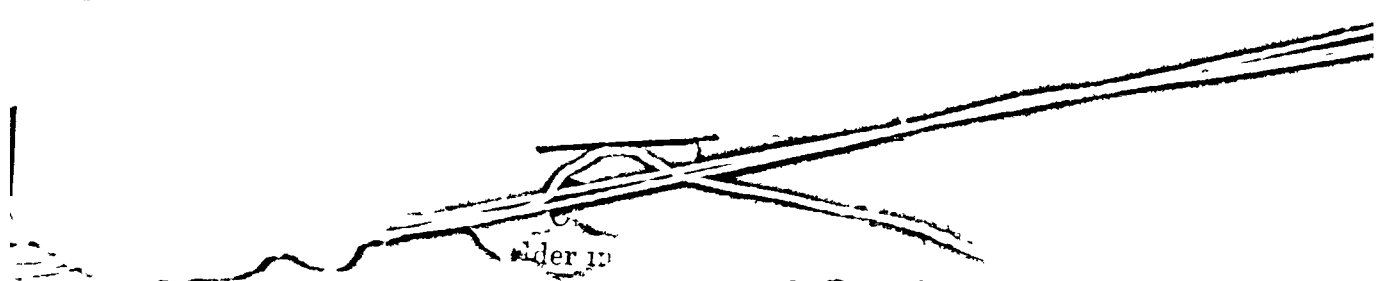


(1) Number of pages_____

(2) Date of repair_____

(3) Initials of the Referencer_____

MADRAS RECORD OFFICE.


Government of Madras.

Public works DEPARTMENT.

G.O. No.	1822	Press
8 to 17		Mis.
Dated	1- 8	1872.

Not to be folded or roughly handled

Read the following papers —

- No 8. From the Acting Superintending Engineer, 1st Division, to the Secretary to Government, Public Works Department, dated Dowlaishweram, 20th May 1872, No 680

With reference to your memorandum No 48, dated 4th instant, on the subject* of the preservation of fish in the rivers of the Madras Presidency, I regret to state that not knowing anything at all connected with this subject, I am unable to furnish any remarks or suggestions.

- No 9. From the Superintending Engineer, 2nd Division, to the Secretary to Government, Public Works Department, dated Masulipatam, 30th December 1871, No. 130

In reply to G. O., No. 2,960, dated 23rd November 1871, I have the honour to report that the ladder in the Kistna anicut appears to me easily surmountable by fish, but I cannot find that any attempt it. I have had it watched and examined the neighbourhood myself, but I see no signs of fish in the pool below nor can I get any news of fish being caught except near the mouth of the river.

- No 10. From the Superintending Engineer, 3rd Division, to the Secretary to Government, Public Works Department, dated Cuddapah, 1st December 1871, No 1,670.

With reference to G. O., No. 2,960, dated 23rd ultimo, I have the honour to inform you that I have no suggestions or remarks to make on the subject of "preservation of fish" in the rivers of this Presidency.

2. Paragraph 2 of the above G. O. does not affect this division.

- No 11. From the Superintending Engineer, 4th Division, to the Secretary to Government, Public Works Department, dated Madras, 2nd July 1872, No. 1,371.

ADVERTING to the Proceedings of Government, No. 2,960, dated 23rd November 1871, calling upon the Superintending Engineers for information relative to the question of preserving fish in the rivers of the Madras Presidency, I have the honour to state that I have no observation to offer on the subject

- No 12. From the Superintending Engineer, 5th Division, to the Secretary to Government, Public Works Department, dated Vindachellum, 14th May 1872, No 38

In reply to your memorandum No. 48 of the 1th instant, I have the honour to state with reference to the Order of Government of the 23rd November 1871, No. 2,960, that no fish ladders have been built in South Arcot. The only anicut

*Proceedings of the Madras Government, Public Works Department,
1st August 1872.*

in the district where one of the under-sluiques might possibly be converted into a fish-pass, in the way suggested by Doctor Day, is the one across the Vellaur.

2. As I have only just seen the Order of Government, I cannot give any further information at present, but the subject shall have my attention.

No. 13. From the Officiating Superintending Engineer, 6th Division, to the Secretary to Government, Public Works Department, dated Tanjore, 5th April 1872, No. 11.

WITH reference to G O, No 2,960, dated 23rd November 1871, I have the honour to report that I have made very careful inquiries regarding the fish-ladder at the Lower anicut, the result of which leads me to believe that the ladder is not used at all by the Hilsa, the fish, for whose especial benefit it was constructed.

2. It is hardly possible that if fish of the size of the Hilsa when going up the rivers to spawn used the ladder they should not be seen when leaping from bay to bay, but the Monigar and lascars who are constantly on the work declare that they have never seen a Hilsa going up, they say some little fish may be seen at times but these are not Hilsa.

3. I questioned the contractors for fisheries in the Coleroon above the Lower anicut, and many of the fishermen not only just above the Lower anicut but up to the Upper anicut, and only one man stated that he had seen a Hilsa caught since the breach in the Lower anicut was closed, and this fish he said was 4 or 5 inches long. I have delayed replying to the G O on the subject purposely that I might have an opportunity of personally inquiring of fishermen and others, and this is the only instance I can hear of a Hilsa having been seen above the Lower anicut.

4. I cannot say, with any certainty, why the fish-pass is not used, as I have not seen it when water is passing over the anicut, but it struck me when examining the pass that the velocity of the water passing down it must be very great, and that the bays were not large enough or sheltered enough. I also think that the foot of the ladder should be carried further down stream beyond the apron of the anicut, the width of the pass is so very small compared to that of the anicut that I do not see why fish are to come to it when it discharges amidst the broken water immediately below the anicut, whereas if it was carried into the comparatively still water of the pool below the apron, the cascade would attract fish to it.

5. The arrangement proposed by Doctor Day in his letter which accompanied G. O., No. 555, dated 25th February 1871, I fear will not answer so well as he expects. I think the velocity of the water through an opening $1\frac{1}{2}$ feet square will be too great to admit of fish going through it easily; the velocity of course depends on the depth of water on the lower apron, or rather the difference of head above and below the anicut and would not always be too great, but looking again to the size of the opening in comparison with the width of the anicut, there being nothing to lead the fish to the opening, it would probably be but little used. If every under-sluique were provided with double shutters and openings arranged according to this plan, it is probable that fish would go up in some numbers, because, when the water is but little above the crown of the anicut, the discharge

*Proceedings of the Madras Government, Public Works Department,
1st August 1872.*

through these openings would certainly lead the fish up to the under-sluiques, as we see now that even the leakage through the shutters induces the fish to come into the under-sluiques, and if every under-sluique were provided with a passage, the fish would easily find their way up. This arrangement, however, would entail considerable expense in construction, and also would necessitate the working of double sets of sluiques, a very serious matter to which there are strong objections.

6. The plan that seems to me most likely to succeed is substantially that proposed by Doctor Day in paragraph 35 of his report dated 1st December 1868, namely, the construction of a lock in the under-sluiques. I should propose to select one bay of the under-sluiques opposite to the deepest part of the river, extend the piers for some little distance below the dam, and, near their lower ends, fit ordinary lock gates without balance beams but working on wheels under the mitre posts and capable of being pulled back in the recesses in the wall by chains, and there fixed by an iron bolt or otherwise during floods. The apron immediately below the lock should be lowered at least 6 inches below the ordinary level which would lead the fish up, and the lock gates and shutters above could be worked as described by Doctor Day, or as might be directed. The present shutters would be used as upper gates to the lock, but the working might be simplified by substituting a single screw shutter in place of the present baulks. One lock in each branch of the Lower anicut would probably be sufficient.

7. These locks would possess one great advantage over a fish-ladder, in that they can be worked when the water is below the anicut, and would thus enable the small fry to pass down the river after the water has fallen below the crest of the anicut. When the flood season is over in the Coleroon, the small fish that may remain above the anicut have no chance of escape at present, not only are the pools netted over and over again, but barriers are erected across the shallow water in every river and channel and almost every fish is taken out. There are, of course, a few that escape in the pools immediately below the anicuts and calingulahs which are not allowed to be fished, but it is impossible to prevent poaching entirely in these places, and here the natural enemies of the fish, alligators and snakes, also retire, so that when the dry season is over but very few fish remain in the rivers.

8. As regards the other points referred to by the Government of India in their Proceedings dated 2nd October 1871, No. 28, I am decidedly of opinion that a close season should be established on the Coleroon during the time the fish are going up to spawn in greatest numbers. The breeding months of the Hilsa are stated by Doctor Day to be here from June to September, if the whole of this time was every year closed for fishing, the fisheries, I imagine, would let for very little, but two months might be closed, I think, without any great loss, and the shutters of the locks being worked daily, a number of fish would certainly get above the anicut and descend during the later floods in safety when fishing is, as far as I see, principally carried on from the banks alone.

9. I do not think any restriction in the size of the meshes of nets used in this district would answer, a close season of two months would enable many fish to go up and spawn in safety, and during the later floods and even after the water fell below the crown of the anicut, the fry would descend, in the first instance, over the anicut, and then through the locks and might reach the sea. It is not till the

water is very low that the fry are in much danger from netting, and if the size of the meshes of nets are restricted the fishing would almost be put a stop to at the time when it is most practised, the velocity of the rivers here when in flood being such as to prevent much fishing

10. The number of alligators in the Coleroon is, I think, exaggerated, and they are rarely seen in other rivers in this division. They, of course, destroy fish, and at times are reported to carry off sheep and dogs, and people are afraid to venture into the water in the holes where they are known to live. A small reward for their destruction and for eggs brought in would no doubt diminish their numbers and do good. There are wandering tribes (basket-makers principally I believe) who frequent the banks of the Coleroon and catch the alligators for food; a reward would no doubt lead these people to greater exertions in alligator catching

11. The suggestions I have made relate, as it will be seen, to migratory fish, especially the Hilsa. I do not see how the destruction of the small fresh water fish in these rivers can be prevented, as the water dries up they take refuge in the pools, most of these in their turn dry up, and the fish become the prey, if not of men, of birds, beasts and snakes, and only in the deeper pools at no great distance from the coast can they escape at all. The deep pools could be preserved, and war being made on the alligators and snakes considerable number of fish saved at a small expense, but I do not feel certain that much would be gained. How is it that although every year, as I have stated, the river is almost denuded of fish, there are still vast numbers in the season of freshes? And can it be proved that the numbers of these fishes is yearly diminishing? If the numbers are diminishing and we have only to look to those saved in the deep pools for stock, I should certainly recommend that all fishing of any sort should be put a stop to in the Coleroon where these pools exist after January. In the other rivers there are no pools and no restriction would, therefore, be necessary.

No. 14. From the Acting Superintending Engineer, 7th Division, to the Secretary to Government, Public Works Department, dated Coimbatore, 21st March 1872, No. 279.

With reference to the papers printed with G. O., No. 2,960, dated 23rd November 1871, and the order thereon, I have the honour to forward two useful reports from the Neilgherry* and Irrigation† Range Officers on the subject,

* No. 209 of 20th December 1871.

† No. 1,335 of 4th March 1872, with a list

and further to note that, in my opinion, it is very desirable that a "close season" should be established, and such might easily be enforced by the payment of small rewards to informers, and the punishment of those who infringe the rules laid down for the preservation of fish; but I fear any attempt to adopt any precise measures for securing "fair fishing" generally would involve the maintenance of a large, most expensive, and at the same time doubtfully, useful establishment.

2. In Canara in some places the practice of drugging fish is very prevalent, large quantities are annually captured in this way, rendering such conduct on the part of fishermen concerned punishable with heavy fine, or imprisonment, would

soon put a stop to it. A reward of 2 Annas per crocodile's egg would tend much to reduce the numbers of these animals.

3. Except the Kodavali anicut on the Bhowny, all the anicuts in the Coimbatore District are frequently submerged during the year, and thus no fish-ladders are required except at this anicut. The question of preserving fish in Irrigation channels when laid dry for clearance or repair is a difficult one, the best plan that suggests itself to me is that of opening all under-slucices and tambogies all along the channel to be laid dry, as these works nearly all drain into rivers, the fish would naturally leave the channel with the water, at all events would not be destroyed in the large numbers they are at present, the existing practice being to raise small dams across the channel and fish it by sections, thus hardly a fish escapes

From the Executive Engineer, Neilgherries, to the Acting Superintending Engineer, 7th Division, dated Ootacamund, 20th December 1871, No. 209

With reference to the subject of G. O. No. 2,960 of 23rd November last, Public Works Department, upon which you have invited me to offer suggestions, I have the honour to report that to the best of my belief there are no large, and but few small fish natives of these hills. Small fish, 3 or 4 inches long, are caught in the driest season in the Pykara, Avalanche and Makoorty rivers, and in the Gooroomund and Porthy streams by the low country natives, who eat them with great relish. The hill tribes, I believe, never attempt to obtain fish

2. Fish, such as trout, carp, tench, etc., have from time to time been brought to these hills, and efforts have been made to propagate them with success, but the experiments have been on too small a scale to afford much information for future guidance. The attempt has never yet been so far prosecuted as to offer fish in the markets as an article of food. About eighteen months ago some 30,000 fish of various kinds were put into the Ootacamund lake. During the heavy rain storm which visited Ootacamund on the 7th of November last, a considerable number of these fish were washed over the waste weir which was running over 4 feet deep, and several baskets full were picked up by the natives in the stream four miles below the escape, and offered for sale in Ootacamund. They were mostly of small size

3. The fish in the lake and in the Government Garden ponds seldom rise to a fly, and are never seen jumping about in the water. Tench, of which the greater part of them consist, are, I believe, fond of burrowing about in the muddy bottom of the pond, and it is probable that they obtain a great quantity of food, such as water-snails, crustacea, etc., at the bottom among the weeds with which the lake abounds so as not to care to jump for flies, etc. This fact probably accounts for the fish being never seen and makes it a difficult matter to catch them

4. In the new lake sluice now just finished it is proposed to erect a galvanized iron wire fence in front of the wings. The meshes of the net are three quarters of an inch from knot to knot. This screen will probably prevent the exit of fish, but it will also choke with weeds and debris brought down by the stream, and will need to be kept constantly clear while the lake waters are being let out. As far as the sluice is concerned, the wire fence will be in the way, but it is hoped it will prevent the escape of fish

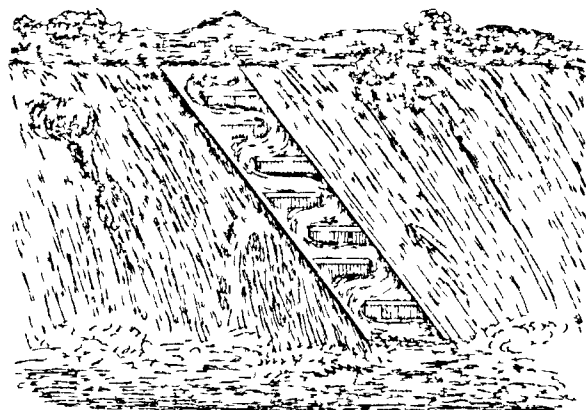
5. With regard to the subject generally as connected with these hills, I beg to suggest that the Pykara river for about 2 miles near the public bungalow, and the Porthy stream for about 1½ miles near the site of Mr. McIvor's bund, be selected as suitable spots for trying an experiment on a large scale with fresh water fish. Both rivers at these parts have always abundance of water with a sluggish current (except during freshes). Along their banks it would be easy to form the necessary ponds, conduits, cisterns, buildings and apparatus for the protection of the fish during the spawning and rainy seasons for the protection of the ova and of the fry. Fish like salmon which need to visit salt water are, in my opinion, quite out of place on these hills. No salt streams of any kind exist here, and it is impracticable to attempt to provide for the passage

*Proceedings of the Madras Government, Public Works Department,
1st August 1872.*

of the fish to the sea. The falls and rapids in the rivers are so steep and long (extending for miles) that the formation of ladders would be most expensive, and when the fish reached the foot of the hills they would have to traverse very many miles before they could get to the sea. The extreme dryness of the rivers for eight months of the year and the swollen dangerous floods for the remaining four would also be very much against them.

6 The Marimund and Dodabetta reservoirs and the Burnfoot and Lawrence lakes would seem suitable places for the introduction of such fish as inhabit large ponds in England. As for the prevention of the escape of the fish over the waste weirs of these lakes, I think it impossible to attempt anything in the way of obstructing the water-way by the introduction of wires, etc., as these would choke up during floods, and the waters would rise and threaten the tank bunds with destruction. From the tail of the escape a ladder might be constructed leading into a large cistern or series of cisterns in which, when the overflow subsided, the fish might be captured and put back into the tank.

7 The Dodabetta reservoir, the Burnfoot and Lawrence lakes are in the same valley, one below the other. Ladders might be constructed between them, but at a great cost, as they would be something like three miles long. A sketch of the kind of ladder needed is subjoined.



8 The difficulties in the way of the introduction of fish on these hills are by no means small as may be judged from the following extracts from Mr. Buckland's book on fish, which I take the liberty of quoting here under head of enemies of ova. He writes, "First, accidents at the time of spawning. Many of the eggs do not get properly impregnated at the time of spawning, or not being caught in the gravel are washed away constantly by the stream. Then down come the floods and overwhelm the nests with mud and rubbish, or else sweep them bodily away level to the bed of the river. * * * Then, again, we have the reverse of floods, we have *droughts*, and the nests made when the water is high become bare and exposed to the air when the water goes down, either the eggs die from this cause, or else the young when hatched out have no water refuse to exist. I have seen a shallow ditch leading out of Rinslip reservoir one mass of dead fry of roach, dace and jack, the water having been let out for the canal."

"Fish eat the eggs, and these not only minor fish but trout. I have myself taken trout eggs from a trout's mouth, and so have other observers."

"Then we have water insects innumerable, the common water shrimp for example. These water shrimps will get into hatching boxes. Besides the water shrimp we have the larva of the May fly. These formidable creatures do an immensity of harm. They fasten on the egg, pierce them with their sharp nippers, and they turn white and dead in an instant."

"The larva of the dragon fly is also a destructive pest of the waters."

"There are other insects which eat the spawn besides those above mentioned. There are birds who are most destructive to spawn, and common ducks lead the van of these feathered

*Proceedings of the Madras Government, Public Works Department,
1st August 1872.*

poachers. Again, the swans are most destructive, gobbling up the newly laid spawn with their long beaks and spoon-like bills."

9 I think that if floods and drought and other lesser evils have proved in England to destroy the ova of fish (to say nothing of the destruction of the fish when growing up) to such an extent that only one salmon's egg out of every thousand deposited by the parent fish ever becomes a fish fit for human food, the destruction in this country where the floods and drought are much more severe and marked and the ravines steeper and more rocky must be infinitely greater.

10. In fact, I think a consideration of the subject shows that the introduction of fish on these hills is attended with greater difficulty than in England, and can only be carried out at a far greater cost.

From the Executive Engineer, Irrigation Range, to the Superintending Engineer, 7th Division,
dated Bhowany, 4th March 1872, No 1,335

With reference to your endorsement dated 4th December 1871, on Government Order

No 2,960, * dated 23rd December 1871, I have the honour to report that there are no under-

sluices in the Bhowany and Kodinelly anicuts, and it is, therefore, impracticable to construct fish-ladders in these anicuts at present. It has, however, for some time been under consideration to build a sluice at the east end of the Bhowany anicut, and when this is done a fish-pass, as recommended by Doctor Day, can easily be introduced. In the case of the Kodinelly anicut the same cannot be said. A sand sluice there would be most difficult to insert, nor is it very much wanted, a channel taken off at either end of the anicut providing sufficient scour to prevent the accumulation of silt and to render a sand sluice not indispensable.

2 Regarding the different kinds of fish in the Moyaur and Bhowany streams, the Bhowany channels and the Cauvery river, their habits, time of spawning, and best mode of preservation, I have collected all the information I could on the subject from local fishermen through the Tahsildars of Peindoorav, Bhowany, and Suttiamangalum, and I beg to submit such information in the enclosed list. The only means that seems available here of preserving the fish under present circumstances is to prevent the annual wholesale destruction of it. This takes place in the dry season when there is very little water in the streams. If during that time the fishermen could be prevented from catching and destroying more than they may require for their actual livelihood, this would go far towards preventing the great destruction that now yearly takes place in the dry season.

List of Fishes in the Bhowany and Cauvery rivers, and in the Arkencottah, Thadapully and Calingaroyen channels, showing time of Spawning, etc

No	Names of Fishes	Time of Spawning, etc	Remarks
1	Keloothee	} Spawn in April and deposit eggs in July	<i>Velangoo</i> 1 foot to 3 feet long and 3 inches to upwards of 12 inches in circumference, generally caught by rod and line, and also in bamboo conical traps set in strong currents. All the others are caught by rods and nets. Small-sized fishes are generally taken in nets, caught in abundance in December, January, February, March and April. No fishes are caught while the rivers are in fresh.
2	Nedonderai Keloothee		
3	Tonam do		
4	Noy do.		
5	Kendai		
6	Tail Kendai .		
7	Punnivoy do		
8	Punjalai do ..		
9	Pothai do ..		
10	Valai		
11	Parai Valai		
12	Toottai do		
13	Velechee ..		

*Proceedings of the Madras Government, Public Works Department,
1st August 1872*

List of Fishes in the Bhowany and Cauvery rivers, etc —(Concluded)

No	Names of Fishes	Time of Spawning, etc	Remarks
14	Aurah	} Spawn in April and deposit eggs in July	The <i>Ooloovai</i> deposits eggs in the rocky banks of rivers, <i>Kaloothie</i> in muddy banks, and remains with the young in deep water. The <i>Valai</i> , <i>Kaloothie</i> , <i>Avoory</i> , <i>Ponathie</i> , <i>Kendai</i> are large fishes. They are from 1 foot to 4 feet long and 6 inches to 2 feet in circumference. They remain always in deep water. The <i>Pauralmien</i> is a bright coloured fish 2 feet long and 2 feet in circumference, most of the other fishes not specially mentioned in this column are small in size, they are 3 to 12 inches long and 2 to 6 inches in circumference. Only small sized fish are caught in the Calingaroven channel, the larger kinds do not live in the channel on account of its being closed once a year, and the frequent stoppages of water at the time of breaches in the channel.
15	Prawns (rattoo)		
16	Koravai		
17	Ooloovai		
18	Velangoo		
19	Kockoomien		
20	Porattan Koonjoo		
21	Vellaranjee		
22	Kolyaranjee		
23	Aoranjee		
24	Pavoor		
25	Ponathie		
26	Kockoy Punnivoymien		
27	Karambai		
28	Pauralmien		
29	Tanan Paural		
30	Karahmien		
31	Irai		
32	Alaree		
33	Ikaloaroo		
34	Pellymien		
35	Avoory		
		Spawn in September and deposit eggs in December	About thirty families of fishermen, or Sembadavan who live by catching fish and selling them, are at Bhowany

No. 15. From the Superintending Engineer, 8th Division, to the Secretary to Government, Public Works Department, dated Madura, 8th January 1872, No 3,811

In reference to G. O. of the 23rd November 1871, No 2,960, calling for any remarks or suggestions relative to the question of the preservation of fish in the rivers in the Madras Presidency, I have the honour to report that, as far as I can learn, there are no valuable fisheries in this division.

2. In the Tambrapoorney river at the Streeviguntum anicut, Executive Engineer Lieutenant Shepherd, R. E., states there are so few fish that he is not aware that a single fisherman earns a living by the fish caught there. If fish were stopped by the anicut, they would be caught there extensively; so it would seem unnecessary to construct a fish-ladder there.

3. Fishing is practised in all the larger tanks of this division. The establishment of a close season might be an advantage, but practically in these tanks there must now be a close season, or else the fishery would be destroyed.

4. I have already in the enclosure to my letter No 1,155, dated 8th July 1871, recommended that the fishery of tanks should no longer be a direct source of revenue to the Government, but that these fisheries should be given over to the ryots cultivating under such tanks, on the condition that the ryots maintain them in repair. No better means for the introduction of a close system can, as it appears to me, be devised than a plan of which the basis is self interest.

*Proceedings of the Madras Government, Public Works Department,
1st August 1872*

No 16. From the Special Executive Engineer, Wynaad, to the Secretary to Government, Public Works Department, dated Vythery, 9th May 1872, No 214

REFERENCE to G. O. No. 2,960, dated 23rd November 1871.

There being no anicuts or other irrigation works in this district, paragraph 2 of the above Order calls for no remark from me, but I may observe with reference to paragraph 1, that great destruction of small fry occurs annually, in fact, were it not that in one or two of the larger rivers certain spots are held sacred and the fish strictly protected, and were it not for the difficulty of carrying on the destruction during the monsoons, fish would be entirely exterminated in the Wynaad streams.

2. The *modus operandi* generally in use is to make dams and weirs across the streams, turning the whole of the water into a narrow channel, at the end of which a fish-trap is placed, and the fish driven down into it. Nets with very small meshes are also used, and the river swept from end to end, but the most destructive of all methods is after fixing dams at intervals along the stream to throw in the fruit of a tree (with the name of which I am unacquainted) of a most deleterious nature, the effect being to stupify every fish in the locality and bring them floating to the surface, when, of course, they are easily secured. This practice is not only fatal to the fish, but is the cause also of acute diseases to people using the water of the poisoned streams for drinking purposes, were some measures adopted to prevent these destructive practices, I have no doubt that, constituting as they do the head waters of many large rivers, the streams of Wynaad would prove excellent and prolific breeding places for fish. I have seen very large fish taken from the Manantoddy river, which from its size, and from the protection afforded by the Pagoda on the banks, suffers less than other streams, amongst others a fish resembling a carp was brought to the house where I was stopping, which weighed over 65 lbs

3. I think that the mischief might easily be prevented by the Adigaries and other village authorities being instructed to send the perpetrators up for punishment, especially in the case where the water is poisoned, a few examples would soon put an entire stop to the practice

No. 17. ORDER THEREON, 1st August 1872, No. 1,822.

IRRIGATION, No 1.

THE Government in their Order No 2,960 of the 23rd November 1871, called upon the Superintending Engineers for any suggestions they might have to offer relative to the question of the preservation of fish in the Madras Presidency, and for reports upon the success or otherwise of the fish-ladders already constructed.

2. In two divisions only have fish-ladders been constructed, namely, in the Kistna and in the Lower Coleroon anicut. Of the former the Superintending

*Proceedings of the Madras Government, Public Works Department,
1st August 1872.*

Engineer reports that "the ladder appears easily surmountable by fish, but that he cannot find that any attempt it." Of the latter the Superintending Engineer of the 6th Division reports that after careful inquiries he is led to believe the ladder is not used by the fish for whose special benefit it was constructed.

3. The Superintending Engineers of the 1st, 2nd, 3rd, 5th and 8th Divisions offer no suggestion on the general subject of fish preservation in the rivers.

4. The Superintending Engineer of the 7th Division suggests that a "close season" be enforced, that the practice of "drugging fish" frequently resorted to in Canara be rendered penal, and that in emptying Irrigation channels for annual repairs certain precautions in the working of sluice and other shutters be observed.

5. The Superintending Engineer of the 6th Division attributes the disuse of the ladder in the Coleroon anicut to the velocity of the water passing down it, the small size of the bays and their unsheltered position, while the ladder not extending into still water, he thinks fish cannot be attracted by it. He considers that the velocity of the water and comparative insignificance of an opening $1\frac{1}{2}$ feet square would prejudice the arrangement proposed by Doctor Day in his letter which accompanied G O, No. 555, dated 25th February 1871, but that any extension of such a system to a number of under-sluice vents necessitating the working of double shutters would be open to serious engineering objections.

He advocates the construction of a lock somewhat similar to that proposed by Doctor Day, the enforcement of a close season of two months, and the offering of a small reward for the eggs or capture of alligators.

He would also advocate the prohibition of all fishing in the pools of the Coleroon river after January in each year, if it can be shown that such interference is really called for by the increasing diminution of the stock of fish in the river, which fact he appears to doubt.

6. The Special Executive Engineer in the Wynaad reports that the drugging of the fish in the west coast rivers is a prevalent custom, he would render such proceedings penal.

7. The Executive Engineer of the Neilgherries would urge the introduction of suitable fish into several of the larger streams and reservoirs, but considers the experiment would be attended with great difficulty.

8. The Government resolve to call upon the Superintending Engineer of the 6th Division to submit designs and estimates, (1) for the improvement of the existing ladder, (2) for the construction of a fish lock of the description recommended in his letter under review.

9. The Government are unable to reconcile the statement put forth in the report by the late Superintending Engineer of the 2nd Division with the fact that the fishery at the anicut is annually rented to contractors for a considerable sum, the season of the year selected for the Superintending Engineer's inquiries and the description of fish alluded to are not mentioned, while the success or otherwise of the ladder appears in no way deducible from the presence or absence of fish in the pool below. The report is so meagre and unsatisfactory that the Government

*Proceedings of the Madras Government, Public Works Department,
1st August 1872.*

desire that the Officiating Superintending Engineer will give the subject his best attention and submit a farther and fuller report at the conclusion of the present irrigation season.

(True Extract.)

(Signed) G W WALKER, Colonel, R E,
Secretary to Government.

To Superintending Engineers
To Major R B Kennedy
To the Acting Chief Engineer for Irrigation
,, Revenue Department

Exd. L. C. Shunker.

No 680
From

Lieut. Colonel J. Fischer, R.E.
Acting Superintending Engineer
1st Division

To

Colonel G. H. La Rive, R.E.
Acting Secretary to Government D. P. W.
MADRAS

SIR,

With reference to your Memo
* Vide G.O. No 2960 dated 4th Instant on the subject
dated 23rd Nov/71 of the preservation of fish in the mews
of the Madras Presidency, I regret to
state that, not knowing anything at
all connected with this subject, I am
unable to furnish any remarks or
suggestions.

I have the honor to be
Sir
Your most obedient servant
W. Fischer Lieut. Col. R.E.
1872 Supt. Engineer 1st Div.

No 130
 Superintendent Engineer's
 Office 2nd Division
 Basu Patang
 30th Dec 1874
 From Colonel J. J. Moberly R.E.
 Superintendent Engineer.
 2nd Division
 To Colonel J. Carpendale R.E.
 Secretary to Government
 Public Works Department
 Sir,

In reply to G.O. No 2960 23rd
 November 1874, I have the honor to report
 that the ladder in the Pishna Ancient
 appears to me easily surmountable
 by fish - but I cannot find that
 any attempt is. I have had it
 watched and examined the neigh-
 borhood myself but I see no
 signs of fish in the pool below.
 nor can I get any news of fish
 being caught except near the mouth
 of the river -

I have the honor to be
 Sir,
 Your Most Obedt Servt
 J. Moberly Colonel R.E.
 Superior Division

No 130
 Superintendent Engineer's
 Office 2nd Division
 Basu Patang
 30th Dec 1874

1872
 The Superintendent Engineer,
 2nd Division

To
 The Secretary to Government
 Department Public Works
 Madras

Dated 20th May 1872
 Received 27th May 1872

NO. 680

ENCLO.

Subject.

No 1822-1st Division
 Madras

unable to furnish any
 news as to or the progress
 in the subject of the fire
 or a loss of fish in the
 river of the Madras
 Presidency

No 1822. 12 Aug 1902

No
N^o 1371.

Superintg^g Office 4th Divⁿ
Madras 2nd July 1872.

From
Colonel F. J. Moberly R. E.
Superintending Engineer 4th Divⁿ

To
Colonel G. W. Walker R. E.
Secretary to Government P.W.D.

Sir,
Referring to the Proceedings of
Government N^o 2960 dated 23rd Nov^r
1871 calling upon the Superintending
Engineer for information relative to the
question of preserving fish in the Rivers
of the Madras Presidency, I have the
honor to state that, I have no observation
to offer on the subject.

I have the honor to be

Sir

Your Most Obedient Servant

F. Moberly Esq R.E.
Superintg^g 4th Division

HP

Recd 23rd Nov 71. N^o 1371-107

From
J. W. 1871. - 4th Divⁿ
Superintg^g Engineer
N^o 5783.

The Superintending Engineer
3rd Division.

To,

The Secy to Government

P. W. D.
H. G. P. O.

No. 1670.

Dated 1st December 1871.
Received 3

It appears that there
is no suggestion of
remuneration to be made
on the subject of the
preservation of fish and
the issue of this docu-
ment.

1872-1st Aug 71/2

Ch 10

1871/2

21
Suptg. Engrs. Office, 5th Div.
Vardachellam, 14th May 1872

From
The Superintending Engineer,
5th Division

To
Secretary to Government,
Public Works Department.
Sir, In reply to Govt. Memo. No. 48,
of the 1st instant I have the honor to state
with reference to the order of Government of
the 23rd November 1871 No. 2960 that no fish
ladders have been built in South Arcot.
The only Arcot, in the district where one
of the under sluices might possibly be con-
verted into a fish pass, in the way sugges-
ted by Doctor Day, is the one across the
Vellur.

2 As I have only just seen the
order of Government, I cannot give any fur-
ther information at present, but the subject
shall have my attention.

I have the honor to be
Sir,
Your most obedt. Servant.

E A Ford Colonel R.E.
Suptg. Engrs. 5th Div.

No 23rd November 1871

To
The Secretary
to Government
Public Works Department
No. 48
of the 1st instant
No. 2960
of the 23rd November 1871

To
The Secretary
to Government
Public Works Department
No. 48
of the 1st instant
No. 2960
of the 23rd November 1871

To
The Secretary
to Government
Public Works Department
No. 48
of the 1st instant
No. 2960
of the 23rd November 1871

To
The Secretary
to Government
Public Works Department
No. 48
of the 1st instant
No. 2960
of the 23rd November 1871

To
The Secretary
to Government
Public Works Department
No. 48
of the 1st instant
No. 2960
of the 23rd November 1871

Executive Engineer's Office
 Alhambra, Cal 20th Feb 1871

5033
 22/12/71

Captain J. A. L. Board M.E.
 Executive Engineer
 Alhambra

Lieut. Colonel W. Fairall M.E.
 Agt. Superintendent Engineer
 7th Division

With reference to the subject of
 G.O. No 2960 of the 28th November last
 & W. P. upon which you have invited
 me to offer suggestions, I have the
 honor to report, that to the best of my
 belief there are no large and but few
 small fish native of these hills. Small
 fish 3 or 4 inches long are caught in
 the direct stream in the Duffara
 Avalancha and Mastooty Rivers and
 in the Guvinnud and Fort St. John
 by the low country natives who eat
 them with great relish. The Hill
 Tribes, I believe never attempt to
 obtain fish.
 Fish - Such as Trout, Carp,
 Fresh, &c. have from time to time been
 brought

Dec 23rd November 1871
 Office of the Executive Engineer
 Alhambra

8th Dec 1872
 Office of the Executive Engineer
 Alhambra
 The Executive Engineer
 7th Division

To the Executive Engineer
 7th Division

Alhambra
 Dec 17th 1872

No. 38

Fish

Stating that no
 fish have been
 seen built in the
 hills of the
 Division of the
 Alhambra
 consistent with
 the fact that

brought to these hills, and efforts have
been made to propagate them with success.
But the experiment has been on too
small a scale to afford much infor-
mation for future guidance. The attempt
has since not been so far prosecuted
as to offer fish in the market as an
article of food. About 15 months ago
some 3000 fish of various kinds were
put into the Otacumtine Lake. During
the heavy rain storm which visited
Otacumtine on the 1st of September
but a considerable number of these
fish were washed over the waste
lands which was running over the
dike, and several boats full were
picked up by the natives in the
stream four miles below the dike,
and offered for sale in Otacumtine.
They were mostly of small size.

The fish in the Lake in the
Government garden, I saw
seldom rise to a fly and are never
seen jumping a boat in the water.
Much of which the greater part of them
consist, are I believe fond of burrowing
about in the muddy bottom of
the pond, and it is probable that
they obtain a great quantity of food
such as water snails, crustaceans,
at the bottom among the weeds

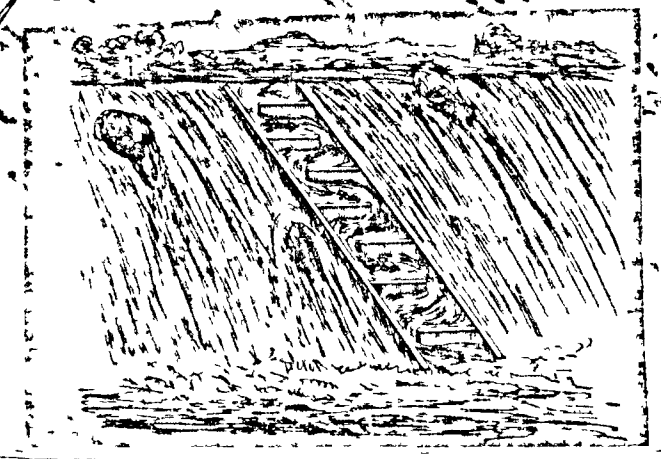
14
with which the Lake abounds. I was
not to care to jump for flies. This
fact probably accounts for the fish
being never seen and makes it a
difficult matter to catch them.
On the new Lake Shier was
just finished, it is proposed to erect
a galvanized iron wire fence in
front of the river. The mouth of
the river is from about 10 to 15
feet deep. This fence will probably prevent
the exit of fish, but it will also be
choke with weeds and debris brought
down by the stream, and will need
to be kept constantly clear while
the Lake waters are being let out.
As far as the Shier is concerned the
wire fence will be in the way, but
it is hoped it will prevent the escape
of fish.

With regard to the subject generally
as connected with these hills I beg
to suggest that the Dyak River
for about two miles near the Suba
Kungulow and the Doty stream
for about 1 1/2 miles near the site
of the Iron Mine, be selected
as suitable spots for trying an ex-
periment on a large scale with
fresh water fish. Both rivers at
these

these parts but also a considerable
 of water with a sluggish current (by
 except during freshets). Along the river
 banks it is not so easy to find the
 necessary ponds, canals, cisterns
 buildings and apparatus for the pro-
 tection of the fish. During the summer
 and rainy seasons for the pro-
 tection of the Ouse and of the
 fish like Salmon which used to breed
 salt water was in high opinion in
 quite out of place in these hills. No
 salt streams of any kind exist here,
 and it is impracticable to attempt
 to provide for the passage of the fish
 to the sea. The falls and rapids in the
 river are so steep and long extending
 for miles that the formation of
 ladders would be too expensive,
 and when the fish reached the foot
 of the falls they would have to traverse
 many weary miles before they could
 get to the sea. The extreme dry-
 ness of the river is for 8 months of
 the year and the smallness of the
 floods from the precipitation would
 also be very much against them.
 The Harlow and Goddard
 Reservoirs, and the Hurst and
 Lawrence Lakes, would be

suitable places for the introduction
 of such fish as inhabit large ponds
 in England. As for the prevention
 of the escape of the fish over the
 waste weir of these lakes, I think
 it impossible to attempt anything
 in the way of obstructing the water
 way by the introduction of wires
 &c., as the weeds choke up during
 flood and the water would rise
 and threaten the tank bund with
 destruction. From the tail of the
 weir a ladder might be constructed
 leading into a large cistern or series
 of cisterns in which when the over-
 flow subsided the fish might be
 captured and put back into the tank.

The Goddard Reservoir, the
 Hurst & Lawrence Lakes are
 in the same valley - one below the
 other. Ladders might be constructed
 between them, but at a great cost
 as they would be something like
 3 miles long. A sketch of the kind
 of ladder needed is subjoined.



The difficulties in the way of the introduction of fish on these hills are by no means small as may be judged from the following extracts from Mr. Bucklands book on fish which I take the liberty of quoting here. Under head of Unsuccess of ova, he writes: First, accidents at the time of spawning. Many of the eggs do not get properly impregnated at the time of spawning or not being caught in the gravel and washed away constantly by the stream. Then down come the floods and over-whelm the nests with mud & rubbish or else sweep them bodily away but to the head of the river &c. &c. Then again we have the ravages of floods & we have droughts; and the nests are made when the water is high & becomes bare and exposed to the air when the water goes down; either the eggs die from this cause or else the young when hatched out having no water refuse to exist. I have seen a shallow ditch leading out of Rinslip Reservoir overgrown with dead fry of roach & dace & perch the water having been let out for the canal.

16
Fish eat the eggs and the young only minor fish but trout. Minnows & myself take trout eggs from a trout rivulet, and so have other observers. There are water insects innumerable. The common water shrimp for example. These water shrimp will get into hatching boxes. Besides the water shrimp we have the larva of the mayfly. These formidable creatures do an immense amount of harm. They fasten on the egg pierce them with their sharp snippers and they turn white and dead in an instant.

The larva of the dragonfly is also a destructive pest of the waters. There are other insects which eat the spawn beside those above mentioned. There are birds who are most destructive to spawn, and common ducks head the van of these feathered poachers. Again the swans are most destructive gobbling up the newly laid spawn with their long beaks and spronk little bills.

I think that if floods and drought and other lesser evils had proved

proved in England to destroy the
era of fish (staying nothing of the
destruction of the fish when grow-
ing up) to such an extent that
only our salmon eggs out of every
thousand deposited by the parent
fish ever becomes a fish fit for
human food, the destruction in
this country, where the floods and
drought are much more severe and
marked and the rivers deeper and
more rocky must be infinitely greater.

In fact I think a consider-
ation of the subject shows that
the introduction of fish on these
Hills is attended with greater diffi-
culty than in England and can
only be carried out at a far greater
cost.

I have the honor to be
Your most obedt Servt
J. M. M. M.
Lieutenant Colonel
Capt. M. M.

Supy. Engrs. Office 7th Dec.
Calcutta 24th Dec 1872.
No 279
From,
Lt. Col. W. Farwell & Co.
By Supy. Engrs. 7th Dec.
To,
The Secretary to Government
S. P. W. Madras.

Sir,
With reference to the papers
printed with G. O. No 2960 dated 23rd
November 1871, and the order thereon,
I have the honor to forward two
useful reports from the Neilgherry
and Irrigation Range Officers on
the subject, and further to note that
in my opinion it is very desirable that
a "close season" should be established and
such might easily be enforced by the
payment of small rewards to informers, and
the punishment of those who infringe the
rules laid down for the preservation of
fish, but I fear any attempt to adopt any
precise measures for securing "fair fishing"
generally, would involve the maintenance
of a large most expensive, and at the
same time doubtfully useful establishment.
In Canara in some places
the practice of drugging fish is very
prevalent, large quantities are annually
captured in this way; rendering such
conduct on the part of fishermen

+ No 209 of 20th
Dec 1871.
P. No 1335 of 4th
March 1872.
with a list

concerned punishable with heavy fine, or imprisonment would soon put a stop to it. A reward of 2 Annas per Crocodile's egg would tend much to reduce the numbers of these animals.

3 Except the Kadavali Amount on the Bhavani, all the amounts in the Coimbatore District are frequently submerged during the year, and thus no fish ladders are required except at this amount.

The question of preserving fish in Irrigation Channels when laid dry for clearing or repair is a difficult one, the best plan that suggests itself to me is that, of opening all under sluices and Tambogues all along the Channel to be laid dry, as these works nearly all draw into Rivers the fish would naturally leave the Channel with the water, at all events would not be destroyed in the large numbers they are at present, the existing practice being to raise small dams across the Channel and fish at by sections thus hardly as fish escapes.

I have the honor to be,
Sir,

Your most obedt. servant,

Wm. M. S. S. S. S.

By Supy. Engr, 7. 50.

List of fishes in the Bhavany and Cauvery Rivers, and in the Arkenoth, Thadappully and Calingarayan channels; showing time of spawning.

Names of fishes Time of spawning etc. Remarks.

- 1 Kalootter
- 2 Ardoondrai delotha
- 3 Panam do
- 4 Ioy do
- 5 Kenda
- 6 Tail Kenda
- 7 Tannuv do
- 8 Panjalai do
- 9 Talhar do
- 10 Valai
- 11 Parai Valai
- 12 Gattai do
- 13 Talcher
- 14 Kural
- 15 Trawns (ratto)
- 16 Korarai
- 17 Aloorai
- 18 Talangoo
- 19 Kothai miw
- 20 Porattaw koruppo
- 21 Kallarup
- 22 Kolyarup
- 23 Kolarup
- 24 Parooty
- 25 Panathar
- 26 Kothay Tannuv miw
- 27 Karanbar
- 28 Paural miw
- 29 Panau Paural
- 30 Karah miw
- 31 Irai
- 32 Alaru
- 33 Kalooroo
- 34 Pelly miw
- 35 Aroory

Spawn in April and deposit Eggs in July.

Spawn in April and deposit Eggs in July.

Spawns in September and deposits Eggs in December.

Talangoo 1' to 3' long and 3" upwards of 12" in circumference; generally caught by rod & line & also in bamboo conical traps set in strong currents. All the others are caught by rods & nets. Small sized fishes are generally taken in nets. Caught in abundance in Decr. January, February, March & April. No fishes are caught while the rivers are in fresh.

The Aloorai deposits eggs in the rocky banks of rivers. Kalootter in muddy banks and remains with the young in deep water. The Talai, Kalootter, Aroory, Panathar, Kenda are large fishes. They are from 1 to 4' long & 6" to 2' in circumference. They remain always in deep water.

The Paural miw is a bright coloured fish 2' long & 2' in circumference. Most of the other fishes, not specially mentioned in the Column are small in size, they are 3' to 12" long & 2" to 6" in circumference.

Only small sized fish are caught in the Calingarayan channel. The larger kinds do not live in the channel on account of its being closed once a year, & the frequent stoppages of water at the time of breaches in the channel.

About 3 families of fishes men, or boatmen, who live by catching fish and selling them, are at Bhavany.

Bongu hu Range office
Bhavany 5th Decr 1912

M. M. M. M.
Executive Engineer

1872-1873
1873-1874
1874-1875
1875-1876
1876-1877
1877-1878
1878-1879
1879-1880
1880-1881
1881-1882
1882-1883
1883-1884
1884-1885
1885-1886
1886-1887
1887-1888
1888-1889
1889-1890
1890-1891
1891-1892
1892-1893
1893-1894
1894-1895
1895-1896
1896-1897
1897-1898
1898-1899
1899-1900
1900-1901
1901-1902
1902-1903
1903-1904
1904-1905
1905-1906
1906-1907
1907-1908
1908-1909
1909-1910
1910-1911
1911-1912
1912-1913
1913-1914
1914-1915
1915-1916
1916-1917
1917-1918
1918-1919
1919-1920
1920-1921
1921-1922
1922-1923
1923-1924
1924-1925
1925-1926
1926-1927
1927-1928
1928-1929
1929-1930
1930-1931
1931-1932
1932-1933
1933-1934
1934-1935
1935-1936
1936-1937
1937-1938
1938-1939
1939-1940
1940-1941
1941-1942
1942-1943
1943-1944
1944-1945
1945-1946
1946-1947
1947-1948
1948-1949
1949-1950
1950-1951
1951-1952
1952-1953
1953-1954
1954-1955
1955-1956
1956-1957
1957-1958
1958-1959
1959-1960
1960-1961
1961-1962
1962-1963
1963-1964
1964-1965
1965-1966
1966-1967
1967-1968
1968-1969
1969-1970
1970-1971
1971-1972
1972-1973
1973-1974
1974-1975
1975-1976
1976-1977
1977-1978
1978-1979
1979-1980
1980-1981
1981-1982
1982-1983
1983-1984
1984-1985
1985-1986
1986-1987
1987-1988
1988-1989
1989-1990
1990-1991
1991-1992
1992-1993
1993-1994
1994-1995
1995-1996
1996-1997
1997-1998
1998-1999
1999-2000
2000-2001
2001-2002
2002-2003
2003-2004
2004-2005
2005-2006
2006-2007
2007-2008
2008-2009
2009-2010
2010-2011
2011-2012
2012-2013
2013-2014
2014-2015
2015-2016
2016-2017
2017-2018
2018-2019
2019-2020
2020-2021
2021-2022
2022-2023
2023-2024
2024-2025
2025-2026
2026-2027
2027-2028
2028-2029
2029-2030
2030-2031
2031-2032
2032-2033
2033-2034
2034-2035
2035-2036
2036-2037
2037-2038
2038-2039
2039-2040
2040-2041
2041-2042
2042-2043
2043-2044
2044-2045
2045-2046
2046-2047
2047-2048
2048-2049
2049-2050
2050-2051
2051-2052
2052-2053
2053-2054
2054-2055
2055-2056
2056-2057
2057-2058
2058-2059
2059-2060
2060-2061
2061-2062
2062-2063
2063-2064
2064-2065
2065-2066
2066-2067
2067-2068
2068-2069
2069-2070
2070-2071
2071-2072
2072-2073
2073-2074
2074-2075
2075-2076
2076-2077
2077-2078
2078-2079
2079-2080
2080-2081
2081-2082
2082-2083
2083-2084
2084-2085
2085-2086
2086-2087
2087-2088
2088-2089
2089-2090
2090-2091
2091-2092
2092-2093
2093-2094
2094-2095
2095-2096
2096-2097
2097-2098
2098-2099
2099-2100
2100-2101
2101-2102
2102-2103
2103-2104
2104-2105
2105-2106
2106-2107
2107-2108
2108-2109
2109-2110
2110-2111
2111-2112
2112-2113
2113-2114
2114-2115
2115-2116
2116-2117
2117-2118
2118-2119
2119-2120
2120-2121
2121-2122
2122-2123
2123-2124
2124-2125
2125-2126
2126-2127
2127-2128
2128-2129
2129-2130
2130-2131
2131-2132
2132-2133
2133-2134
2134-2135
2135-2136
2136-2137
2137-2138
2138-2139
2139-2140
2140-2141
2141-2142
2142-2143
2143-2144
2144-2145
2145-2146
2146-2147
2147-2148
2148-2149
2149-2150
2150-2151
2151-2152
2152-2153
2153-2154
2154-2155
2155-2156
2156-2157
2157-2158
2158-2159
2159-2160
2160-2161
2161-2162
2162-2163
2163-2164
2164-2165
2165-2166
2166-2167
2167-2168
2168-2169
2169-2170
2170-2171
2171-2172
2172-2173
2173-2174
2174-2175
2175-2176
2176-2177
2177-2178
2178-2179
2179-2180
2180-2181
2181-2182
2182-2183
2183-2184
2184-2185
2185-2186
2186-2187
2187-2188
2188-2189
2189-2190
2190-2191
2191-2192
2192-2193
2193-2194
2194-2195
2195-2196
2196-2197
2197-2198
2198-2199
2199-2200
2200-2201
2201-2202
2202-2203
2203-2204
2204-2205
2205-2206
2206-2207
2207-2208
2208-2209
2209-2210
2210-2211
2211-2212
2212-2213
2213-2214
2214-2215
2215-2216
2216-2217
2217-2218
2218-2219
2219-2220
2220-2221
2221-2222
2222-2223
2223-2224
2224-2225
2225-2226
2226-2227
2227-2228
2228-2229
2229-2230
2230-2231
2231-2232
2232-2233
2233-2234
2234-2235
2235-2236
2236-2237
2237-2238
2238-2239
2239-2240
2240-2241
2241-2242
2242-2243
2243-2244
2244-2245
2245-2246
2246-2247
2247-2248
2248-2249
2249-2250
2250-2251
2251-2252
2252-2253
2253-2254
2254-2255
2255-2256
2256-2257
2257-2258
2258-2259
2259-2260
2260-2261
2261-2262
2262-2263
2263-2264
2264-2265
2265-2266
2266-2267
2267-2268
2268-2269
2269-2270
2270-2271
2271-2272
2272-2273
2273-2274
2274-2275
2275-2276
2276-2277
2277-2278
2278-2279
2279-2280
2280-2281
2281-2282
2282-2283
2283-2284
2284-2285
2285-2286
2286-2287
2287-2288
2288-2289
2289-2290
2290-2291
2291-2292
2292-2293
2293-2294
2294-2295
2295-2296
2296-2297
2297-2298
2298-2299
2299-2300
2300-2301
2301-2302
2302-2303
2303-2304
2304-2305
2305-2306
2306-2307
2307-2308
2308-2309
2309-2310
2310-2311
2311-2312
2312-2313
2313-2314
2314-2315
2315-2316
2316-2317
2317-2318
2318-2319
2319-2320
2320-2321
2321-2322
2322-2323
2323-2324
2324-2325
2325-2326
2326-2327
2327-2328
2328-2329
2329-2330
2330-2331
2331-2332
2332-2333
2333-2334
2334-2335
2335-2336
2336-2337
2337-2338
2338-2339
2339-2340
2340-2341
2341-2342
2342-2343
2343-2344
2344-2345
2345-2346
2346-2347
2347-2348
2348-2349
2349-2350
2350-2351
2351-2352
2352-2353
2353-2354
2354-2355
2355-2356
2356-2357
2357-2358
2358-2359
2359-2360
2360-2361
2361-2362
2362-2363
2363-2364
2364-2365
2365-2366
2366-2367
2367-2368
2368-2369
2369-2370
2370-2371
2371-2372
2372-2373
2373-2374
2374-2375
2375-2376
2376-2377
2377-2378
2378-2379
2379-2380
2380-2381
2381-2382
2382-2383
2383-2384
2384-2385
2385-2386
2386-2387
2387-2388
2388-2389
2389-2390
2390-2391
2391-2392
2392-2393
2393-2394
2394-2395
2395-2396
2396-2397
2397-2398
2398-2399
2399-2400
2400-2401
2401-2402
2402-2403
2403-2404
2404-2405
2405-2406
2406-2407
2407-2408
2408-2409
2409-2410
2410-2411
2411-2412
2412-2413
2413-2414
2414-2415
2415-2416
2416-2417
2417-2418
2418-2419
2419-2420
2420-2421
2421-2422
2422-2423
2423-2424
2424-2425
2425-2426
2426-2427
2427-2428
2428-2429
2429-2430
2430-2431
2431-2432
2432-2433
2433-2434
2434-2435
2435-2436
2436-2437
2437-2438
2438-2439
2439-2440
2440-2441
2441-2442
2442-2443
2443-2444
2444-2445
2445-2446
2446-2447
2447-2448
2448-2449
2449-2450
2450-2451
2451-2452
2452-2453
2453-2454
2454-2455
2455-2456
2456-2457
2457-2458
2458-2459
2459-2460
2460-2461
2461-2462
2462-2463
2463-2464
2464-2465
2465-2466
2466-2467
2467-2468
2468-2469
2469-2470
2470-2471
2471-2472
2472-2473
2473-2474
2474-2475
2475-2476
2476-2477
2477-2478
2478-2479
2479-2480
2480-2481
2481-2482
2482-2483
2483-2484
2484-2485
2485-2486
2486-2487
2487-2488
2488-2489
2489-2490
2490-2491
2491-2492
2492-2493
2493-2494
2494-2495
2495-2496
2496-2497
2497-2498
2498-2499
2499-2500
2500-2501
2501-2502
2502-2503
2503-2504
2504-2505
2505-2506
2506-2507
2507-2508
2508-2509
2509-2510
2510-2511
2511-2512
2512-2513
2513-2514
2514-2515
2515-2516
2516-2517
2517-2518
2518-2519
2519-2520
2520-2521
2521-2522
2522-2523
2523-2524
2524-2525
2525-2526
2526-2527
2527-2528
2528-2529
2529-2530
2530-2531
2531-2532
2532-2533
2533-2534
2534-2535
2535-2536
2536-2537
2537-2538
2538-2539
2539-2540
2540-2541
2541-2542
2542-2543
2543-2544
2544-2545
2545-2546
2546-2547
2547-2548
2548-2549
2549-2550
2550-2551
2551-2552
2552-2553
2553-2554
2554-2555
2555-2556
2556-2557
2557-2558
2558-2559
2559-2560
2560-2561
2561-2562
2562-2563
2563-2564
2564-2565
2565-2566
2566-2567
2567-2568
2568-2569
2569-2570
2570-2571
2571-2572
2572-2573
2573-2574
2574-2575
2575-2576
2576-2577
2577-2578
2578-2579
2579-2580
2580-2581
2581-2582
2582-2583
2583-2584
2584-2585
2585-2586
2586-2587
2587-2588
2588-2589
2589-2590
2590-2591
2591-2592
2592-2593
2593-2594
2594-2595
2595-2596
2596-2597
2597-2598
2598-2599
2599-2600
2600-2601
2601-2602
2602-2603
2603-2604
2604-2605
2605-2606
2606-2607
2607-2608
2608-2609
2609-2610
2610-2611
2611-2612
2612-2613
2613-2614
2614-2615
2615-2616
2616-2617
2617-2618
2618-2619
2619-2620
2620-2621
2621-2622
2622-2623
2623-2624
2624-2625
2625-2626
2626-2627
2627-2628
2628-2629
2629-2630
2630-2631
2631-2632
2632-2633
2633-2634
2634-2635
2635-2636
2636-2637
2637-2638
2638-2639
2639-2640
2640-2641
2641-2642
2642-2643
2643-2644
2644-2645
2645-2646
2646-2647
2647-2648
2648-2649
2649-2650
2650-2651
2651-2652
2652-2653
2653-2654
2654-2655
2655-2656
2656-2657
2657-2658
2658-2659
2659-2660
2660-2661
2661-2662
2662-2663
2663-2664
2664-2665
2665-2666
2666-2667
2667-2668
2668-2669
2669-2670
2670-2671
2671-2672
2672-2673
2673-2674
2674-2675
2675-2676
2676-2677
2677-2678
2678-2679
2679-2680
2680-2681
2681-2682
2682-2683
2683-2684
2684-2685
2685-2686
2686-2687
2687-2688
2688-2689
2689-2690
2690-2691
2691-2692
2692-2693
2693-2694
2694-2695
2695-2696
2696-2697
2697-2698
2698-2699
2699-2700
2700-2701
2701-2702
2702-2703
2703-2704
2704-2705
2705-2706
2706-2707
2707-2708
2708-2709
2709-2710
2710-2711
2711-2712
2712-2713
2713-2714
2714-2715
2715-2716
2716-2717
2717-2718
2718-2719
2719-2720
2720-2721
2721-2722
2722-2723
2723-2724
2724-2725
2725-2726
2726-2727
2727-2728
2728-2729
2729-2730
2730-2731
2731-2732
2732-2733
2733-2734
2734-2735
2735-2736
2736-2737
2737-2738
2738-2739
2739-2740
2740-2741
2741-2742
2742-2743
2743-2744
2744-2745
2745-2746
2746-2747
2747-2748
2748-2749
2749-2750
2750-2751
2751-2752
2752-2753
2753-2754
2754-2755
2755-2756
2756-2757
2757-2758
2758-2759
2759-2760
2760-2761
2761-2762
2762-2763
2763-2764
2764-2765
2765-2766
2766-2767
2767-2768
2768-2769
2769-2770
2770-2771
2771-2772
2772-2773
2773-2774
2774-2775
2775-2776
2776-2777
2777-2778
2778-2779
2779-2780
2780-2781
2781-2782
2782-2783
2783-2784
2784-2785
2785-2786
2786-2787
2787-2788
2788-2789
2789-2790
2790-2791
2791-2792
2792-2793
2793-2794
2794-2795
2795-2796
2796-2797
2797-2798
2798-2799
2799-2800
2800-2801
2801-2802
2802-2803
2803-2804
2804-2805
2805-2806
2806-2807
2807-2808
2808-2809
2809-2810
2810-2811
2811-2812
2812-2813
2813-2814
2814-2815
2815-2816
2816-2817
2817-2818
2818-2819
2819-2820
2820-2821
2821-2822
2822-2823
2823-2824
2824-2825
2825-2826
2826-2827
2827-2828
2828-2829
2829-2830
2830-2831
2831-2832
2832-2833
2833-2834
2834-2835
2835-2836
2836-2837
2837-2838
2838-2839
2839-2840
2840-2841
2841-2842
2842-2843
2843-2844
2844-2845
2845-2846
2846-2847
2847-2848
2848-2849
2849-2850
2850-2851
2851-2852
2852-2853
2853-2854
2854-2855
2855-2856
2856-2857
2857-2858
2858-2859
2859-2860
2860-2861
2861-2862
2862-2863
2863-2864
2864-2865
2865-2866
2866-2867
2867-2868
2868-2869
2869-2870
2870-2871
2871-2872
2872-2873
2873-2874
2874-2875
2875-2876
2876-2877
2877-

Recd letter from the
Supty Engineer of the
river to the Secretary
Government dated 21st March
1872 No 277-

P. W. 1512/72

Recd 1st August 1872 No 651/14

Reply letter to the
Supty Engineer of the
river regarding the preser-
vation of fish in the
river-

No 3811 Superintg Engineer's Office
Madras 8-January 1872

From

Vicil: Colonel R. A. Roberts R.E.
Superintg Engineer 8th Div

To

Colonel J. Campendale R.E.
Secretary to Government 8th Div

Sir,

In reference to G.O. of the
23rd November 1871, No 2960, calling
for any remarks or suggestions
relative to the question of the
preservation of fish in the rivers
in the Madras Presidency, I
have the honor to report that
as far as I can learn there are
no valuable fisheries in this
Division.

2 In the Tambrapoorney River
at the Streriguntam Anicut,
Executive Engineer Vicil. Shepherd R.E.

states, there are so few fish that he is not aware that a single fisherman earns a living by the fish caught there. If fish were stopped by the Aricut, they would be caught there extensively, so it would seem unnecessary to construct a fish ladder there.

3 Fishing is practised in all the larger tanks of this Division. The establishment of a close season might be an advantage, but practically in these tanks there must now be a close season, or else the fishery would be destroyed.

4. I have already in the enclosure to my letter No 1153, dated 8 July 1871, recommended that the fishery of tanks should no longer be a direct source of revenue to the Government.

6, 0 923 dt
11th June 1872

but that these fisheries should be given over to the Ryots cultivating under such tanks, on the condition that the Ryots maintain their tanks in repair. No better means for the introduction of a close system can, as it appears to me, be devised than a plan of which the basis is self-interest.

I have the honor to be,
Sir
your Most obedient servant
Rico J. Roberto Tuitbol. Ac.
Superintg. Engineer & Dr.

Compd. Pl

Special Executive Engineer
 No 2111... and Office, Wynand, Mysore
 May 1872
 The Special Executive Engineer
 Wynand
 The Secretary to Government
 Department Public Works
 Madras
 Sir,
 Reference of No 2960 dated
 23 November 1871.
 There being no student or
 other irrigation works in this district
 para 2 of the above order calls for no
 remark of mine; but I may observe
 with reference to para 1, that great
 destruction of fish has occurred annually
 in fact, were it not that in one or two
 of the larger rivers certain spots are
 high, sacred and then fish strictly protected
 and the difficulty of carrying on the des-
 truction during the Monsoon, fish
 would be entirely exterminated in the Wynand
 streams.
 The modus operandi generally
 in use is to make dams and weirs
 across the streams, turning the whole of the

To Mr. Wynand
 Mysore
 From No 165.
 Dated 12th January 1872

The Chief Engineer
 18 Division
 Mysore
 Dated 12th January 1872

Dated 8th
 Dec 12th January 1872

Reports upon the
 operations of the
 preservation of
 fish in the rivers
 in the Mysore

No 15

Dated 1872
 No 1822. 4th Aug 1872

the water into a narrow channel at
the end of which a fish trap is placed,
and the fish driven down into it. Nets
with very small meshes are also used,
and the river swept from end to end;
but the most destructive of all methods
is after fixing dams at intervals
along the stream to throw the fruit of
a tree (with the name of which I am un-
acquainted) of a most deleterious nature.
The effect being to stupify every fish in the
locality, and leaving them floating to the
surface; when of course they are easily
secured; this practice is not only fatal
to the fish, but is the cause also of acute
diseases to people using the water of the
poisoned streams for drinking purposes.
were some measures adopted to prevent
these destructive practices, I have no doubt
that, constituting as they do the head waters
of many large rivers, the streams of Myan-
mar would prove excellent and prolific breeding
places for fish. We have seen very large
fish taken from the Manantloody River,
which from its size, and from the protection
afforded by the Pagoda ^{on} the banks, suffers
less than other streams; amongst others
a fish resembling a Carp was brought to the
house where I was stopping, which weighed
over

over 65 lbs.

3. I think that the mischief
might easily be prevented by the Ad-
miral and other village authorities being
instructed to send the perpetrators up
for punishment, especially in the case
where the water is poisoned; a few ex-
amples would soon put an entire stop
to the practice.

I have the honor to be
Sir,
Your most Obedient Servant,
Adm. S. M. M. L. Major
Special Ex. Eng. W. W. W. W.

Sept. 1872

Proceedings of the Madras Government Under date the 1st Aug 1872

Read the following

From the Supy Engr	1st Dec	Revenue No 600/20	May 1872
From	2nd	130	20 Dec 1871
From	3rd	1670	1 Dec 1871
From	4th	1371	2 July 1872
From	5th	138	14 May
From	6th	279	21 March
From	7th	8811	8 Jan
From	8th	244	9 May
From the Executive Engr	By order		

[Signature]
J. O. S.

The Government
in their order No 2960
of the 23 November 1871
called upon the Super-
intending Engineers
for any suggestions they
might have to offer
relative to the question
of the preservation of
fish in the Madras
Presidency and for
reports upon the suc-
cess or otherwise of the
fish ladders already
constructed.

Dec 23 1872

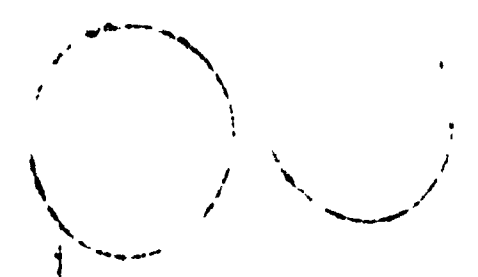
1872

to the Secretary to
the Government
Madras

dated 9 June 1872

Approved by the
Secretary to the
Government of Madras

1872-10 Aug 6/7



In two Divisions
only have fish ladders
been constructed, viz.
in the Kistna and in
the Lower Coleroon Ari-
cut. Of the former the
Sup Engineer reports
that the ladder appears
easily surmountable
by fish but that he
cannot find that
any attempt is made
of the latter the Superin-
tending Engineer of the
6th Division reports
that after careful en-
quiries he is led to be-
lieve the ladder is
not used by the fish
for whose special be-
nefit it was constructed.

109 26
The Superintending
Engineers of the 1st, 2nd,
3rd, 4th, and 8th Divisions
offer no suggestion on
the general subject of
fish preservation in
the rivers.

The Superintending
Engineer of the 7th Division
suggests that a "close
season" be enforced,
that the practice of
"drugging fish" frequently
resorted to in Canara
be rendered penal
and that in emptying
Irrigation Channels
for annual repairs,
certain precautions in
the working of sluice

and other shutters be
observed.

The Superintendent
of the 6th Division attributes
the disuse of the
ladder in the Lockroom
anent to the velocity
of the water passing
down it, the small
size of the bays and
their unsheltered position,
while the ladder not
extending into still
water, he thinks fish
cannot be attracted
by it. He considers that
the velocity of the water
and comparative in-
significance of an
opening up foot square

21 27
would prejudice the
arrangement proposed
by Dr. Day in his
letter which accom-
panied G. O. No. 585
dated 25th February 1871,
but that any extension
of such a system to a
number of under sluice
vents necessitating the
working of double
shutters, would be
open to serious engi-
neering objections.

He advocates the
construction of a lock
somewhat similar to
that proposed by Dr. Day,
the enforcement of a
close season of two
months, and the offering

a of a small reward
a for the eggs or capture
of Alligators.

g He would also
advocate the prohibi-
tion of all fishing
in the pools of the
Coleroon river after
January in each
year if it can be
shown that such
interference is really
called for by the in-
creasing diminution
c of the stock of fish in
the river, which fact
he appears to doubt.

a The Special Exe-
cutive Engineer in
of the Wynad reports
that the dragging of

53 28
the fish in the west coast
rivers is a prevalent
custom, he would
render such proceedings
penal.

The Executive En-
gineer of the Keilcherries
would urge the intro-
duction of suitable
fish into several of the
larger streams and
reservoirs but consid-
ers the experiment
would be attended
with great difficulty.

The Government
resolve to call upon
the Super Engineer
of the 6th Division to
submit designs and
estimates, (1) for the

improvement of the
existing ladder (2) for
the construction of a
fish lock of the des-
cription recommended
in his letter under review.

The Government
are unable to reconcile
the statement put
forth in the report
by the ^{late} Super Engineer
of the 2nd Division
with the fact that the
fishery at the aicut
is annually rented
to Contractors for a con-
siderable sum; the
season of the year se-
lected for the Superin-
tending Engineer's enquiries

55
and the description of fish
alluded to are not men-
tioned, while the suc-
cess or otherwise of the
ladder appears in no
way deducible from the
presence or absence of
fish in the pool below.

The report is so un-
meagre and unsat-
isfactory that the
Government desire
that the officiating
Super Engineer will
give the subject his
best attention and
submit a further
and fuller report
at the conclusion
of

of the present irrigation
season.

Chas

Emm

Supg Eng'rs
Major Kennel
Chief Eng'rs for
Irrigation
Rev Depott
Decr 16/8/12

the present irrigation

3/2/68, 2607, 5783, 3221, 2370
1734, 1512, 165 & 2396
Golt. of 1872: Madras.

PUBLIC WORKS.

To Superintending Engineer

Proceed

M

Dated

At. J.

Page 2

10/1 Aug 1879, No. 100

NOE 8/6/77

Memorandum of Proceedings

*to the Madras Presidency
being orders in papers
in the subject of the
irrigation of the
to the Madras Presidency*