with such a
lee shore as the Island of Paumben
present they all after passing the Sand
Bank channel turn down the passage
called the inner or Reelakurray channel
which is sheltered by the numerous
Islands - from Reelakurray they avail
themselves of the land and sea breezes
to beat up to opposite Trichendoor
whence they make a fair course to Colombo.
There are places in this channel with not
more than 12 feet at low water.

6 There has been three propositions
made for improving the Paumben pass to
make it available to ships and Steamers
drawing about 24 feet
I to improve the present channel
II to cut a channel through the mainland
at a spot where the sea made a breach
in 1814
III to make an entirely new cut through
the Island between Paumben and Rama
saram.

7 The land which would be taken
if the last scheme was adopted, here
belongs to the Ramnad Zemindarce not to
Government - However if this plan was determined
on as the least beset with difficulties the
best spot would seem to be in longitude
78 — 15 — 0 the length of cutting would be
three miles exactly through the Island
and we have 4 fathoms on the north
side 6 on the south side the reef which
runs through the Island would have to be
cut through it is about 100 yards across
its nature is hard sand stone, the rest
of the distance is loose sand and with
the exception of a few sand heaps the
height of the Island is about 20 feet
above high water mark, the breadth
required for the channel is a question
for naval men to decide but taking it
at 300 yards the least breadth mentioned
by Captain C Biden who in his letter
to Government dated 20th May 1859 says
the length and not breadth of the
vessels using the channel must decide
the width, and taking the depth of water
to be obtained at 30 feet we have as
follows for the cost of excavation alone.

$100 \times 300 \times 10$

Sand

sand stone @ 3 rupees ——————— 900,000

$5180 \times 300 \times$ (10 depth of water + height of land above

of soft sand @ 4 annas ——————— 6604500.

7504500

The sand is so loose that revetments would certainly be required to some height on both sides of the channel which would add very greatly to the expense.

From the experience we have of the present Sand bank Channel we may safely conclude that this new channel (all through soft sand) would require dredging for one yard deep at least every year this for three miles of length would give 158400 yards of sand to be removed, supposing a Dredge to be capable of removing 10,000 feet a day and calculating that it would be able to work for 100 days a year and the strength of the current would certainly not allow of more we should require 4 to 5 good Steam Dredges constantly at work and the annual cost of dredging the sand @ 1/4 a yard irrespective of all other repairs would be 39,800 rupees — the necessity of Dredges being constantly at work in the channel is also a reason for a good width being

given to allow ships to pass. 7

8 If this line in longitude 75–15 was adopted the set of the current would be from May till August steadily from the south from November to January as steadily from the north at other times it would be variable, and changing very rapidly, so that the channel must be broad enough to let a vessel swing if warping. A tug powerful enough to stem the strongest current (for there must be no risk of delay to vessels on this account as at present exists) would be required to take vessels through and in the south west monsoon to some few miles out into the gulf of Manaar to give them on offing will clear of the Island which would with that wind present a dead lee shore with often a very heavy sea on, the south west wind blowing home here with great violence.

9 The question as to whether large vessels would risk the intricate navigation of Palk's bay and supposing that accomplished how much time would be gained by pass-

passing through the channel are questions for naval men to decide but I think it is clear that to get any thing like a direct adequate return for the expenditure incurred the toll which would have to be demanded would be very high indeed, for a return of 5 per cent on the capital sum expended would alone require that we should receive as toll at least at the rate of £100 for every day in the year and this even would leave nothing for annual maintainance, at the present scale in which the charges increase in a ratio to the draught, a vessel drawing 24 feet would pay about £100 but I do not think we could under the most favorable circumstances expect one to pass through every day, moreover as it is quite certain that no native vessels would during the south west Monsoon use this new channel the sea in the gulf being much more than they would attempt, the trade from Negapatam to Colombo as at present carried on [illegible]

entirely decline or the present channels must also be kept up to enable native vessels to get into the Pedlakurray passage.

10 & vessels from Europe unless touching at a port in Ceylon would actually it is stated by naval men go out of their way by passing through this channel, whatever improvements may be carried out to the pass will chiefly if not entirely be for the benifit of the general coasting trade of India and of vessels between the ports in Ceylon and Calcutta or the northern ports of the Madras Presidency and for this purpose improvements to the present channel might it is submitted be with advantage carried out.

11 A large number of vessels of about 300 to 350 tons bring out coal, and then have to seek freight vessels from Australia since the telegraph has been established call at Galle for orders and in the event of their having to go to Calcutta would save at least 3 weeks in the north east Monsoon and by vessels coming from the north in the

the south west an eqiual saving would be effected, by deepening the present channel to 14 feet at low water wie should have 16 feet at high and then with a tug to enable vessels being able to get through in one tide vessels of 15 feet draught could use the passage this would take through the ordinary coasting steamers most of the largest sized vessels in ballast and vessels of about 300 to 350 tons as referred to above laden or partially go.

12 To affect this improvement no extension in length of the present reef channel would be necessary and of its total length the nature of the soil at the bottom is such that more than half can be worked on by Dredges for the rest blasting through the reef would be required, an extension of the present Sand bank channel for 4350 feet would be necessary but the soil being sand and mud the work would be easily done the total cost of the whole work is estimated at 70,000 rupees and it would be occupy 27 months, our present dredges

would have to be exchanged as they are incapable of working at the proposed increased depth

13 As native vessels found as they are and commanded by native tindals will certainly not return into the gulf of Manaar but continue to use the Pecalakurray passage which has not more water than the present Paumben channel we must look for the return on this proposed expenditure entirely to the coasting trade as carried on by Steamers, in vessels commanded by European or East Indians Masters, and vessels between Ceylon and the northern ports. If toll was charged at the present ascending scale for increasing draught a vessel drawing 15 feet would pay about rupees 9-4-- so that 52 vessels or one a week, and surely we could look for this number, would after deducting from the receipts rupees 1500 as the increased cost of maintaining the lengthened channel. yield 5 per cent on the capital sum expended -

Under the circumstances I have stated I would therefore in conclusion as I am called upon for an opinion on the subject generally beg with great deference to submit: Conclusion

I That although there would be no difficulties in making a channel through the Island capable of taking large Steamers &c.&c.&c. the expense would be so enormous that not the slightest hope of an adequate direct return could be entertained, that even supposing big ships willing to face the difficulties of the navigation of Palk's bay and the gulf of Manaar before reaching the channel on either side, the danger to a ship passing through the channel would at times be very great the movement she got through into the gulf, the south west wind blowing home at times with great violence and the Island presenting a dead lee shore.

II That at an outlay of about £7000 the present channels can be deepened sufficient to allow of vessels drawing 15 feet to pass through which would take most big ships in ballast, vessels of about 3 to 400 tons laden, or partially so, and the ordinary class of coasting steamers.

III That the returns we must expect will be from vessels and steamers between the Ceylon ports and northern ports of India as well as from coasting trade as now carried on in vessels that the passage round Ceylon.

IV That the ordinary trade viz from Negapatam to Colombo which is now nearly all that passes through the channel will not be benifited, because these vessels will not, found as they are, and under the native tindals, face the gulf of Manaar but will pass down the Ceylon passage the depth of which does not generally exceed the depths in our present channel.

J Rankine Captain

Superintending Paumben Channel works

Paumben

10th November 1862

General Statements of disbursements on account of Paumben channel from January 1837 to end of April 1862

Amount of expenditure in		1837	5527 | 2
Do	Do	1838	6949 | 2
Do	Do	1839	10860 | 2 | 10
Do	Do	1840	14585 | 13 | "
Do	Do	1841	13090 | 3 | 8
Do	Do	1842	6904 | 7 | 9
Do	Do	1843	6483 | 9 | 2
Do	Do	1844	7088 | 12 | 1
Do	Do	1845	4766 | 12 | 1
Do	Do	1846	5797 | 12 | 11
Do	Do	1847	9095 | 14 | "
Do	Do	1848	5893 | 12 | 2
Do	Do	1849	3433 | 8 | 10
Do	Do	1850	2904 | 4 | 1
Do	Do	1851	3545 | 1 | 6
Do	Do	1852	3943 | 8 | 4
Do	Do	1853	4195 | 11 | 0
Do	Do	1854	5481 | 5 | 6
Do	Do	1855	5153 | 5 | 10
Do	Do	1856	6323 | 15 | 1
Do	Do	1857	8029 | 15
Do	Do	1858	9721 | 43
Do	Do	1859	10173 | 14 | 10
Do	Do	1860	5656 | 85
Do	Do	1861	16189 | 85
Do	Do	1862	8195 | 13
Total rupees			189429

Pay of the officer and his Establishment not entered for many years no charge was entered in the accounts for convict labor

Paumben
10th November
1862

J Ranken Captain
Superintending Paumben channel works

To Port Walk 24 Jan 53

P.P.D.B.T.

Report on Paumben channel

B

General Summary of amounts of different descriptions that have passed through the Custom House Channel from 1st January 1840 to end of April 1862

From January to end of December	Bonds given	Bonds cancelled	Bonds in force	Value of Bonds	Remarks
1840				1421 70518 4407 6	The correct amounts of receipts of the years as near as can be known but the Custom House Books are not kept in such a manner as to show the exact amount of Bonds cancelled in each year
— 1841				1715 47335 6053 8	
— 1842				1853 86646 5415 6	
— 1843	2	1	1358	1659 98238 8082 4	
— 1844	2	2	2359	1159 39 9227 "	
— 1845				1111203 6950 3	
— 1846				113802 7112 10	
— 1847				122866 7666 4	
— 1848				118423 7401 7	
— 1849				137924 8512 1	
— 1850				146093 6848 19	
— 1851				134107 6239 2 9	
— 1852				148245 6948 15 9	
— 1853				152425 9526 9 "	
— 1854				137986 8617 14 "	
— 1855				162531 " " "	
From January 1856 to 31st December 1856				19199 4324 15 "	
From January 1857 to 31st December 1857			2330	17776 9609 3 9	
do 1857 to 1858			2382	187946 11328 2 9	
do 1858 to 1859			1849	138341 8515 10 3	
do 1859 to 1860			1914	146565 9724 7 3	
do 1860 to 1861			2447	204 997 13505 1 9	
do 1861 to 1862			2123	160 887 10744 4 3	
				Value of Bonds 1899 8123	

Examined Customs Long Room Channel 10th November 1862

Examined Customs Long Room Channel 10th November 1862

To Genl 24 Nov/62 No 153

P.W. 8052/62

District Engineer's Office
Madura 20th November 18

No. 1004.

From

The Acting District Engineer
of Madura

To

The Deputy Chief Engineer
Southern Circle

Sir,

With reference to your Memo
No. 113 of 6th October 1862 appended to
Proceedings of Madras Government
No. 2342 of the 30th September 1862,
I have the honor to forward herewith
a special report on the Paumben
Channel drawn up by Captain Hawk
the Officer Superintending Operations.

2. I beg to state that the copy of
Report of Select Committee of the Hou
of Commons will be returned to you
as soon as received from
Captain

Copy of letter No. 1004 dated 20th November 1862

To

The Deputy Chief Engineer
Southern Circle

Sir,

With reference to your Memo No. 113 of 6th October 1862 appended to Proceedings of Madras Government No. 2342 of the 30th September 1862, I have the honor to forward herewith a special report on the Paumben Channel drawn up by Captain Hawkshaw the Officer Superintending Operations.

2. I beg to state that the copy of Report of Select Committee of the House of Commons will be returned to you as soon as received from Captain Hawkshaw

I have &c
(Signed)
Lieutenant
Acting District Engineer

Captain Hankin.-

Have the
[illegible] of G. M. Payne Capt.
Dy. Ch. Engr. of Madras.

No. 153

Submitted to Government
with reference to their orders, No. 2126 & 2342
dated 30th September 1862.-

Southern Circle Office
Madras 24 Nov. 1862

Officiating Lt. Col. R.E.
Dy. Ch. Engr. Sou. C.

To

Colonel Lt. Birdwood R.E.
Secretary to Government Pub. D.
Chepauk.

Pro: 5th Despatches for Nos 107-108
" 8th ——— " ——— 538-539
" 6th of November ——— 125-126

P. W. 1862 Dispatch
Copy of Lre for Secy
from No. 3552
Lt Col. S. Anderson R.E.
Ca. Ch. Engr. Eire
To
Col. T. J. Bernard R.E.
Secy to Govt Phl.

No. 3097.

The Government will await the reports and Estimate called for in Proceedings dated 8th November 1862 No. 2668.

No. 153
Dated 24 Nov 1862
Rd 25th
Eire &c.
Lieut Col Robertson
Harbour Engr.
No 3007. 15th December. 4/2/71

Submits Copy of a letter from the Acting Harbour Engineer of Marina, forwarding a Report on Pedimbeu Channel drawn up by Captain Mantin United States Coast Survey of Report of Select Committee with the Minutes of Sowner received & Plan and order.

Chepauk
15th Decr 62

13 Copies.

To The Dpty Chief Engineer S. Circle. Disp. 16th

No. 298-299.

X. 87.

C. 4th Decr 1862 R.G.