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MADRAS RECORD OFFICE

Government of Madras

Public works

DEPARTMENT

G.O. No.	1627	Press
B.P. No.		Mis.
321-322		
Dated	23 - 6	1873

Not to be folded or roughly handled

Read the following papers:—

No. 321. From Major J. O. HASTED, R.E., District Engineer, Kistna District, to Lieutenant-Colonel J. MULLINS, R.E., Chief Engineer for Irrigation, dated Bazoarah, 28th April 1873, No. 15.

ALTHOUGH in consequence of my having joined this district so late in the year, I am unable to submit a full report on the subject of the passage of sea-fish up the Kistna river, as directed in paragraph 9 of G. O., No. 1,822, dated 1st August 1872, I have to call your attention to the subject, as I find the state of the fish-ladder at the anicut is such that I consider the safety of the anicut may be endangered by it, as it at present exists.

2. The ladder apparently was not constructed precisely as recommended by Dr. Day. His intention was, I believe, that a certain length of each wall between two successive bays or pools should be raised on one side, the raised portion of each successive wall being on opposite sides of the ladder, so as to form quiet pools where the fish might rest after leaping each wall. This plan has not been carried out; the dividing walls are the same height throughout, and consequently the water passing down, instead of zig-zagging from side to side of the ladder, sweeps each bay through, and leaves no sheltered spot in which fish can rest. I inspected the ladder when about 2 feet of water was passing over the anicut, the entrance, or rather the exit to the ladder, at the crown of the anicut, was protected by a stone dam, leaving an opening of about 2 feet in width for the water to pass through to the ladder. The velocity in the ladder was then so great that I feel certain no fish, heavy with roe, could ascend.

3. Subsequently, and as the water fell, I made several inquiries from those on the spot, and was informed that no fish used the ladder. This I was not surprised to hear, as I had been interested in the fish-ladder at the Coleroon Lower Anicut, and though the ladder there was built so as to afford resting places for the fish ascending in each bay, and the velocity of the water passing down the ladder was considerably less than at this anicut, I could not find that a single sea-fish had ever attempted to use the ladder; in fact, the result of all inquiries I made on the subject, led me to believe that the hilsa, which comes up these rivers to spawn, and for which principally, as I understand, the ladders were constructed, is a sluggish fish, and at all events, when in roe, unable or unwilling to exert itself sufficiently to overcome the obstacles presented by a ladder.

4. I have, since the water fell below the crest of the anicut, examined the ladder, and I find that it has suffered considerably during the past season of freshes, the lining of one bay, though composed of cut-stone of a large size, has been completely broken up, of a succeeding bay partially, and one of the dividing walls lower down has been undermined and scooped out to some extent. I consider that this is sufficiently serious to demand immediate attention; if two contiguous bays are broken up and large stones left washing about in the holes, it is impossible to say how far the damage would extend; the result would very probably be clean breach through the anicut. In my opinion the ladder had better be closed at once.

*Proceedings of the Madras Government, Public Works Department,
23rd June 1873.*

5. After so large an amount (Rupees 2,206) has been expended on the construction of the ladder, it is, I feel, very unsatisfactory that such a course should be adopted; but looking to the result of the experiment both here and in Tanjore, and feeling, as I do, extremely doubtful as to the probability of

In 1870-71 against Estimate Rs. 700...	Rs. 699½
In 1871-72 and 1872-73 against Estimate Rupees 1,665 ...	1,506
	<u>2,205½</u>

any modification of the existing ladder answering the purpose, I have little hesitation in recommending it. The safety of the anicut is of far greater importance than the passage of hilsa up the river, and the risk of accident to it should be prevented at any cost.

6. As stated in my report when Officiating Superintending Engineer of the 6th Division, dated 5th April 1872, I think the construction of a lock in the under-sluiques the arrangement most likely to enable the fish to get above the anicut, but though this plan might be carried out in Tanjore, I am doubtful if it could be adopted here. There are many difficulties in the way which do not exist in Tanjore; these difficulties, however, might be overcome, though the cost of the work would be considerable. I remember about eleven years ago, in (I think) the month of December, seeing the under-sluiques quite full of fish, which, I believe, were principally hilsa; a lock worked three or four times a day would then pass up a very considerable number of fish. I would, however, recommend that the experiment should be first tried in Tanjore, where the cost would be much less than it would be here.

7. I regret that I am giving little or no information as regards the fisheries here, not having been here during the season; all I have learnt has been by inquiring of others. Whether the number of fish that came up the river have decreased or not I cannot say, but I learn there are no regular fishermen here, and that men come from Dowlaishweram during the season to fish below the anicut. Hilsa, I know, are plentiful, and are procurable at Bezwarah during the season. I have bought them in roe in January and February. Mr. R. Smith informs me that on the 31st October and 1st November last year, he had the fish that were caught below the anicut counted, and found on one occasion forty-two sea-fish against four river-fish, and on the other twenty-eight sea-fish against three river-fish. It is reported that sea-fish are now rare in the river, because the mouth has undergone a great change since the cyclone of 1864. I do not think this is the case, nor do I believe the number of fish going up to spawn has been reduced by fishing lower down the river. The fishermen in Divi do, I believe, stretch their nets across the river, but this is only when the water gets low, and after the time when the fish principally go up to spawn. I am not prepared to recommend any arrangements for preserving the fish at present, but I will bear the subject in mind, and will communicate anything I learn which is likely to be of interest.

8. As the working season will expire in six weeks, possibly earlier, I have the honour to request instructions by telegram as to whether the fish-ladder is to be restored or built up.

*Proceedings of the Madras Government, Public Works Department,
23rd June 1873.*

No. 322.

Note by the Chief Engineer for Irrigation.

IN G. O. of the 21st February 1870, No. 593, an estimate, amounting to Rupees 700, for constructing a fish-ladder at the Kistna anicut was sanctioned. The work so constructed was damaged to the extent of Rupees 500 by the freshes of that season, indicating that very little of it was left uninjured, and in G. O., No. 752, of the 13th March 1871, an estimate of Rupees 1,665 for its restoration, with more massive stone and in a more substantial manner, was approved. The District Engineer now reports that the injuries sustained by the ladder are such as to endanger the safety of the anicut, and, as there would certainly not have been time to re-construct the ladder before the freshes of the current year, Major Hasted has been authorized by telegram to close it and secure the anicut.

2. It will be noticed that what little evidence there is appears to show that the ladder is not used by the fish. This is no doubt in part due to the strong current running down it, and though the ladder ought to have been constructed with the lower parts of the crests of the cross walls on alternate sides, probably this would not have made any material difference; for the top of the ladder cannot be made higher than the masonry crest of the anicut, and the rough stone dam placed on the latter at the termination of the freshes must have the effect of throwing a strong current on to the head of the ladder, even when the river is low.

3. I am of opinion that to construct a ladder, so as not to be a source of danger to the anicut, a large expenditure would be necessary. The sand-stone found on the spot, and commonly employed on the delta works, does not appear to be hard enough to stand the wear and tear of the high velocity of the water passing down it, and either therefore picked stone of exceptional hardness must be obtained at the anicut quarries, or a different kind of stone must be brought from a distance. If the Government wish another ladder to be built I will design the masonry so as probably to be durable, but I should roughly estimate the cost at at least ten times that of the last ladder.

4. Major Hasted recommends the substitution of a lock in the under-sluiques.

* Rolling.

† That next the wing-wall.

This arrangement, which would practically involve only a double set of shutters* to one† of the vents at one or both

ends of the anicut, with perhaps training walls in continuation of the next pier to prevent the rush through the adjacent sluices overpowering the fish, might be tried, the necessary work being carried out during the next working season on an estimate to be prepared and sanctioned during the next six months.

OOTACAMUND,
5th June 1873.

(Signed)

JOHN MULLINS, Lieut. Colonel, R.E.,
Chief Engineer for Irrigation.

No. 323.

ORDER THEREON, 23rd June 1873, No. 1,629.

IRRIGATION, No. 30.

THE Government do not think that it would be worthwhile to incur the large expense, which would be necessary to

*Proceedings of the Madras Government, Public Works Department,
23rd June 1873.*

re-construct the fish-ladder at the Kistna anicut in a safe and durable manner, and they approve of the proposition to convert for the time being, when the river is low, one of the under-sluice vents into a lock. The District Engineer will accordingly prepare a plan and estimate for this latter arrangement, with a view to its sanction in time for the alterations being carried out during the next working season.

2. The closing of the former fish-ladder which, it is observed, has been authorized by the Chief Engineer for Irrigation is, under the circumstances reported in the District Engineer's letter, approved.

(True Extract.)

Lieut.-Colonel, R.E.,
Joint Secretary to Government.

To the Chief Engineer for Irrigation.
,, District Engineer, Kistna District.

Exd. S. T. Austin.

Spare Copies.

No. 15
 District Engineer's Office
 Bazarat.
 28 April 1873.
 To
 Major J. D. Hooker M.C.
 District Engineer
 Kishna District.
 Sir,
 I have the honor to acknowledge the receipt of your letter of the 15th inst. in relation to the subject of the passage of sea fish of the Kishna River, as directed in paragraph of P.O. 1822 dated 1st August 1872. I have to call your attention to the subject, as I find the state of the fish Ladder at the Anicut is such that I consider the safety of the Anicut may be endangered by it, as it at present exists.
 2. The Ladder, apparently, was not constructed precisely as recommended by Dr. Day. His intention was, I believe, that a certain length of water

wall between 2 successive bays or
pools should be raised on one side,
the raised portion of each successive
wall being on opposite sides of the
Ladder, so as to form quiet pools
where the fish might rest after leaving
each wall. This plan has not been
carried out, the ascending walls are the
same height throughout and consequently
the water passing down instead of zigzagging
from side to side of the Ladder, sweeps
each bay through and leaves no sheltered
spots in which fish can rest. I inspected
the Ladder when about 2 feet of water
was passing over the Anicut, the
entrance or rather the exit to the Ladder
at the Crown of the Anicut was protected
by a stone dam, leaving an opening of
about 2 feet in width for the water
to pass through, to the Ladder. The
velocity in the Ladder was then so
great that I feel certain no fish,
heavy with roe, could ascend.

3. Subsequently and as the water
fell, I made several inquiries from
those on the spot, and was informed
that no fish used the Ladder. This
I was not surprised to hear, as I
had been informed in the Hilsa Ladder
at the Coleroon Lower Anicut, and
though the Ladder there was built
so as to afford resting places for the
fish ascending in each bay, and the
velocity of the water passing down
the Ladder was considerably less than
at this Anicut, I could not find
that a single sea fish had ever
attempted to use the Ladder, in fact
the result of all inquiries I made
on the subject, led me to believe that
the Hilsa, which comes up these rivers
to spawn and for which principally, as I
understand, the Ladders were con-
structed, is a sluggish fish and
cannot do all over it, when
in roe, unable or unwilling to exert itself.

sufficiently to overcome the obstacles presented by a Ladder.

11. I have, since the water fell below the crest of the Aricut, examined the Ladder and I find that it has suffered considerably during the past season of freshes, the lining of one bay, though composed of cut stone of a large size has been completely broken up, of a succeeding bay partially, and one of the dividing walls lower down has been undermined and scooped out to some extent. I consider that this is sufficiently serious to demand immediate attention, if two contiguous bays are broken up and large stones left washing about in the holes, it is impossible to say how far the damage would extend, the result would very probably be clear breach through the Aricut. In my opinion the Ladder has better be closed at once.

In 1870/71 } 699 \$ 5.
against Fall 7m }
In 1871/72 } 606
4 1872/73 }
against Fall 7m }

After so large an amount (\$2206) has been expended on the construction of the Ladder, it is, I feel, very unsatisfactory that such a course should be adopted, but looking to the results of the experiment, both here and in Saugey and feeling, as I do, extremely doubtful as to the probability of any modification of the existing Ladder answering the purpose, I have little hesitation in recommending it. The safety of the Aricut is of far greater importance than the passage of hilsa up the river and the risk of accident to it should be presented at any cost.

b. As stated in my report when Offg. Superintending Engineer of the 6th Division dated, 5th April 1872. I think the construction of a Lock on the under sluices the arrangement most likely to enable the fish to get above the Aricut, but though this plan might be carried out in Saugey,

I am doubtful if it could be
adapted here. There are many
difficulties in the way which do
not exist in Tangor, these difficulties
however might be overcome though
the cost of the works would be considerable.
I remember about 11 years ago, in
(I think) the month of December, seeing
the under sluices quite full of fish,
which I believe principally *Makara*, or
such work as 3 or 4 times a day would
bring up a very considerable number
of fish. I would however recommend
that the experiment should be first
tried in Tangor, where the cost would
be much less than it would be here.

7. I regret that I am given little
or no information regarding the fisheries
here, not having been here during
the season, all I have learnt has
been by enquiring of others - whether
the number of fish that came up
the river ^{have} decreased or not I cannot

say, but I learn there are no
regular fishermen here, and that
men come from Chandanur and
during the season to fish below the
ancient *Makara*. I know are plentiful
and are procured at *Dezuanah*
during the season, I have bought
them in *Dezuanah* in January and February.
Mr. P. Smith told me that on the
31st October and 1st November last year
he had the fish that were caught below
the ancient sluice and found
one occasion 12 sea fish against 4 river fish
and on the other 28 sea fish against 3 river fish.
It is related that sea fish are now
rare in the river because the river
has undergone a great change since
the cyclone of 1844. I do not think
this is the case now do I believe
the number of fish going up to spawn
has been reduced by fishing lower
down the river. The fishermen in
Dezuanah do I believe catch their net

across the river, but this is only
when the water gets low and only
the time when the fish principally
go up to spawn - I am not pre-
pared to recommend any arrangements
for preserving the fish at present;
but I will bear the subject in mind
and will communicate any thing I
learn which is likely to be of interest.
As the mackerel season will expire
in six weeks, possibly earlier, I have
the honor to suggest instructions by
telegram as to whether the fish ladder
is to be restored or built up -

I have the honor to be,
Sir,
Your most obedient servant
John Stuart Major
District Engineer
Histon

Chy 546
To 15
Major for Histon
From
The District Engineer
Histon
To
The Chief Engineer
for Irrigation
Dated 28 April 1873
Received Histon -

Reports on the state
of the fish ladder
or the passage of
sea fish up the
Histon River in
relation to

Ap 321
J. W. 3394/73

Vote by the Chiefs for Angaiton

Ex. 1

In Exp. of the 21st March 1870
£593, an estimate, amounting
to Papeas 700, for constructing a
fish-ladder at the Distna Ancient,
was sanctioned. The work so en-
terusted was damaged to the ex-
tent of Papeas 500 by the freshes
of that season, indicating that
very little of it was left unin-
jured, and in Exp. £752 of the
12th March 1871 an estimate of Papeas
1665 for its reiteration, with more
masonry stone and in a more
substantial manner, was ap-
proved. The District Engineer now
reports that the injuries sustained
by the ladder are such as to
endanger the safety of the
Ancient and, as there would
certainly not have been time
to reconstruct the ladder before
the freshes of the current year,
Major Hasted has been authorized
by

by telegram to close it, and secure the ancient.

2. It will be noticed that what little evidence there is appears to show that the ladder is not used by the fish. This is no doubt in part due to the strong current running down it, and though the ladder ought to have been constructed with the lower parts of the crest of the crop walls on alternate sides, probably this would not have made any material difference, for the top of the ladder cannot be made higher than the masonry crest of the ancient, and the rough stone dam placed on the latter at the termination of the piers must have the effect of throwing a strong current on to the head of the ladder, even when the river is low.

3. I am of opinion that to construct a ladder, so as not to be a source

source of danger to the ancient, a large expenditure would be necessary. The sandstone found on the spot and commonly employed in the Delta works does not appear to be hard enough to stand the wear & tear of the high velocity of the water, rapid down it, and either therefore picked stone of exceptional hardness must be obtained at the ancient quarries, or a different kind of stone must be brought from a distance. If the Government wish another ladder to be built I will design the masonry so as probably to be durable, but I should roughly estimate the cost at at least ten times that of the last ladder.

4. Major Hasted recommends the substitution of a lock in the undersluices. This arrangement, which would practically involve only a double set of shutters to one of the vents at one or both

existing

that next the wing wall

ends of the ancient, with per-
haps training walls in continua-
tion of the next pier to prevent
the rush through the adjacent
shaies overpowering the fish,
might be tried, the necessary
work being carried out during
the next wintering season on an
estimate to be prepared &
sanctioned during the next
six months.

Itacamaund Wharfedale 21st Decr.
to June 1873. Chief Eng^r for Ingeation

The Secretary to Govt.

P. W. 1873 Report
 of the Board of Fish
 June 1873
 The Chief of Fish
 Commission
 The Secretary of Fish
 Commission

Noted to June 1873.
 Recd 6th
 Recd 11th
 Enc. 1.

Note on the
 fish ladder at
 the Victoria wharf

No 322

No 1629. 23 June, 1873.

p.p.d.
 No. of the Board of Fish
 Read the following
 from the Hon. Secy for Fish (H.R. of 5 June 73)
 1629. The Govt do not
 think that it would
 be worth while to
 incur the large
 expense, which would
 be necessary to re-
 construct the fish
 ladder at the Victo-
 ria wharf in a
 safe and durable
 manner, and they
 approve of the pro-
 position to convert
 for the time being
 when the river is
 low, one of the
 undermills

underneath the sluice
a lock. The District
Engineer will accord-
ingly prepare a plan
and estimate for this
latter arrangement,
with a view to its
sanction in time
for the alterations
being carried out
during the next
working season.

2 The closing
of the former fish-
ladder which, it
is observed, has
been authorized
by the Chief Engr
for Irrigation is,
under the circum-
stances reported.

no

In the District Engr's
letter, approved

by 5/6/74
G.M.W.

31

The Chief Engr for Irrigation
The District Engr for Irrigation

Dated 30/6/74

Sp. 3394

Govt. of 1873 30.10.100.

PUBLIC WORKS.

The Chief Engineer for
Irrigation

1000

1000

1000

23 June 1629

Nos. 32, 33, 34

Find ladder at the
Eastern Ancient. Papyrus
in papers of the
Eastern of the