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MADRAS RECORD OFFICE.**Government of Madras.***Public works* **DEPARTMENT.**G.O. No. *2228*Press
Mis.*82-83*Dated *3-8-* 18*65.***Not to be folded or roughly handled**

*Proceedings of the Madras Government, Public Works Department,
3rd August 1865.*

No. 82. Read the following Memorandum from the Commissioner of Mysore, to the Secretary to Government, Public Works Department, Fort Saint George, dated Bangalore, 17th July 1865, General No. 1,411, Civil Works, Agricultural, No. 10:—

Forwards, at the request of the Chief Engineer in Mysore, in original a third Memorandum, dated 12th July 1865, on the failure of the Lower Coleroon Anicut in Tanjore, for submission to His Excellency the Governor in Council.

(Signed) L. BOWRING, *Commissioner.*

Third Memorandum on the failure of the Lower Coleroon Anicut in Tanjore, with suggestions for its restoration.

1. Finding, by a private letter from Captain Oates, that the fears expressed in paragraph 13 of my Memorandum of the 1st May 1865, have been unhappily realized by the breaching of the Lower Coleroon Anicut for the fourth time, I feel that it is incumbent on me again to address Government on the subject.

2. The diagrams submitted with Captain Oakes's letter of the 16th May last, No. 132, establish beyond doubt the correctness of my original opinions of the cause of the series of disasters which have attended this work, and show that a most violent and dangerous action has been in progress, which has been aggravated by each successive breach, because the bed of the river in that direction must have been increasingly deepened; and it is certain that if some remedial measures are not adopted to restore the equilibrium no work can possibly stand on that site.

3. At this early period of the season of freshes, with an open breach in the dam, it is impossible to calculate on its condition when the river shall finally subside, but the state of the foundations of the north sluice renders it but too probable that the ruin may extend southward, and it may be of such magnitude that it would be a question of economy whether an entirely new dam on a different site would not be preferable to the restoration of the old work.

4. But in the hope that such a costly undertaking may not be called for, it is to be considered how best to rebuild the ruined part, and secure the rest of the dam, when every effort has hitherto proved abortive.

5. It is difficult, without actual inspection, to point out how the current of the river may be forced to take a more southerly direction, so as to sweep away the mass of sand which on that side obstructs it, but powerful groynes thrown out at the head and along the south side of the middle island, or perhaps even higher up the river, may be rendered effectual, combined with an embankment cutting off the angle which the dam makes with that obstructive mass of land.

6. These earthworks, the construction of which is well understood in Tanjore, must be carefully and strongly built, and stoutly defended against the current, by which means the bed will be cleared and the direction of the stream altered, the sluices on the south side being kept open to create a powerful in-draught.

7. Whether it would be prudent to rebuild the ruined dam before these temporary works have wrought their effect may be doubtful, but at present I should incline only to lay the foundations in the first year.

8. The plans should be determined in December at latest, and the works vigorously carried on during the ensuing three months, so that the early freshes of April may tend to consolidate the bank before their great trial of strength comes on in June.

9. If the embankment should, as it certainly may, outlive one season, a vast improvement will be effected, and though it may be necessary to maintain the works for two years, yet their further security need not be doubtful, and if the objection be urged that the waterway would be too much obstructed, I reply that the anicut is much longer than it was during 20 years prior to 1856, and the present obstruction caused by accumulations of sand and silt exceeds what would probably be taken up by the embankment.

*of freshes, with an open breach in the
Dam*

Proceedings of the Madras Government, Public Works Department,
3rd August 1865.

10. But if after all, it should be found that the re-construction of the old dam would be inexpedient, then I have no hesitation in recommending that the new work should be built as an addition to the north branch at its southern flank, thus forming one connected weir and bridge instead of the two separate branches, as originally built, only for the sake of economy. In this case the work might be commenced even before the monsoon, and easily completed before the freshes of 1866.

11. A strong embankment would be thrown across the southern arm of the river, with its extremity resting on that part of the island which would remain to the south of the new dam. The rest of the island above the work would of course be cut away, and gradually destroyed by the current.

12. There is no reason why these works should not be completed in one season as the two anicuts were in 1836, and the Cauvery regulating dam in 1843; but there must be decision in judgment, and energy in action to carry out the plan.

BANGALORE,
12th July 1865.

(Signed) E. LAWFORD, Colonel, R. E.,
Chief Engineer of Mysore.

No. 83. ORDER THEREON, 3rd August 1865, No. 2,228.

CIVIL WORKS, No. 8.

Communicated to the Superintending Engineer, 6th Division, for consideration when preparing his further reports on the Lower Coleroon Anicut.

(True Extract.)

(Signed) CHARLES A. ORR, Colonel, R. E.,
Secretary to Government.

To the Superintending Engineer, 6th Division.

Exd. S. T. Augustin.

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Third Memorandum on the failure of the
Lower Coleroon Anicut in Tanjore with sug-
gestions for its restoration

Finding, by a private letter from Captain
Oakes, that the fears expressed in Para 13
of my Memo. of the 1st May 1865, have
been unhappily realized by the breaching
of the Lower Coleroon Anicut for the fourth
time, I feel that it is incumbent on me
again to address Government on the subject.
2. The diagrams submitted with Captain
Oakes's letter of the 16th May last No. 132
establish beyond doubt the correctness of
my original opinion of the cause of the
series of disasters which have attended
this work, and shew that a most violent
and dangerous action has been in progress,
which has been aggravated by each suc-
cessive breach, because the bed of the
river in that direction must have been
increasingly deepened; and it is certain
that if some remedial measures are not
adopted to restore the equilibrium no work
can possibly stand on that site.
At this early period of the season
of freshes, with an open breach in the

Qam

Dam, it is impossible to calculate on its condition when the river shall finally subside, but the state of the foundations of the North Sluice render it but too probable that the ruin may extend southward, and it may be of such magnitude, that it would be a question of economy whether an entirely new Dam on a different site would not be preferable to the restoration of the old work.

4. But in the hope that such a costly undertaking may not be called for, it is to be considered how best to rebuild the ruined part and secure the rest of the Dam, when every effort has hitherto proved abortive.

5. It is difficult without actual inspection to point out how the current of the river may be forced to take a more southerly direction, so as to sweep away the mass of sand which on that side obstructs it, but powerful groynes thrown out at the head and along the south side of the middle channel, or perhaps even higher up the river, may be rendered effectual, combined with an Embankment cutting off the angle which the Dam makes with that obstructive mass of land.

6. These earthworks, the construction of which is well understood in England, must be

57
be carefully and strongly built and stoutly defended against the current, by which means the bed will be cleared and the direction of the stream altered, the sluices on the south side being kept open to create a powerful indraught. Whether it would be prudent to rebuild the ruined Dam before these temporary works have wrought their effect may be doubtful, but at present I should incline only to lay the foundation in the first year.

7. The plans should be determined in December at latest, and the works vigorously carried on during the ensuing three months, so that the early freshes of April may tend to consolidate the bank before their great trial of strength comes on in June.

8. If the embankment should, as it certainly may, outline one season, a vast improvement will be effected, and though it may be necessary to maintain the works for two years, yet their further security need not be doubtful, and if the objection be urged that the roadway would be too much obstructed, I reply that the Arment is much longer than it

was during 20 years prior to 1850, and the present obstruction caused by accumulations of sand and silt exceeds what would probably be taken up by the embankment.

10. But if after all it should be found that the reconstruction of the old dam would be inexpedient, then I have no hesitation in recommending that the new work should be built as an addition to the North Branch at its Southern flank, thus forming one connected weir and Bridge instead of the two separate branches, as originally built, only for the sake of economy. In this case the work might be commenced even before the Monsoon, and easily completed before the freshes of 1856.

11. A strong embankment would be thrown across the Southern arm of the river, with its extremity resting on that part of the island which would remain to the South of the New Dam. The rest of the island above the work would of course be cut away and gradually destroyed by the current.

12. There is no reason why these works should not be completed in one season, as the two Arments were in 1836, and the Canavery Regulating Dam in 1843; but there must be decision in judgment, and the most rapid action is towards all Energy

energy in action to carry out the plan.

Bombay
12th July 1855

Lawford Colonel R.
Chief Engineer of Mysore.

1865.

Enclosed is a check from the Emma,
• being of my own, to the Secretary to the
• meet. Willie White & family & family.
dated 17th July 1865.

Third Memorandum
on the failure of the
donor Edward Smith
in charge, with suggestions
for its redemption.

Pro 22 May 1865 150 108
" 6 June 150 108

Pro 22 May 1865 150 108
From the Commissioner of Mysore.

To the Secretary to Government
Public Works Dept. Fort St. George.

Dated, Bangalore 17th July
Despatched,

Received, 19th "

Enclosures No. 4

General N^o 1411 } 1865-66.
Civil Works N^o 310.
ag. in enclosure 3

Forwards at the request
of the Chief Engineer in Mysore in
original, a third Memorandum
dated 12th July 1865, on the failure
of the Lower Coleroon Anicut in
Tanjore, for submission to His
Excellency the Governor in Council.

N^o 87

Commissioner.

C. 22 July 1865. N. 2220

2228. 22 Aug 1865

4th July 1865
My dear Col. Dr.
Bad. King. date
last night I got a letter from
Lansdown to say that a fresh
had come down the river
& in the morning at 4th of
date was flowing from the
North branch of the Anicut
the water was rising the
damaged it. I thought it
cut the fresh & embankment
as the water would soon

have reached of its own accord
for therefore all the banks
I had directed & in about 20
minutes the water rose to
the level of the river & had
retained from the embank-
ment to the amount only
to hear that when the water
had risen about 2' above the
dam the contents of the two
portions appeared to turn
various shades there is a
rock about 100' high over
the whole dam has gone on
only the upper stop has failed
say - the water & only
the upper stop has given way

is that the whole of the dam has given way
the same height as well as the whole of the
dam has given way & the water has
been raised from rising with the water
which is in the other way & the whole
concerns about the water & the water
down with the water & the water
since there will give way the water
down with the water & the water
fall like a block of water & the water
and the water & the water & the water

My dear Mr. Dr. I have just returned from the Lower Amnunt. I have sent you a detailed report of the accident. I hope it is not too late as I feel unprepared but it is impossible to tell what may be the extent of the injury.

With plenty of water
in the river as at present
there appears to be no

The first is the ^{3rd} ^{10th} ^{15th} ^{20th} ^{25th} ^{30th} ^{35th} ^{40th} ^{45th} ^{50th} ^{55th} ^{60th} ^{65th} ^{70th} ^{75th} ^{80th} ^{85th} ^{90th} ^{95th} ^{100th} ^{105th} ^{110th} ^{115th} ^{120th} ^{125th} ^{130th} ^{135th} ^{140th} ^{145th} ^{150th} ^{155th} ^{160th} ^{165th} ^{170th} ^{175th} ^{180th} ^{185th} ^{190th} ^{195th} ^{200th} ^{205th} ^{210th} ^{215th} ^{220th} ^{225th} ^{230th} ^{235th} ^{240th} ^{245th} ^{250th} ^{255th} ^{260th} ^{265th} ^{270th} ^{275th} ^{280th} ^{285th} ^{290th} ^{295th} ^{300th} ^{305th} ^{310th} ^{315th} ^{320th} ^{325th} ^{330th} ^{335th} ^{340th} ^{345th} ^{350th} ^{355th} ^{360th} ^{365th} ^{370th} ^{375th} ^{380th} ^{385th} ^{390th} ^{395th} ^{400th} ^{405th} ^{410th} ^{415th} ^{420th} ^{425th} ^{430th} ^{435th} ^{440th} ^{445th} ^{450th} ^{455th} ^{460th} ^{465th} ^{470th} ^{475th} ^{480th} ^{485th} ^{490th} ^{495th} ^{500th} ^{505th} ^{510th} ^{515th} ^{520th} ^{525th} ^{530th} ^{535th} ^{540th} ^{545th} ^{550th} ^{555th} ^{560th} ^{565th} ^{570th} ^{575th} ^{580th} ^{585th} ^{590th} ^{595th} ^{600th} ^{605th} ^{610th} ^{615th} ^{620th} ^{625th} ^{630th} ^{635th} ^{640th} ^{645th} ^{650th} ^{655th} ^{660th} ^{665th} ^{670th} ^{675th} ^{680th} ^{685th} ^{690th} ^{695th} ^{700th} ^{705th} ^{710th} ^{715th} ^{720th} ^{725th} ^{730th} ^{735th} ^{740th} ^{745th} ^{750th} ^{755th} ^{760th} ^{765th} ^{770th} ^{775th} ^{780th} ^{785th} ^{790th} ^{795th} ^{800th} ^{805th} ^{810th} ^{815th} ^{820th} ^{825th} ^{830th} ^{835th} ^{840th} ^{845th} ^{850th} ^{855th} ^{860th} ^{865th} ^{870th} ^{875th} ^{880th} ^{885th} ^{890th} ^{895th} ^{900th} ^{905th} ^{910th} ^{915th} ^{920th} ^{925th} ^{930th} ^{935th} ^{940th} ^{945th} ^{950th} ^{955th} ^{960th} ^{965th} ^{970th} ^{975th} ^{980th} ^{985th} ^{990th} ^{995th} ^{1000th} ^{1005th} ^{1010th} ^{1015th} ^{1020th} ^{1025th} ^{1030th} ^{1035th} ^{1040th} ^{1045th} ^{1050th} ^{1055th} ^{1060th} ^{1065th} ^{1070th} ^{1075th} ^{1080th} ^{1085th} ^{1090th} ^{1095th} ^{1100th} ^{1105th} ^{1110th} ^{1115th} ^{1120th} ^{1125th} ^{1130th} ^{1135th} ^{1140th} ^{1145th} ^{1150th} ^{1155th} ^{1160th} ^{1165th} ^{1170th} ^{1175th} ^{1180th} ^{1185th} ^{1190th} ^{1195th} ^{1200th} ^{1205th} ^{1210th} ^{1215th} ^{1220th} ^{1225th} ^{1230th} ^{1235th} ^{1240th} ^{1245th} ^{1250th} ^{1255th} ^{1260th} ^{1265th} ^{1270th} ^{1275th} ^{1280th} ^{1285th} ^{1290th} ^{1295th} ^{1300th} ^{1305th} ^{1310th} ^{1315th} ^{1320th} ^{1325th} ^{1330th} ^{1335th} ^{1340th} ^{1345th} ^{1350th} ^{1355th} ^{1360th} ^{1365th} ^{1370th} ^{1375th} ^{1380th} ^{1385th} ^{1390th} ^{1395th} ^{1400th} ^{1405th} ^{1410th} ^{1415th} ^{1420th} ^{1425th} ^{1430th} ^{1435th} ^{1440th} ^{1445th} ^{1450th} ^{1455th} ^{1460th} ^{1465th} ^{1470th} ^{1475th} ^{1480th} ^{1485th} ^{1490th} ^{1495th} ^{1500th} ^{1505th} ^{1510th} ^{1515th} ^{1520th} ^{1525th} ^{1530th} ^{1535th} ^{1540th} ^{1545th} ^{1550th} ^{1555th} ^{1560th} ^{1565th} ^{1570th} ^{1575th} ^{1580th} ^{1585th} ^{1590th} ^{1595th} ^{1600th} ^{1605th} ^{1610th} ^{1615th} ^{1620th} ^{1625th} ^{1630th} ^{1635th} ^{1640th} ^{1645th} ^{1650th} ^{1655th} ^{1660th} ^{1665th} ^{1670th} ^{1675th} ^{1680th} ^{1685th} ^{1690th} ^{1695th} ^{1700th} ^{1705th} ^{1710th} ^{1715th} ^{1720th} ^{1725th} ^{1730th} ^{1735th} ^{1740th} ^{1745th} ^{1750th} ^{1755th} ^{1760th} ^{1765th} ^{1770th} ^{1775th} ^{1780th} ^{1785th} ^{1790th} ^{1795th} ^{1800th} ^{1805th} ^{1810th} ^{1815th} ^{1820th} ^{1825th} ^{1830th} ^{1835th} ^{1840th} ^{1845th} ^{1850th} ^{1855th} ^{1860th} ^{1865th} ^{1870th} ^{1875th} ^{1880th} ^{1885th} ^{1890th} ^{1895th} ^{1900th} ^{1905th} ^{1910th} ^{1915th} ^{1920th} ^{1925th} ^{1930th} ^{1935th} ^{1940th} ^{1945th} ^{1950th} ^{1955th} ¹⁹⁶

decided not to attempt to
saw the North extremity of
the current for watched
bushes & branches of trees
brought down by the stream
& they floated pretty much
in a direct line for the dam
saw not attracted to the
N. end. I tried to send down
floats with bamboos attached
of such length as would en-
compass the turning over of the
float if the lower part of the
dam still existed but we
could not launch them
successfully into the stream

77)
I as the current is very
strong was afraid to send a
float into the river with the
float. This is the first work I
have ever lost & after many
days of waiting. I was
disappointed. I was
driving found very down
hearted. The former I have
sent down to keep them to
see they were further down
and turned up when he re-
turns. I am going to
Panguebet for a fortnight
to see the St. & get a good cut
if he can if not I will
have privilege days. He will
then return & driving will

join me & be posted to a range
probably.

Stimms over he cannot
stand another season in the
bed of the Coleroon. Chief of
probably true. I think I need
had better be appointed to the
Work next Season & will give
him his choice of the District
in the District if I am still in it.

Will go to Vicksburg in a day
or two to arrange about the
store but I am under a quarter
to Davis that I cannot do
travelling in a sandy upstate
most completely.

Yours sincerely
Tangor
July 12 '65
W. F. Baker

Memorandum

In this third memorandum
on the causes of the repeated failure of the
southern division of the Lower Coleroon. Anicut
Col. Lawford attributes the disaster on this
last occasion again entirely to the form of
the River Channel immediately above the
site of the work setting the current on to
the northern end of the dam; and, under this
impression, he urges the necessity of measures
being taken to remove the accumulations
of sand formed on the south bank, and
suggests certain modes of restoring the work.

The sand bank in question
is no doubt likely to produce a dangerous
diversion of the stream, but a perusal of
Capt. Oakes' official report, and the two
private notes herewith circulated, will show
that as the Anicut did not stand for many

minutes after the river began to flow over it, and gave way when only two feet of water were passing over, there was no time for any set of the current to have produced any such effect as would have caused, or even hastened the destruction of the dam. Captain Oakes' observations & experiments would seem indeed to negative the existence of any set at all towards the northern end of the dam, and the undersigned is of opinion that its giving way was in no degree due to such cause, but was the result of its masonry not having had time to set and being too severely tried under a heavy overfall before a sufficient depth of tail water, to break the force of the overflow, had accumulated on the rear apron.

Col. Lawford's advice to put the restoration of the work early in hand, and not to raise it to the full height again the first year, is good, and has already been given to the Superintending Engineer.

Wm George
21st July
1865

Amos M. Col RR
Secretary to Government

(5)

Civil Works

Public Works Dept

2228

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No 2228

Proceedings of the Madras Government
Under date the 3rd ~~Aug~~ ^{Sept} 1865.

Read the following

From the Commissioner of Mysore

Forwards at the request
of the Chief Engineer in Mysore
in original, a third Memorandum
dated 12th July 1865, on the failure
of the Lower Coleroon Aqueduct in Tanjore,
for submission to His Excellency
the Governor in Council.

Communicated to the Supy
Engineer bⁿ for consideration
when preparing his further reports
on the Lower Coleroon Aqueduct.

AD

W. H. D.

W. H. D.

To the Supy. Engr. bⁿ Minisario 16
2

Despatch 4th August.

21-9-31

905 1865 Depto
Pro: of Govt for Supp

N^o 2228

Pro: of the M^o Govt
D^o 3^o Aug^o 1865

Pro: of 5115/6

31-7-65

Memo from the
Comm^o of the
warding a third
Memo. By the Chief
Eng^o on the failure
of the Lower Hole.
Room Ancient in the
Lanyoe D^o Com^o
to the Supp Eng^o D^o
D^o

N^o 82. 83