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MADRAS RECORD OFFICE.

Government of Madras.

Public Works DEPARTMENT.

G.O. No. 2585.

Press
~~Mis.~~

Dated 21-11-

1872.

Not to be folded or roughly handled

No. 40. Read the following letter from the Superintending Engineer, 7th Division, to the Secretary to Government, Public Works Department, dated Camp at Ootacamund, 3rd July 1872, No. 67 :—

With reference to G. O. No. 2,396 of 20th September 1871, I have the honour to report that I have inspected the whole of the existing line of inland navigation between Cochin and Mangalore, as also the general line proposed for new channels to complete the water communication between the towns above noted. For easy reference I divide the line into sections, and report consecutively on each section, giving their approximate distances, etc., a rough estimate of the probable cost of the project, and I enclose a map showing the country through which the canal passes, etc., etc.

- 6 Sheet sections of survey of the proposed line of through inland navigation from Cochin to Mangalore.
- 3 Sheets of levels marked A, B, and C.
- 1 Rough estimate of Rupees 26,82,000 for completing the proposed line of navigation.
- 1 Estimate of Rupees 11,511 for temporary establishment for laying out inland navigation from Cochin to Mangalore.
- 1 Original letter No. 1,058-A of 8th June 1872, from the Collector of Malabar, with its enclosures.
- 1 Original letter No. 139 of 31st October 1860, from Captain (now Colonel) F. J. Moberly, with enclosure.

No. 1.—Section from Cochin to Tiroor Railway Station, *via* Ponany backwater, 77 miles.

No. 2.—From Ponany backwater to Calicut, 40 miles.

No. 3.—From Calicut to Budagherry, 33 miles.

No. 4.—From Budagherry to Cannanore, 33 miles.

No. 5.—From Cannanore to Hosdroog, 41 miles.

No. 6.—From Hosdroog to Mangalore, 41 miles.

SECTION No. 1.—Water communication between Cochin and the Tiroor Railway station has long existed, but has never apparently been systematically taken in hand and placed in an efficient state to allow of its maintenance grant maintaining it in such state; its general direction is good. From Cochin to Kodangalore fort the channel is deep and wide, and requires but little to be done to it beyond better defining its banks in a few places and concentrating the current so as to keep the channel free of the danger of silting; this portion of the channel connects the Cochin and Palliport backwaters. From Kodangalore fort to the Tiroor Railway Station, a distance of 56 miles, is sub-divided as follows :—

No. 1.—Sub-division from Kodangalore to Eddatooryty, 12 miles.

No. 2.—Eddatooryty to Chetwye, 14 miles.

No. 3.—Chetwye to Ponany, 20 miles.

No. 4.—Ponany to Kotye lock and Tiroor Railway Station, 10 miles.

No. 1 Sub-division, from Kodangalore fort to Eddatooryty, though having the appearance of being artificial the canal is simply a drainage channel widened out, and in some places attempts have been made to cut off bends and so forth; the whole of the line of canal requires deepening to 3 feet below dead low tide level. Beyond Eddatooryty, 14 miles from Kodangalore, a branch canal communicating with the town of Trichoor in the Cochin territory is maintained by that Government, and at an interview I lately had with the Dewan, that gentleman told me his Government was quite prepared to pay half the cost of the requisite work to place in proper working order so much of the main canal as runs along the

boundary of the Cochin State, i.e., 35 miles between the Cochin Harbour, and the Eddatooryty canal to Trichoor.

No. 2 *Sub-division* between Eddatooryty and Chetwye. The line of navigation requires but little to be done to it, being both deep and wide enough.

No. 3 *Sub-division* from Chetwye to Ponany. The canal again is simply the drainage channel of the country, widened and straightened and deepened for navigation purposes as in the case of the first sub-division; this sub-division, however, runs through a large tract of irrigated land, the banks of the canal never having been properly formed, and passing as it does frequently through jheels of some extent, and the surface of a good deal of the adjacent land being below high tide level; at Chowghaut near Chetwye and Velliangode near Ponany earthen dams are constructed across the canal immediately that the monsoon discharge of fresh water is overcome by the tides, so as to prevent the salt water at high tides flooding the low-lying lands and injuring the soil for cultivation. Some years ago the Collector of Malabar reported that if these dams, which are a source of considerable annoyance and hindrance to navigation, were not maintained, the cultivators would claim Rupees 1,18,300 as compensation for loss, etc.; from inquiries lately made at my instigation, the ryots do not appear to care for the fresh water stored between the dams for irrigation purposes; but maintain that without the dams their fields would be destroyed, and, therefore, steadily resist their removal, the question, however, is reduced to the mere exclusion of salt water from lands liable to be flooded at high tide, the Collector of Malabar, *vide* his letter marked A attached, is now prepared to allow the dams to be removed if this is guaranteed, which may safely be done, since the construction of good, sound side embankments to the canal, already much wanted for towing paths, will effect all that is required; and will in addition form excellent roads through a portion of the country frequently impassable during the monsoon; I have entered this work in my rough estimate, which includes the cost of constructing such masonry works as are required for the monsoon discharge into the canal (the only existing drainage outlet); the details of these masonry works, and the mode of closing them with cofferdams filled with clay, etc., similar to the plan adopted at the Yennamakal and Viatil dams, will be noted in the specification accompanying the final estimate.

In No. 4 *Sub-division* it will be necessary to define the channel in the backwater in several places, and dredge to the depth fixed, namely, 3 feet below low tide, various distances aggregating about a mile and a half, and a small quay (which would be great boon to the public) requires to be constructed at the Tiroor Railway Station.

SECTION No. 2.—From the Ponany backwater to Calicut a channel already exists as far as Tanoor; at the entrance to this channel at Kotye a new lock is required, the old one being narrow and next to useless; the channel simply requires widening, deepening, and clearing the whole way from the Kotye lock to Tanoor. Three and a half miles north of Tanoor the channel turns eastwards and runs below the Railway into what was formerly called the "Venjally lake," the dam of which some years ago was destroyed, it has been determined not again to construct it, and for the mere purposes of inland navigation such is unnecessary. The channel between the head of the Tanoor canal and the bed of the Venjally lake, about a

mile in length, was excavated by the late Mr. Conolly, Collector of Malabar, in order to complete the through communication by water from Cochin to Calicut; he unfortunately came upon a quick-sand and thus never was able to satisfactorily accomplish the work; in company with Mr. MacGregor, the present Collector, I inspected the line which we were dragged through in a canoe; at first sight the work of restoring the canal here appeared so hopeless that I examined the country for a new line of canal from Venjally towards Tiroor Railway station, and though a new line was easily found, there are many objections to it, the chief being that during the monsoon boats cannot pass under the Tiroor Railway bridge; I therefore recommend the whole channel excavated by Mr. Conolly be retained. I think it may be kept tolerably free for navigation by sheet piling it on each side to, say, 3 or 4 feet below the bed of the channel; the excavation has widened so considerably that the banks now appear to have taken a natural slope, and I believe further slipping of the banks need not be feared; the quick-sand is not more than 300 to 400 yards in length, and is some distance to the east of the Railway bridge; the cost of improving the whole of this sub-division to Calicut is included in the rough estimate. A natural channel from the bed of the lake connects it with the Kuddulhondy river, passing under the Keeranaloore bridge into the Kuddulhondy, and from thence to the Beypore and on to the Kullai river near Calicut.

This line of water communication by river and backwater, though quite navigable, is very tortuous and capable of much improvement; the rough estimate provides for all that is immediately wanted.

SECTION No. 3.—From Calicut to Buddagherry. From the Kullai river to the Poodiacherry sluice and lock is by backwater, both lock and sluice at the entrance of the Conolly canal require to be rebuilt; the Conolly canal connects the Poodiacherry with the Ellatoor backwater, the canal is very narrow and shallow and requires to be deepened and widened throughout its length. From Ellatoor to Pyolly and Buddagherry the line runs along the drainage of the country which in places requires to be deepened. The Pyolly backwater is connected with the Moorat river by a canal about one mile in length, locked at one end; the difference of level between the backwater and river in flood is stated at times to be as much as 12 feet; the lock demands considerable additions and alterations, and the channel to be widened in parts and deepened. The line of navigation from Moorat lock is continued for 8 miles by the Moorat river to the Buddagherry backwater, which runs 3 miles on to Buddagherry; the channel in the backwater requires to be marked out and deepened; at Buddagherry the present inland navigation ends.

SECTION No. 4.—The line of the proposed channel to be continued to Cannanore is marked in yellow on the sketch map herewith submitted. From Buddagherry backwater to the Kartikapully river, for about 4 miles, a new channel with an average cutting of 20 feet is required, from the canal junction with the Kartikapully to the Mahe river into which it empties itself, the river for about 3 miles requires to be widened and deepened; from the point of entry of the Mahe river to the Tellicherry new proposed cutting, distance about 4 miles, this river, a tidal stream, is deep and wide enough; from the Mahe river to the Tellicherry backwater, a distance of about 5 miles, a new cut will have to be made, the

average cutting being about 28 feet, *rile* section A. From the Tellicherry river good water communication by river and backwater exists for about 8 miles towards Cannanore; from the point shown on the survey in the Durmapatam backwater, the new canal will commence, connecting it first with the Eddakad river and then the Chowa river, and from thence to the Kakut river east of Cannanore, which river falls into the Belliapatam backwater; the total length of new canal in this section being about 15 miles. This is the most difficult and expensive portion of the whole line, as it is impossible to get round the high ground through which the canal must run; the rough sections of the ground marked B and C will give an idea of its levels.

SECTION No. 5.—From the Belliapatam backwater, with the exception of about a mile of cutting known as the Sultan's canal, the whole communication to Hosdroog is by backwaters and creeks therefrom; these creeks require straightening in places and deepening, and the Sultan's canal to be entirely re-constructed, while some cuttings are also necessary through long bends to make the navigation more easy; in the remaining portions there is both width and depth of water sufficient.

SECTION No. 6.—From Hosdroog to Mangalore. In 1860 Captain (now Colonel) F. J. Moberly submitted an estimate for constructing a canal from Hosdroog to Mangalore, his letter No. 138, dated 31st October 1860, gives all the information required in regard to this section; I therefore enclose it. His estimate amounts to Rupees 9,78,500, which, in my rough estimate, I have increased by Rupees 1,21,500 for masonry drainage works and bridges which he has omitted, and to cover the current rates of the district.

The estimates I submit are rough, but at the same time I think that, for rendering the existing inland navigation a really useful work, is very nearly correct; a bottom width of 24 feet of channel with a depth of 3 feet below low tide has been provided for throughout. If Government require correct plans, surveys, and estimates, etc., etc., to be submitted for the project, it will be necessary that a separate temporary establishment, as noted in the estimate attached, be sanctioned by Government to prepare them.

In conclusion, not being called upon to give any opinion in regard to the proposed extension of inland navigation on the West Coast, I merely advocate that early attention be paid to that which already exists, which for under two lakhs of Rupees can be put into thorough working order; much of this line runs through a densely-populated and wealthy country, and is a great railway feeder both north and south of the Madras Railway. Having no statistics of the traffic on the coast, the question of revenue likely to accrue from the canal is one I can only touch upon in reference to the mode of collection; tolls are expensive to maintain and cannot always be levied, frequently local traffic between the toll bars would exist and pass free; it therefore appears to be a better plan to tax every boat on the line according to tonnage.

It will be observed by reference to the rough estimate that the greatest outlay to complete a through canal occurs in the sections between Tellicherry and Belliapatam backwater and the section from Hosdroog to Mangalore, and that for the aggregate sum of Rupees 5,46,847. Through communication from Cochin to within

8 miles of Cannanore, in addition to placing the existing line beyond Cannanore in thorough order, can be accomplished. From Durmapatam to Cannanore and Belliapatam backwater, a first-class road already exists, and a new and excellent line of road has been traced from Cannanore to Mangalore (marked in dotted double lines on the sketch map); I have urged the necessity of completing this line to the Local Fund Board, as I deem it one of the most important works in the district. North of the Belliapatam backwater (where there is an excellent ferry with good approaches, etc.) there are but three bridges of any importance to be constructed, namely, that over the Toarty river at Poodoor, Cassergode river at Bevinja, and the Nettrawatty at Panemangalore, the construction of the last-named bridge would complete the through communication with Coorg *via* the Sumpagee ghaut, and would be of great service also to the traffic with Mysore *via* the Munzerabad ghaut; the cost of these bridges would probably amount to Rupees 2,00,000. Further, I beg to note that an excellent road already is open for traffic from the head of the navigation at Hosdroog to Mangalore. During the south-west monsoon, comparatively speaking but little inland traffic to the coast takes place, simply owing to man and beast not being able to stand exposure to the terrific rain that falls at this season throughout Canara, and not to the fact of the roads and the coast being closed; I therefore believe that, except in very rare cases, even if a coast canal existed, it would be as little used as the sea at this season.

A.

From the Collector of Malabar, to the Acting Superintending Engineer, 7th Division, dated Palghat, 8th June 1872, No. 1,058-A.

In reply to your letter of the 5th April 1872, No. 2, I have the honour to inform you that I have communicated with the Deputy Collector on the subject. I annex copies of my communication to him and of his reply.

2: You will observe that the ryots are not willing to assent to the removal of the dams, not being satisfied as to the efficacy of the measures proposed for ensuring the exclusion of salt water from the adjoining lands.

3. This, of course, is a matter of professional knowledge and experience, and I think that, in considering the future of this navigation line, it may be safely presumed that, on the banks being brought into thorough repair, the dams may be dispensed with.

4. The loss of irrigation is, I think, so small a matter that it need not be considered in the calculation. It is from excess of water in these places that losses chiefly occur.

Memorandum from the Collector, to the Deputy Collector, Ponany, dated Calicut, 11th April 1872, No. 648.

With reference to the letter of Colonel Farewell, copy of which is forwarded, the Deputy Collector is requested to make careful inquiries from the proprietors adjoining the canal, as to whether they would be satisfied, provided the banks are so repaired as to prevent any salt water from passing into fields.

2. Depositions should be taken. If this is the case, the bunds might then, it seems, be altogether dispensed with.

Proceedings of the Madras Government, Public Works Department,

From the Deputy Collector, to the Collector of Malabar, dated Ponany, 3rd June 1872, No. 84.

I HAVE the honour to acknowledge the receipt of your memorandum No. 648 of 11th April last, together with its enclosure regarding the removal of the dams on the Conolly canal.

2. On my recent tour to Chavagat, I fully explained, on the spot, Colonel Farewell's proposal as personally explained to me to several of the proprietors of lands adjoining the canal, all of whom expressed extreme reluctance to do away with the bunds.

3. They are not confident that, by raising the banks and providing them with masonry monsoon drainage outlet works, their cultivation, especially on low-lying lands, will be protected from the intrusion of salt water. They are under the strong conviction that the presence of salt water in the canal will prove injurious to cultivation.

4. As, however, the Department Public Works have already started with laying side walls, the result of the proposed measure would become soon evident to the ryots who could then be easily persuaded to consent to the removal of the dams.

5. I would here observe that the cultivators had the use of fresh water in a lake lying at about the 10th mile post, through which the canal was opened for their cultivation from time immemorial, as already stated in my letter dated 12th August 1870, No. 125, paragraph 2, and embodied with Government Order No. 944 of 29th May 1871. In its stead therefore something will, I think, have to be provided for them.

No. 41. ORDER THEREON, 4th November 1872, No. 2,585.

CIVIL WORKS, No. 3.

His Excellency the Governor in Council is glad to receive this very satisfactory report regarding the present

condition of the water communication between Cochin and Mangalore and the measures necessary for its improvement.

2. The officer in charge of the West Coast Canal will be instructed to concentrate his attention on the 3rd section of the Southern Canal between Chetwye and Ponany, and to prepare complete surveys, plans, and estimates for opening that section throughout to a minimum depth of 3 feet below low water-mark and a minimum bottom width of 7 yards with side embankments where required to keep the salt water out of the cultivation. A sum of Rupees 43,000 will be provisionally included in the Provincial Budget of 1873-74 for carrying out the work. The remaining portion of the Southern Canal and the whole of the Northern Canal should be planned and estimated for in succession.

(True Extract.)

(Signed) R. F. OAKES, Major, R.E.,
Acting Joint Secretary to Government.

To the Superintending Engineer, 7th Division.
 „ Consulting Engineer for Railways.
 „ Revenue Department.
 „ Controller of Public Works Accounts.

Exd. E. C. Shunker.

Inclosure 13.

6 Sheet pictures of scenery of
the proposed line of through
Island navigation from
Cochin to Mangalore -
3 Sheet hydrographic chart
A. B. & C.

1 Rough estimate of \$26,82,000
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1 Schoof R. 11544 for Trampo.
- ramp & salt water - for lay
- in out inland havi -
- gation from Cochin to
Mingalore -

1 Original letter W. 10582
of 5th June 1872 from the
Collector of Malabar with
its Enclosures -

1 Original letter 11/138 of
31st Oct/80 from (William
(Hors (Colonel) F.) probably
with Enclosure.

13

Travis,

The Superintendent Engineer,
7th Dec

The Secretary to Government,
St. Louis, Mo.

with reference to CO No 2396

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No 1 section from Cochin to Feroor
Railway Station via Panangy
Back water, 77 miles -

No 2. From Panangy Back water
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33 miles -

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No 1 Subdivision from Kodungalore
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Section No 2 - From the Penryn back water to Falcut, a channel already exists as far as Truro, at the entrance to this Channel at Kedge, a new lock is required, the old one being narrow and next to useless. The Channel simply requires widening, deepening and clearing the whole way from the Kedge lock to Truro. Three and a half miles north of Truro, the Channel turns eastwards and runs below the Railway into what was formerly called the "Vengally Lake", the dam of which ^{some}

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some years ago was destroyed, it has been determined to ^{be} again to construct it and for the purposes of inland navigation such is unnecessary. The Channel between the head of the Truro Canal and the head of the Vengally Lake, about a mile in length, was excavated by the late Mr Conolly. Collecting of Malabar, in order to complete the through communication by water from Cochin to Falcut, he unfortunately came upon a quick sand and thus never was able to satisfactorily accomplish the work, in company with Mr McGee, the present collector, I inspected the line which we were dragged through in a canoe, at first sight the work of restoring the Canal here appeared so hopeless that I examined the Country for a new line of Canal from Vengally ^{towards}

towards Iron Railway Station, and
though a new line was easily
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The line of navigation from Moorat lock is continued for 8 miles by the Moorat river to the Buddahery back water which runs three miles on to Buddahery, the channel in the back water requires to be marked out and deepened, at Buddahery the present inland navigation ends.

Section 11

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Section 6. From Huxedrag to
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routes of the District.

The Estimates I submit are rough but at the same time I think that for rendering the existing inland navigation, a really useful work, is very nearly correct, a bottom width of 24 feet of channel with a depth of 3 feet below low tide has been provided for throughout. If Government require correct Plans, Surveys and Estimates &c &c to be submitted for the project, it will be necessary that a separate temporary establishment, as noted in the Estimate attached, be sanctioned by Government to prepare them.

In conclusion not being called upon to give any opinion in regard to the proposed extension of inland navigation on the West Coast, I merely advocate that early attention be paid to that which already exists, which

which for under two lakhs of Rupees can be put into thorough working order, much of this line runs through a densely populated and wealthy country, and is a great Railway feeder, both north and south of the Madras Railway. Having no statistics of the traffic on the Coast, the question of Revenue likely to accrue from the Canal is one I can only touch upon in reference to the mode of collection, Tolls are expensive to maintain and cannot always be levied, frequently local traffic between the toll bars would exist and pass free, it therefore appears to be a better plan to tax every boat on the line according to tonnage.

It will be observed by reference to the rough Estimate that the greatest outlay to complete a through Canal occurs in

in the sections between Belliary
and Belliapattam back water
and the section from Hossdooz
to Mangalore - and that for the
aggregate sum of Rs 54,684/-
Thorough Communication from
Cochin to within 8 miles of Cannanore
of road, in addition to placing the
of existing line beyond Cannanore
in thorough order, can be accom-
plished. From Durnapattam to
Cannanore and Belliapattam
back water, a first-class road
already exists and a new & ex-
cellent line of road has been
traced from Cannanore to
Mangalore (marked in dotted
double lines on the sketch map).
I have urged the necessity of com-
pleting this line to the Local Fund
Board, and deem it one of the
most important works in the
District.

District, north of the Belliapattam
back water where there is an ex-
cellent ferry with good approaches
& there are but three bridges
of any importance to be constructed,
viz, that over the Toaty river
at Poodoor, Cussergode river
at Branga and the Pertrawatty
at Panemangalore, the construction
of the last named bridge would
complete the thorough communica-
tion with Coorg via the Sempaga
Ghaut, and would be of great
service also to the traffic with
Mysore via the Mungerabad Ghaut,
the cost of these bridges would
probably amount to Rs 2,00,000-
Further I beg to note that an
excellent road already is open
for traffic from the head of the
navigation at Hossdooz to Manga-
lore, during the south west mon-
soon comparatively speaking but

but little inland traffic to the
Coast takes place, simply owing
to man & beast not being able
to stand exposure to the terrific
rain that falls at this season
throughout Canada, and not to
the fact of the roads and the Coast
being closed, I therefore believe
that except in very rare cases
even if a coast canal existed,
it would be as little used as
the sea at this season.

Have the honor to be,

Sir,

Your most obedt servant.

Wm. L. L. L.

Off's Supy. Div. 7/2/90

The Superscription
To the Secretary to Govt.
D. W. Hudson

Dated 3^d }
Received 22^d } July 12th 72
October 72

No 67
Enclosed 14

Reports on the
subject of inland
navigation from London
to Maastricht with
reference to Govt. 2376
of 20th Sept 1871.

No 2585. 4^o Nov/72.

Beitrag zum 22. Bd. 172

[illegible]

Memorandum by Chief Engineer
Department Public Works.

In a letter printed with G.O. No. 1218 of 11th May, the Governor General in Council decided that Plans and Surveys of an extension of the South Western Line of Railway from Bangalore to Calicut, a Railway to connect the branches with proposed by the Govt. of Madras, should be laid before him, with proposals to improve the line of water communication which can be done at a cost and probable earnings, necessary for the project.

made up its mind that the proposed extension of Railway along the Western frontier is desirable - that it has more than one (as is the title of the Govt) applied to the Govt of India for the necessary authority to construct them - and that the Govt of India now only waiting for the surveys and estimates which it required of the Govt to decide whether it will or will not accept. If therefore this Govt has now changed its mind, it is not the Govt of India who have done so, only as the Govt of India and mature reflection, and the Govt of India will have to be clearly understood with fully explained in the Govt of India.

steps for preparation of such papers being taken, if they did not already exist. But survey beyond Calicut to Cannanore was altogether discontinued.

(Amth Funnell's report of Aug 3rd July should be put up.)

A.A.

2. In another letter printed with the same order the Government of India called for comparative estimates of the cost of a complete Railway on both the ordinary and metre gauges, from Puthambay on the South Western Line to Cochin; Mr. Sims advocacy of an ordinary gauge line being supported by them against

* only small that measure
 * Cochin and Calicut
 * and to Calicut will
 the work from Calicut
 to Cochin

* but afterwards opposed by the Govt. of India in the Foreign Dept.
 not yet settled. They

A.A.

the narrow gauge line preferred by Lord Napier.

3. In reply to the requisitions of the Consulting Engineer for Railways for preparation of the Survey Plans and estimates called for by the Govt. of India, the Agent and Manager of the South Western line has stated that without the orders of his Board he would be quite unqualified in instructing any of the officers of the Company to devote their time and labor to the survey &c.

"of lines which it is pro-
posed shall be ultimately
constructed by the State,
as such duties cannot
be considered to come
in any way within the
province of a servant
of the Madras Railway
Company." Adding that
he had written by the
Mail of the 18th May to
obtain the orders of his
Board.

4. In laying the
correspondence in ques-
tion before the Governor
General in Council,
the Chief Engineer
would propose that
all existing information
as to the probable cost
of Railway extensions

to Calicut northward,
and to Cochin southward,
be forwarded for infor-
-mation, together with
the latest and most
complete estimates that
have yet been made
for improving the ex-
-isting Canal commu-
-nication between these
two places, and ex-
-tending it onwards
to Cannanore and
Mangalore. Such
estimates having been
compiled by Lieutenant
Colonel Farewell, Su-
-perintending Engineer
of the Division and

reported on in his letter
No. 67 of 3rd July here.
with submitted.

5. In a letter from ^{Asst of Railways}
the Acting Agent of the ^{from Mysore to Calicut}
Madras Railway, printed
with G. O. No. 382 of
7th February 1867, the
estimate for extension
from Mysore to Calicut
is thus set down viz

Mysore River Bridge.	Rs. 3,35,200	The river
Kalai do do	" 66,000	might be
7 miles of line at Rs 60,000 -	" 4,20,000	bridge high
Terminal Station.	" 2,60,000	or low.
Total Rs 10,81,200		

The anticipated returns
being only 1 1/2 per cent
on such outlay, and
the conclusion arrived
at by the Agent that

the success of a line starting
of Mysore would be
contingent on exten-
sion to Cannanore.

6. In letters printed
with G. O. No. 3009 of
23rd September 1868 the
probable cost of a
Railway 60 miles in
length between Put-
tambay and Erna-
collum, near Cochin,
was estimated from
a careful trial sur-
vey, at Rs. 1,05,000
per mile. Total Rs
63,00,000 - as against
Rs 45,50,000 roughly
estimated as the pro-
bable cost of the same
length of line taken off
from Shoranur Station.

and utilizing the bridge
expressly built there
by the Cochin Govt.
to facilitate Railway
extension. (see corres-
pondence with G. O.
No. 1142 of 13 April 1867).

The final result of the
investigations made
being a declaration
by the Agent of the Madras
Railway in letter
printed with G. O. No.
240 of 26 January 1867,
that there can be no
"doubt that any ex-
tension of the South
West Line, either from
Shoranur or Puttambay
towards Cochin, would
have a damaging effect
upon

upon that portion of
the line between the
Junction and existing
terminus Belpore.

7. The plain conclusion
to be drawn from which,
and the statement recorded
in the former para con-
firmed with the attitude
now assumed by the
Agent of the Madras
Railway, is, in Colonel
Walker's opinion, that
the Agency of the State
Railway Department
should be called in
for all future extensions
North or South of the
South West Line whether
for preliminary surveys
and estimates, or for

execution of the works;
should any further
steps whatever be deter-
mined on.

8. From the Report
now submitted by
Lieut. Col. Farewell
and illustrated by
6 sets of Drawings, it
appears that the ex-
isting water commu-
nication between

Cochin and Calicut
can be put into an
efficient state for the
following sums viz.
Sroor Railway Station
southwards to Cochin

47 miles Rupees 84,000

Kutai Lock, near Sroor
Station, northwards
to Calicut Rupees - 37,676

Total Rs 1,21,676

British India
Cochin to Calicut

of these 2 sections of Coast
Canal, which (be it
remembered.) are in
continuation of an
existing line of Back-
waters from Ire-
vandrum northwards
a distance of about 125
miles, the following
details are given by
Lieut. Col. Farewell;
which are quite borne
out by the Chief
Engineer's personal
knowledge of the country
from 1863 to 1870 viz
Southern Canals

1st Sub Division - Cochin to Kodungaloor
11 miles of natural back-
water, wider and deeper

requiring little but de-
finition of bank Co.
Rupees 3,000.

2nd Sub Division

Kodanzaloor to Eddatooty
and Chettiyal - 26 miles
of natural creek and
backwater partially
widened and improved,
requiring to be brought
to a minimum depth
of 3 feet at Low water
Rupees 30,000 -

3rd Sub Division

Chettiyal to Ponany.
20 miles, of which, from
12 to 15 miles are artificial
canal of very insufficient
width and depth, cut
through a drainage
level of wet cultivation
which

(Chettiyal)

which requires protection
from saltwater by side
embankments, with
masonry sluices. The
cost of which and of
widening and deepen-
ing where required is
put down at Rs 43,000.

4th Sub Division Ponany to Troor
Railway Station.

10 miles of natural
backwater and creek
requiring to be deepened
in a few places, and
a wharf at Troor.
Rupees 8,000.

Total Rupees 84,000.

Northern Canal.

Kotye Lock, by Tanoor
canal, crossing -

under Railway bridge
to Tenjally Lake, thence
by Kuddalhoody
River and creek
connecting the Beypore
and Kalai Rivers
to Calicut. 40 miles,
the chief work on
which consists of
improvements to the
Sagoor Canal, and
its connection with
the Tenjally Lake.
Total of Northern Canal
Rupees. 37,676.

117 miles, aggregate of
both Canals, Rs 1,21,676.
making an average
of Rs 1040 per mile.

9. The general description given in
pages 22 to 25 of

Mr Robertson's Harbour
Report will enable
the Government of
India to realize in
some measure the
existing state of the
water communica-
tion from Tiror
Railway Station
southwards to Cochin
and how it is that
so small a sum of
money as Rs 84,000
could render the whole
47 miles perfectly
efficient for the present
means of transit, viz
cargo and cabin boats
of less than 3 feet
draught. He speaks
of the Tiror backwater

as a fine deep creek 72
miles in length with
100 feet least width
and of the last 16 miles
from Pallipont to
Bochin that "there
"is excellent clear sail-
"ing along the back
"water which appears
to require no improvement."
So it is with many
other portions of the
natural creeks and
backwaters, so that
most of the work
to be done will be
concentrated on im-
provements to the
artificial part of the
communication.

10. The Chief Engineer

has accordingly the
honor to recommend
that the newly ap-
-pointed West Coast
Canal Officer be in
the first instance
instructed to con-
-centrate his attention
on Side Division No. 3,
from Chetuz to Ponnay
and to prepare com-
-plete surveys plans
and estimates for
opening that portion
throughout a mini-
-mum depth of 3
feet below low water
marks and mini-
-mum bottom width
of 7 yards with side

a embarkment where
required to keep the
salt water out of the
cultivation. And
that the permission
of the Supreme Govt
"he obtained for the
entry of the sum of
Rs 43,000 in the
Budget of 1873/74 for
carrying out the
work. The remaining
portion of the southern
Canal, and the whole
northern Canal to be
taken up in suc-
cession, as planned
and estimated for.
Eventually there is
little doubt, in Colonel
Walker's opinion, but

16
that it will be found
expedient to further
improve the whole
southern Canal, and
that portion of the
northern between
Beylore and Calicut
for steam navigation
in supercession of
any Railway extensions.

Cost of Canal Extension
from Calicut to
Tolliver, ...
... & ...

11. The remainder of
Lieut. Col. Farewell's
papers relate to com-
-pletion of water com-
-munication between
Calicut and Bangalore
a distance of 148 miles
divided as follows, viz
1st Section - Calicut
to Buddagherry -
33 miles of existing

Canal, River, and
backwater, to be
improved. Rs 48,000

2nd Section Buddagerry
to Inake, Tellicherry,
Cannanore and Bi-
lipatam Backwaters.

33 miles, of which 24
are new cuts, involving
heavy cutting and
tunnelling, as shown
by longitudinal sections
A. B. C. Rs 13,84,324.

3rd Section Bilipatam
to Hosdurg 41 miles
of natural commu-
nication of good quality,
with one mile only
of artificial cutting.
Rupees 28,000.

4th Section Hosdurg
to Mangalore
41 miles of entirely
new Canal, through
difficult country,
involving heavy rock
cuttings or tunnels,
and also much work
in sandy soil -

estimated at Rs 11,00,000

Total extension north
of Calicut, Rs 25,60,324

17th July 1872.

G. Mather Esq. P.E.
Chief Engineer
D.P.W.

I passed the first draft
as being in effect as here
It is an introduction to the
Sublime pt. of our in-

ten times of making this
canal a "hamp" - was un-
der in a position to think of
it more at present.

JOS

U. 1/1
13

2585. P.M.D.

16

No. of the Madras Govt.

2585

Read the following

from the Superint. of the (H.E. No. 73 July 72)

His Excellency the
Governor in Council
is glad to receive this
very ^{substantive} complete report
regarding the present
condition of the water
communication be-
tween Cochin and
Mangalore and the
measures necessary
for its improvement.

JOS

H

2. The Officer in charge
of the West Coast Canal

will be instructed
to concentrate his
attention on the 3^d
section of the southern
Canal, between Chetumal
and Puany, and to pre-
pare complete sur-
veys, plans and
estimates for opening
that section throughout
to a minimum depth
of 3 feet below low
water mark and a
minimum bottom
width of 7 yards
with side embank-
ments, where required
to keep the salt water
out of the cultivation.
A sum of Rs 43,000

will be provisionally
included in the Pro-
vincial Budget ^{of 1873-74}
for carrying out the
work. The remaining
portion of the southern
Canal; and the whole
of the northern Canal
should be planned
and estimated for
in succession.

Better sent
I think to
H.C.

3. There is reason to
believe that even-
tually it will be
found expedient
to further improve
the whole southern
Canal, and the portion
of the northern between

Benpore and Calicut
for steam navigation
GMR

Benpore and Calicut

for steam navigation

Review of the

27/1/12 to the

5

Benpore and Calicut

for steam navigation

Review of the

27/1/12 to the

Benpore and Calicut

Port Coast Canal

29.7.4015
214.4191

C/5755
Govt. of 1872 Madras.
PUBLIC WORKS.

To The Superintending
Eng^{rs} Division

Notes

Recd.

Encl.

G O 4th Nov 1872, No 2585.

Nos. 40 & 41

N 40 with North Channel

to Communication be-
tween Cochin & Mangalore.

Recd. orders in letter
from the Supt. of the
S. R. R. reporting on the
subject.

Could not com-
municated be
opened in the
the Kuttippuram
Station on Mr. R.?

No. I think not.
The Ponnani River
is not in order, and
will be closed until
the Tiveri River is in
order.