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MADRAS RECORD OFFICE

Government of Madras

Public Works

DEPARTMENT

G.O. No.	1670	Press	<i>Original</i>
B.P. No.		MIS	
Dated	3. 7.	195	1876

Not to be folded or roughly handled

No 14. 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, 30th May 1876, No. 964 :—

I HAVE the honor to inform you that in February last, I inspected the Vedarniem canal, and having learnt that a survey of the canal had been made and sections taken under G O, * No. 99, of 19th May 1874, Letter No 682, of 10th March 1875, and one plan sent separately

* Public Works Department I thought there would be no difficulty in determining what should be done to improve the canal as suggested in the Collector's letter embodied in G O, † No. 142-A, of

† Public Works Department 18th September 1873, from the information thus acquired. On examining the plan, however, I was not a little surprised to find that beyond giving the mere outline of the canal and banks no information whatever was afforded by the plan relative to the land which appertains to the canal, and even existing syphon sluices had been omitted, due, it is supposed, to the fact that the syphon sluices were not visible from between the banks

2 On examining the sections I found that the mean sea level was in some sections shown to be below bed level, and in some above high tide level, and in others in every intermediate stage between those levels; and on further examination I found that every section had been plotted from a datum 25 feet below the level of the point from which the cross section was taken, utterly regardless of the relative levels of these points, and the mean sea level was marked throughout at 6 64 below these points. Judging from Mr. Leggatt's letter, No 682, of 10th March 1875, which I have since discovered in the office, it appears that this method of plotting the cross sections was approved, if not suggested by him. Having discovered the absurdity of the error made, I endeavoured to rectify matters by having the cross sections plotted properly from the actual level of the starting point as shown in the horizontal section, but here again I found the mean sea level occupying impossible positions relative to H W.L., and so I resolved to have the datum of mean sea level checked, and found that an error of 2 24 had been made in fixing the level of the starting point from the mean sea level, obtained from the Railway Department, and this in a distance of from 3 to 400 yards. I then

‡ Crown of jetty at Negapatam.

had the mean sea level put in at 4 4 instead of 6 64 below the starting point‡

but with equally unhappy results; whereupon I came to the conclusion that the whole of the levels were utterly untrustworthy, and that they are so I am no longer surprised, for Mr. Phillips, the Surveyor, engaged upon the work, has lately been Municipal Overseer at Tanjore, and, in taking some levels for me in connection with Municipal work, I found he was only 17 feet out in a mile, the fact is, he has not the smallest idea of levelling, and should not have been employed, having been previously found to be utterly inefficient on the Coleroon survey on which he was employed for a very short time under Lieutenant Romilly.

3. As it is difficult to conceive that under the actual state of things Mr Phillips should have been recommended for a gratuity of an extra month's pay which he has received under G O., No 76, of 11th May 1875, I forward the plan and sections of the canal which I beg may be returned.

*Proceedings of the Madras Government, Public Works Department,
3rd July 1876. No. 1,670.*

4. On discovering that the section was utterly useless, I purposed to employ Mr Assistant Engineer Paul in taking cross sections and a line of levels down the canal, and this work he may be permitted to undertake on Lieutenant Romilly's return from privilege leave early in August, he is now in temporary charge of No. 3 Range. The work would occupy him about a month, and could be carried out with the aid of four Lascars in addition to his special establishment at a cost of Rupees 24. As benchmarks have been fixed, it could be well to know their value, but I am of opinion that no survey or levels of the canal were necessary for the preparation of an estimate for improving the existing canal.

5. The canal consists of a few artificial links connecting existing rivers, portions of which it follows, and for a great portion of its length the canal follows existing drainage channels, and being connected with the sea at three different points, there are two well-defined points at which the tides coming up the different streams meet, and the water level being influenced by the inland drainage and by the freshes during the monsoons, there are certain limits within which these waters will meet, and within such limits accumulations or deposits must take place, and these must from time to time be removed so as to maintain the minimum depth of water at low tide at such points. Under the circumstances represented, it is clear that the canal bed is not required to be maintained at a uniform level, all that is required is to maintain 3 feet of water at low tide, and this may be estimated for entirely independently of a survey and levels and with reference to low water only.

6. The depth of water in the various portions of the canal at L. W. in February were as follows:—

Distance Miles	River or Channel	Depth	Remarks
2½	Cuddavayaur river	..	Deep stream, a straight cut made upwards of 20 years ago
2½ to 6	Artificial new cut to Velliyaur	1 2" to 2 9"	Deep water
3½ to 5½		1 2" to 1 9"	
6½ to 8	Velliyaur river	2 3" to 3	Old drainage channel
8 to 8½	New cut to Korangunny	2 3" to 3 1"	
8½ to 10	Ramanaden Voikal	2 6" to 3	Do do
10 to 12½	Paupan Voikal	2 6" to 3 2	
12½ to 16½	Kodichittiyaur	2 5" to 3	Broad deep river, a drainage from Topethoray to Vedaram
16½ to 20½	Adapaur	2 7" to 3	
20½ to 32	New cut	2 9" to 3 6"	Extension in 1875, executed very satisfactorily by Salt Department
32 to 35	New cut		

7. From the above table it will be observed that in the artificial cut between the Cuddavayaur and Velliyaur in the limits within which the tidal and flood waters

*Proceedings of the Madras Government, Public Works Department,
3rd July 1876. No. 1,670*

meet, the canal is very shallow, but elsewhere the guaranteed depth (if it may be so called) of 3 feet at tidal L. W. is fairly maintained, this, however, is done with great difficulty in the link south of the Adapaur, though the side slope are not less than 6 to 1.

8. It was hoped that the artificial link between the Cuddavayaur and Velliyaur would have become enlarged by the flood waters during the monsoons, as the Cuddavayaur straight cut or the first 2½ miles of the canal have become, but hitherto there has been no action in this respect, between where the artificial cut enters a part of the old course of the Velliyaur and the river itself, the channel is shallow, because the waters are not sufficiently confined and concentrated, but this may be remedied by narrowing the channel.

9. As will be observed from the sections, the narrowest part of the canal is that through the Ramanaden channel, but here a good navigable section is maintained, as the sides stand almost vertically consisting of stiff clay; if anywhere, here is where widening is chiefly required, but it could be carried out only at a great cost, for there is no margin within the artificial banks and wet cultivation, or a channel hugs the outer foot of the banks.

10. I would suggest that the artificial cut between the Velliyaur and Cuddavayaur should be cleared next year, the canal being closed for the purpose from 2½ to 6 miles. 1st March to 31st May, the cost of clearing would be about Rupees 7,000, and while the canal was closed, two more syphon sluices might be built as indicated in pencil in the 11th and 13th miles for the improvement of the drainage on the west and of the supply on the east of the canal.

11. In order, however, to obviate the necessity of constantly closing the canal for repair, I would suggest that either a steam or two hand-dredgers should be obtained for maintaining the canal. Messrs Hunter and English of Bow, London, could, it appears, supply a ten horse steam-dredger capable of lifting 50 tons of sand and sludge per hour for £2,400, or if made with a non-condensing engine for £2,200 (including punt to support shoot spout), or a hand-dredger to lift 10 or 12 tons of sand and sludge per hour with handles for twenty-four men for £160, or with upper tumbler high enough to deliver the material excavated into a spout with punt, &c, for £700. The steam-dredger would be the more satisfactory, though the more costly, and could be worked, it is believed, with a maintenance allotment of about Rupees 10,000 per annum; the sum now expended on maintenance is Rupees 5,000; but, if the canal is not to be periodically closed and large extra sums expended from time to time on particular portions of the canal, the maintenance allowance must be doubled.

12. It is proposed to cut off the bend in the Adapaur, in which the 5th mile is marked by a straight cut, as boats are often detained in that reach for a tide or even for a day, as there is no towing path along the margin of the river. It ought to have been possible to have laid out this cut from Mr. Philip's survey, but the bend has been again surveyed and levels have been taken for the new cut, and the estimate for it will shortly be submitted.

*Proceedings of the Madras Government, Public Works Department,
3rd July 1876. No. 1,670.*

From W. B. LEGGATT, Esq., A.I.C.E., Executive Engineer, No. 4 Range, Negapatam, to
Lieutenant Colonel R. F. OAKES, R.E., Superintending Engineer, Tanjore, dated
Negapatam, 10th March 1875, No. 652

I have the honor to inform you that I have this day despatched by train to your address

- 1 Survey plan sent separate
- 1 Railway receipt.
- 1 List of bench-marks

a tin case containing the survey plan, &c., of
the Vadarniem canal, and I beg to enclose
herewith the railway receipt, together with a list

of bench-marks fixed in connection with the levels taken

2 I have to explain that, as we were not aware what the mean sea level here was when
the levels were taken, they were reduced to an assumed data of 25 feet below the first bench-
mark on the jetty at Negapatam, where the levels were started from

3 After the sections were plotted, however, to the assumed datum line, and the whole
work completed, a list of bench-marks, in reference to mean sea level as fixed by the Railway
Engineers, was furnished to this office, and you will observe how I have shown this mean sea
level line on the sections in the plan. It was the only thing to be done, for otherwise to draw
the sections over again would only be waste of time and money

4 In consideration of this extra work and of the reasons given in my letters as per
Letters, Nos 485 and 487, of the 7th and 16th Novem- margin,* I beg you will kindly apply to the
ber 1874 respectively Chief Engineer for Irrigation to pass to the
establishment concerned one month's pay as
per margin beyond that estimated for

1 Surveyor 25
1 Draftsman 75
... .. 40

No 15

ORDER THEREON, 3rd July 1876, No. 1,670

CIVIL WORKS, No 1.

His Excellency the Governor in
Council has read with much interest this
practical paper in which Lieutenant-
Colonel Oakes has given a clear description

of the nature and condition of the Vadarniem canal. He regrets to learn that these
surveys, for which an estimate of Rupees
1,280 was sanctioned in G.O., No. 521,
of 1st May 1874, and an additional payment of Rupees 110 made by Order No. 76, of
11th May 1875, on recommendation of Mr Leggatt, are very imperfect as to plan, and
incorrect, and therefore useless as to relative levels. They appear to have been
prepared by Mr Phillips, a Surveyor, working under the orders of Mr. W. B. Leggatt,
Executive Engineer, 2nd Grade, who was in charge of the Negapatam Range from
July 1874 to April 1875. Mr. Leggatt failed either to instruct the Surveyor as to the
details necessary to make his work intelligible and useful, to check it while in progress,
or to detect its manifold imperfections after completion, although from his letter of
10th March 1875, submitting the papers that he at least pretended to have examined it
Mr Leggatt will be called upon for an immediate explanation of the part he has taken
in the matter, and to show cause why he should not refund the bonus granted for
bad work on his recommendation. The further employment of Mr. Phillips on any
survey or other work connected with the Public Works Department is hereby prohibited.
Lieutenant-Colonel Oakes has not explained how Mr Phillips, having been turned off
the Coleroon survey for incompetence, was re-employed on survey work in another
range of the same district. The District Engineer of Tanjore is directed to forward
the necessary explanation.

*Proceedings of the Madras Government, Public Works Department,
3rd July 1876. No. 1,670.*

2 The canal for the first $2\frac{1}{4}$ miles of its course from north to south is a portion
of the Cuddaviyaur river, a straight and deep stream which an artificial cut* of
4 miles then connects with Vellyyaur river, another deep stream, whose course is followed
for $2\frac{1}{4}$ miles. A similar cut of $1\frac{1}{2}$ miles leads into a series of three old drainage chan-
nels $2\frac{1}{2}$ to 3 feet in depth, whose course is followed for a distance of $10\frac{1}{4}$ miles, to
the Adapaur river navigation of $8\frac{1}{4}$ miles; at the end of which occur two new cuts to
and beyond Vadarniem, of which the latter was made only last year, totalling $6\frac{1}{2}$ miles
in length, and of good depth. Out of the whole distance of 35 miles, $12\frac{1}{2}$ are river
navigation, all but half a mile in deep water. And of the remaining $22\frac{1}{2}$ miles of
canal and drainage channel, the 4 miles between the Cuddaviyaur and Vellyyaur alone
are objectionably shallow.

3. The suggestion in paragraph 10 of Lieutenant-Colonel Oakes' report, that
this latter section shall be specially taken in hand and cleared next March, April,
and May is approved; and a sum of Rupees 7,000 will be held at the District
Engineer's disposal in the Salt Budget of 1877-78. The syphon sluices alluded to
will, it is presumed, be constructed from Irrigation Funds.

4. In the present state of finances, and looking to the nature and requirements
of the navigation, His Excellency the Governor in Council is not prepared at present
to sanction the cost of the use and maintenance of steam-dredges for this work. But
he desires to be furnished with all details regarding the hand-dredges supplied by
Messrs Hunter and English, also with the reasons why spoon dredging should not
succeed in such shallow water, and with particulars of the extent to which spoon
dredging has been actually tried on the canal.

(True Extract)

Colonel,

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

To the District Engineer, Tanjore
Bellary

- " Chief Engineer for Irrigation
- " Examiner of Public Works Accounts.
- " Revenue Department

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Spare Copies

1004
of
Trow

Superintending Engineer's Office
Tanjore 1st June 1876

Land Col. R. F. Baker, R. E.

~~Superintending Engineer's Office~~
Tanjore

Major General G. H. Walker, R. E.
Secretary to Government
D. P. H.

Sir,

I have the honor to enclose
a Railway Receipt for one Tin Case
despatched to your address containing
Survey of the Nadaraviru Cuna referred
to in my letter No 964 dated 30th
May 1876.

I have the honor to be,
Sir,

Your Most Obedient Servant,
W. F. Baker Land Col. R. E.
Superintending Engineer, Tanjore.

P. 97. 1876 Report

Ci-23.676 Rec. 3.7.76
Deposited 8-6-76

with the levels taken.

I have to explain that as we were not aware what the Mean Sea Level here was when the Levels were taken, they were reduced to an assumed Data of 25 feet below the first Bench Mark on the jutting at Negapatam, where the Levels were started from.

After the sections were plotted however to the assumed Datum line, and the whole work completed, a list of Bench Marks in reference to Mean Sea Level as fixed by the Railway Engineers was furnished to this Office, and you will observe how I have shown this Mean Sea Level line on the sections in the Plan. It was the only thing to be done for otherwise to draw the sections over again would only be waste of time & money.

In consideration of this extra work and of the reasons given in

Letter No 4368 in my letters as per margin, 457 of the 7th and 16th November 1874 respectfully to the Chief Engineer for Irrigation to pass to the Establishment concerned one month.

1. Surveyor Rs 70- per m. as per margin beyond that
1. Draftsman Rs 40- Estimated for.

I have the honor to be
Sir,

Your most Obedient Servant

W. Meggitt A.B.C.

Executive Engineer

G. L. Pamb Negapatam.

No 964 Superintending Engineer's Office
 of Tanjore 30th May 1876
 From
 The Superintending Engineer
 Tanjore
 To
 The Secretary to Government
 D. W. D.

Sir,

I have the honor to inform you that in February last, I inspected the Vidaramam Canal and having learnt that a Survey of the Canal had been made and sections taken under C. O. No 99 of 19th May 1874 I thought there would be no difficulty in determining what should be done to improve the Canal as suggested in the Collector's letter embodied in L. O. No 142 A of 18th September 1873, from the information thus acquired. On examining the

Enclosure
 L. O. No 142 A
 of 18th September 1873
 dated 19th May 1874

T. W. D.

T. W. D.

Recd No. 346
 14th June 1876
 8. 7. 39/5

From
 The District Engineer
 of Tanjore
 To
 The Secretary to Government
 D. W. D.
 30th May 1876
 The Superintending Engineer
 Tanjore
 To
 The Secretary to Government
 D. W. D.

Enclosure in a letter from
 the Superintending Engineer
 to the Secy to Govt D. W. D.
 No 964, dated 30th May
 1876 -

Attn. No 682 dated
 10th March 1875 from
 the Secy to Govt D. W. D.
 regarding the Superintending
 Engineer -

the Plan however I was not a little surprised to find that beyond giving the mere outline of the Canal and banks no information whatever was afforded by the Plan, relative to the works which appertain to the Canal, not even existing Siphon Sluices had been omitted; and it is supposed, to the fact that the Siphon Sluices were not visible from between the banks.

2. On examining the Sections I found that the Mean Sea Level was in some sections shown to be below low level and in some above High Tide level and others in every intermediate stage between those levels and on further examination I found that every section had been plotted from a datum 2.5' below the level of the point from which the cross section was taken, utterly regardless of the relative levels of these points and the Mean Sea Level was marked through-

= out at 6.64 below these points. Judging from Mr Leggatt's letter No. 682 of 10th March 1875 which I have since discovered in the office it appears that this method of plotting the cross sections was approved, if not suggested by him. Having discovered the absurdity of the error made I endeavoured to rectify matters by having the cross sections plotted properly from the actual level of the starting point as shown in the horizontal sections, but here again I found the mean sea level was giving impossible positions relative to H.W. Low and so I resolved to have the datum of Mean Sea Level checked and found that an error of 2.24 had been made in fixing the level of the starting point from the Mean Sea level, obtained from the Railway Department, and this in a distance of from 3 to 400 yards. I then had the Mean Sea Level put in at 4 ft instead of 6.64 below

below the starting point but with
equally unhappy results; whereupon
I came to the conclusion that the
whole of the levels were utterly untrue
worthy and that they are so I am no
longer surprised for Mr Phillips the
Surveyor engaged upon the work
has lately been Municipal Overseer
at Singapore and in taking some
levels for me in connection with
Municipal work I found he was
only 17 feet out in a mile. The fact
is he has not the smallest idea of
levelling and should not have been
employed, having been previously found
to be utterly inefficient on the Coleroon
Survey on which he was employed
for a very short time under Lieutenant
Ponilly.

3. As it is difficult to conceive
that under the actual state of things
Mr. Phillips should have been
recommended for a gratuity of an
extra

extra months pay which he has received
under L. O. No 76 of 11th May 1875. I
forward the Plan and Sections of the
Canal which I beg may be returned.

On discovering that the section
was utterly useless I purposed to employ

Mr. Assistant Engineer Paul in
taking cross sections and a line of
levels down the Canal and the work
he may be permitted to undertake on
Lieut. Ponilly's return from Privilege
leave early in August, he is now in
temporary charge of No 3 Range. The
work would occupy him about a month
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Special Establishment at a cost of
Rs 24. As bench marks have been
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their value, but I am of opinion
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that no survey or levels of the Canal were necessary for the preparation of an estimate for improving the existing Canal.

5. The Canal consists of a few artificial links connecting existing Rivers, portions of which it follows, and for a greater portion of its length the Canal follows existing drainage channels and being connected with the Sea at 3 different points there are two well defined points at which the tides coming up the different streams meet, and the water level being influenced by the inland drainage and by the freshes during the Monsoons, there are certain limits within which these waters will meet and within such limits accumulations or deposits must take place and these must from time to time be removed so as

Cuddasigar at
Selling at
Koranguddy
at a point of junction
x Beluam Cuddasigar
and Velligam
at or about 1/2
mile from
Velligam and
Cuddasigar
" 1 1/2 "

to maintain the minimum depth of water at low tide at such points. Under the circumstances represented it is clear that the Canal bed is not required to be maintained at a uniform level, all that is required is to maintain 3 feet of water at low tide and this may be estimated for entirely independently of a Survey and Levels and with reference to Low Water only. The depth of water in the various portions of the Canal at L.W. in February were as follows.

Distance Miles	River or Channel	Depth	Remarks
2 1/4	Cuddasigar River		Deep stream, a straight cut made upwards of 20 years ago.
2 1/4 to 6 1/4	Artificial new cut to Velligam	1' 2" to 2' 9"	Deep water.
3 1/2 to 5 1/4		1' 2" to 1' 9"	
6 1/4 to 8	Velligam River	2' 3" to 3'	
8 to 8 1/2			
8 1/2 to 10	New cut to Koranguddy	2' 3" to 3' 1"	

10 1/2 to 12 1/2 miles	Ramanadeiv Voikab	2 1/2 to 3	Old drainage channel
12 1/2 to 16 1/2 miles	Paupau Voikab	2 1/2 to 3 1/2	" "
16 1/2 to 20 1/2 miles	Kodichittayaur	2 1/2 to 3	" "
8 1/4 miles	Adapaur		Broad deep river, a drainage
23 1/2 to 32 miles	New cut	2 1/2 to 3	From Cuddavayur to Tadaravim
20 1/2 to 23 1/2 miles	New cut	2 1/2 to 3 1/2	Extension in 1875. Executed very satisfactorily by Salt Department

7. From the above table it will be observed that in the artificial cut between the Cuddavayur and Velliyaur in the limits within which the tidal and flood waters meet, the Canal is very shallow, but elsewhere the guaranteed depth (if it may be so called) of 3' at tidal L. is fairly maintained; this however is done with great difficulty in the link south of the Adapaur though the side slope are not less than 6 to 1.

8. It was hoped that the artificial

artificial link between the Cuddavayur and Velliyaur would have become enlarged by the flood waters during the monsoons, as the Cuddavayur straight cut or the first 2 1/2 miles of the Canal have become, but hitherto there has been no action in this respect between where the artificial cut enters a part of the old course of the Velliyaur and the River itself, the channel is shallow because the waters are not sufficiently confined and concentrated but this may be remedied by narrowing the channel.

9. As will be observed from the sections the narrowest part of the Canal is that through the Ramanadeiv Channel but here a good navigable section is maintained as the sides stand almost vertically consisting of stiff clay if anywhere, here

here is where widening is chiefly required, but it could be carried out only at a great cost for there is no margin within the artificial banks and wet cultivation or a channel hugs the outer foot of the banks.

10. I would suggest that the artificial cut between the Velliyaur and Cuddawayur should be cleared $2\frac{1}{4}$ to 6 miles next year the Canal being closed for the purpose from 1st March to 31st May, the cost of clearing would be about Rs 7000 and while the Canal was closed 2 more Syphon Sluices might be built as indicated in pencil in the 11th & 13 miles for the improvement of the drainage on the west end of the supply on the east of the Canal.

11. In order however to obviate the necessity of constantly closing the Canal for repair, I would

would suggest that either a steam or 2 hand dredgers should be obtained for maintaining the Canal. Messrs. Hunter and High of Bow, London, could, it appears, supply a 10 HP Steam Dredger cap. able of lifting 50 tons of sand and sludge per hour for £2400 or if made with a noncondensing engine for £2200 including punt to support shoot & pont for a hand Dredger to lift 10 or 12 tons of sand and sludge per hour with handles for 24 men for £460 or with upper tumbler high enough to deliver the material excavated into a spout with punt view for £700. The Steam Dredger would be the more satisfactory though the more costly and could be worked, it is believed, with a maintenance allotment of about Rs 10000 per annum, the sum now expended on maintenance is Rs 5000, but

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periodically closed and large extra
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on particular portions of the Canal
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be doubled.

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levels have been taken for the
new

new cut and the estimate for it
will shortly be submitted.

I have the honor to be,
Sir,

Yours most Obedient Servant
H. R. Smith Esq. M.P.
Superintending Engineer

For former papers see Ck 3972

1876 Department
8-3945

2574
Public Works Department
No 1670
PROCEEDINGS of the MADRAS GOVERNMENT.
Under date the 3rd July 1876.
Read the following -

From
The Sup. Eng. Tanjore (H.C. No 964 of 30th May 1876)

His Excellency the Governor in Council has read with much interest this practical paper in which Lieut. Colonel Baker has given as clear an idea of the nature and condition of the Vedaranyam Canal as is possible without correct survey and sections. He regrets to learn that those for which an Estimate of Rs 1280 was sanctioned in

MD
29/6

From
The Sup. Eng. Tanjore
to
The Secretary to
Government
P O 27

Dated 30th May 1876
Received by Secy

No 964
Cm. House

Report regarding
the Vedaranyam
Salt Canal
(13th May 1876) Olan
sent
18-11-76

Ci-23.696 Ptd 2.7.76
Dep. Secy 8-6-76

in G.O. N^o 521 of 1st May
1874, and an additional
payment of Rs 110 made
by order N^o 76 of 11th May
1875 are most imperfect
as to plan, and utterly use-
less as to relative levels.

They were prepared by a
Surveyor working under the
orders of Mr. W. B. Leggatt
an Executive Engineer 2^d Grade,
who was in charge of the
Negapatam Range from
July 1874 to April 1875,
who entirely failed either
to instruct the Surveyor as
to the details necessary to
make his work intelligible
and useful, to check it
while in progress, or to detect
its manifold imperfections
after completion; although

* P.W. N^o 99 of 17th May 1874

it is manifest from his
letter of 10th March 1875
submitting the papers that
he had at least made
some pretence of examining
it. Mr. Leggatt will
be called upon for an
explanation of the part
he has taken in the matter,
to justify his retention of
his present high position
in the Department, and
to shew cause why he
should not refund the
bonus granted for bad
work on his recommenda-
tion. The further em-
ployment of Mr. Phillips
on any Survey or other work
connected with the Public
Works Department, will
be prohibited. Lieut. Col.

Oakes has omitted to explain how, after having been turned off the Coleroon Survey for incompetence he was re-employed on Survey work in another Range of the same District. The District Engineer of Tanjore will now afford the necessary explanation.

The so-called Canal is for the first $2\frac{1}{4}$ miles of its course from North to South, a portion of the Cuddavayyar River, a straight and deep stream. An artificial cut of $\frac{1}{2}$ miles then connects it with Veldiyar River; another deep stream, whose course it follows for $2\frac{1}{4}$ miles. A similar cut of $\frac{1}{2}$ miles leads

leads into a series of 3rd old drainage channels is $2\frac{1}{2}$ to 3 feet in depth in whose course is followed for a distance of $10\frac{1}{4}$ miles; succeeded by the Adapaar River Navigation of $8\frac{1}{4}$ miles; at the end of which occur 2 new cuts to and beyond Vedaviciem, of which the latter was made only last year, totalling $6\frac{1}{2}$ miles in length, and of good depth. Out of the whole distance of 35 miles $12\frac{1}{2}$ are River navigation, all but half a mile in deep water. And of the remaining $22\frac{1}{2}$ miles of Canal and Drainage Channel

Channel the 4 miles
between the Buddavijam
and Velligam alone
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The suggestion in
para 10 of Lieut. Colonel
Oakes' report, that this
latter section shall be
specially taken in hand
and cleared next March
April and May is ap-
proved; and a sum of Rs
7,000 will be bid at the
District Engineer's disposal
in the Salt Budget of
1877-78. The Syphon
sources alluded to will
it is presumed be con-
structed from Irrigation
Funds.

In the present state

of finances, and looking
to the nature and require-
ments of the navigation,
and to the necessity of
concentrating all resources
on the East Coast Canal
between Madras and
the Kistna, His Ex-
cellency the Governor in
Council is not prepared
at present to sanction
the use of Steam Dredges
for this work. But
he desires to be furnished
with all details regard-
ing the Hand Dredges
supplied by Messrs
Hunter and English.

S. E. Tanjore - W. R. R. C. 1883/84
" " Kellay
C. E. Ford
Ex. P. W. V.
K. S. P. S. 21

Desd 27/11/86

xth 17

The Capt. & Co.
Lanier

6-8-87 July 1876

No. 14-15

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re Str. - Tay.

the report &
Oakes

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No. 14-15

1 Plan (Big Roll) put up with
C. No. 8359 of 76.
18.11.76.