

# MADRAS RECORD OFFICE.

Government of Madras.

*Revenue* DEPARTMENT.

G.O. No. 258

Press

~~Mis.~~

Dated 30 — 1 — 1868.

Not to be folded or roughly handled

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*Proceedings of the Madras Government, Revenue Department,  
30th January 1868.*

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No. 523. Read the following Proceedings of the Madras Government in the  
Public Works Department:—

Sanctioning Rupees 10,940 in excess of the  
original estimates of the regulating dams at  
the heads of the Arasalar and Veerasholem, } (Here enter 24th January 1868, No. 270.)  
in Tanjore.

No. 524. ORDER THEREON, 30th January 1868, No. 258.

Irrigation, No. 15.

Communicated to the Revenue Board.

(True Extract.)

(Signed) F. BRANDT,

*Under Secretary to Government.*

To the Board of Revenue, with Proceedings Public Works Department, No. 270.

Ed. S. T. Augustin.

Read the following papers:—

No. 521. From the Superintending Engineer, 6th Division, to the Chief Engineer for Irrigation and Joint Secretary to Government, Department Public Works, dated Tanjore, 2nd December 1867, No. 1,318.

1. I have the honor to inform you that Mr. Walch, the Range Officer in whose range the Arasalar and Veerasholem heads are situated, lately requested me to fix the sites of the regulating dams sanctioned in G. O., No. 775, dated 14th March. I had supposed that this had been done, and that Captain Mead's estimates provided for the actual requirements of the spots selected as the sites for the dams. It appears, however, that owing to the constant changes in the rivers at the points of separation, and to the fact that the nose between the rivers seldom or ever occupies precisely the same position two years consecutively, and that it was not possible to form an idea when the proposed works would be sanctioned for execution, Captain Mead prepared his estimates for the average section of the river about 200 yards below the points of bifurcation, where he proposed they should be placed.

2. If regulating dams are built some 200 yards below the points of separation, and the nose is constantly shifting, the river heads above the dams would shoal more or less according to the set of the stream above, much as it now does, and the contracted waterway at the dam would throw back the stream, and the scour across the nose between the rivers would probably be very strong, and no temporary works, such as are now used, would probably be able to resist the force of the current.

3. To render the regulation of the supply of water tolerably permanent, and to save all further trouble and expense relative to the maintenance of the spur or nose at the points of bifurcation, it appears advisable to me to place the dams at the points of separation of the two streams and to provide masonry noses to connect the wings of the dams, and for such works the enclosed estimates provide.

4. These estimates far exceed the original estimates sanctioned, partly on account of the new masonry noses, and partly on account of the increased section I have given to the wings and to the increased depth given to the foundations,

and the consequent increase in the charge for baling. The section given to the wings may be regarded as unnecessarily great, but it must be borne in mind that it is not proposed to protect these works with rough stone, on account of the costliness of rough stone, and that it is desirable that the work should be massive, and the foundations should be carried as low as possible: and as we have succeeded in getting down foundations 10 feet and 10½ feet in the solid in the Coleroon at the lower anicut, I think we may calculate upon being able to do the same in a high level river like the Cauvery.

5. I have not proposed to alter the lengths of the dams, but I have altered the wings to admit of their effectually protecting the banks. It will be observed

|               |     | Deep bed. | Dam.     |
|---------------|-----|-----------|----------|
| { Cauvery     | ... | 538 feet  | 220 feet |
| { Arasalar    | ... | 217 "     | 140 "    |
| { Cauvery     | ... | 145 "     | 120 "    |
| { Veerasholem | ... | 190 "     | 105 "    |

that the breadth of the rivers is far greater than the length of the dams, and particularly in the Cauvery at the Arasalar head; here an embankment, upwards of 100 yards long in the deep

bed, will have to be constructed to reduce the waterway and to connect the north wing with the Padugay, this bank must be protected with durbah rollers and facing, for, though nanal will be planted above it, the first set of the stream will be upon it, and until the course of the deep stream is diverted by the draught to the centres of the dams, there will be considerable action along the bank, and this will be in a somewhat less degree the case with all the other connecting banks at first.

6. In the Cauvery and Arasalar dams the centre or lowest section is placed at 156.5 feet above the datum, or 0.6 feet above the deepest portion of the bed of the

|                        |     |     |       |                                         |
|------------------------|-----|-----|-------|-----------------------------------------|
| Section XLIX, Cauvery  | ... | ... | 155.9 | Cauvery, and 1.8 feet above that of the |
| Section I, Arasalar    | ... | ... | 154.7 | deepest portion of the bed of the       |
|                        |     |     |       | Arasalar. The deep beds of the          |
| Section LXX, Cauvery   | ... | ... | 123.5 | Cauvery and Veerasholem are about       |
| Section I, Veerasholem | ... | ... | 125.9 | 3.1 and .6 below the lowest portion of  |

the dams, which are to be 126.5 above datum; it will thus be observed that the 10 feet foundation given to the dam and wings are really only about 8.2 and 6.9 feet below the deep streams in the bed of the Cauvery just above the points of separation, and I propose to carry down the foundations of the dam and front wings to the full depth of 10 feet, and not to reduce the depth to 7 feet, as Captain Mead proposed.

7. The effect of the dams will be to lower the beds of the rivers immediately below them, and it is quite possible that a rough stone apron to the Arasalar dam in the Arasalar river, and to the Veerasholem dam in the Cauvery, will be eventually required in rear of the lowest step of the dam; in rear of these dams the aprons, it will be observed, have a lower step two feet below the level of the dams.

8. The masonry noses connect the wings of the two dams, and the distance apart between the wings is just sufficient to cover the foot of the bank required between the rivers, giving it a slope of two to one, and a top breadth of two yards, this will admit of a fringe of nanal being provided at the foot of the slope of the bank if the slope is reduced to  $1\frac{1}{2}$  to 1 after the bank has become consolidated.

9. Reducing the waterway in the rivers as the dams do, it is possible that an extension of the rear wings from the extremity of the curve at the aprons will eventually be necessary to prevent the wings from being turned by the eddy formed by the back-water, and to prevent the destruction of the narrow bank which will separate the rivers near the noses.

10. Until the course of the river has adapted itself to the new direction which will be given to the deep stream, it is probable that there will be a considerable current along the noses between the dams, and it has struck me that the formation of a spur, as shown in tracing No. III, may have the effect of arresting the current and of keeping the scour away from the face of the noses. I propose to give this spur a cut-water, and to face it with stone to a depth of 5 feet below the level of the dam and to raise it 2 feet above that level, or to the level of the higher step of the dams adjacent to the wings: should this be approved, I beg that the cost of the spur, Rupees 470, may be added to each estimate, which will raise them to Rupees 16,270 and Rupees 10,770.

11. I have not yet visited the Codamoorthy head, but as Captain Mead there proposed to provide a masonry nose, and he has given a good section to the wings, it

is probable that the only alterations which will be necessary will be the deepening of the foundations from 7 feet to 10 feet, and a consequent increase to the allowance for baling, these alterations will add comparatively little to the original estimate of Rupees 72,300.

No. 522. From the Superintending Engineer, 6th Division, to the Chief Engineer for Irrigation and Joint Secretary to Government, Department Public Works, dated Tanjore, 14th September 1867, No. 1,381.

1. With reference to your Memorandum dated 10th instant, I have the honor to inform you that, owing to an investigation I have been obliged to make relative to certain malpractices on the part of an Overseer, I have not been able to reply to the G. O. of the 19th October, or to Colonel Strachey's Memorandum, nor can I hope to do so before the Christmas holidays.

2. My Memorandum No. 1,354, dated 7th instant, with the demi-official to Colonel Orr, which accompanied it, will have afforded you some intimation of my views relative to the proposed regulation of the waters of the Cauvery. You will observe that I am very much opposed to a reduction in the supply which can be passed down the deltaic rivers with safety.

3. If the supply which is to enter the Cauvery is to be limited at all times and seasons to three or five cubic yards per hour per acre, I am of opinion that the regulating works at the heads of even the larger branches, such as the Vennaur, Codamoorthy, &c., should be provided with works which would admit of the whole or nearly the whole supply being thrown down either branch, as occasion may arise; and, in connection with the regulating works for the branches of the Vennaur, I had determined that they should be so constructed as to admit of the complete regulation of the supply when the rivers were low. This is the more necessary in the Vennaur branches, because the supply that river receives is defective, and will be so for some years at least, as the large works which would be required for the Cauvery regulation will probably be discussed for years, and will be three or four seasons under construction as our working seasons are so very short when work has actually to be performed in the bed of one of the deltaic rivers, and it is on this account that I reply at once to your Memorandum, as it must be determined at once what is to be the form, &c., of the regulating works at the Arasalar and Veerasholem heads, or the working season will be lost. These works should be commenced early in January.

4. With regard to the work proposed, the plan of which is returned, I have to observe that it is unsuited to any of the rivers which are made use of for navigation, for the basket boats are 12 and sometimes 14 or 15 feet in diameter. It is, therefore, unsuited to the Veerasholem, which is often used for the conveyance of grain to Tranquebar, and from which Colonel Lawford removed all the dams, or opened tambogyies in them, to admit of navigation, and more particularly to convey stone from Trichinopoly to Tranquebar for groynes there. If, therefore, regulating works are to be built, so as to admit of water being thrown into either river alternately, when the freshes are low, they should take the form of bridges with 30 feet spans or thereabout, with sluices under them, one or more arches being left open for navigation.

*Proceedings of the Madras Government, Public Works Department,  
24th January 1868.*

5. Bridges are not required for communications either at the Veerasholem or Arasalar heads, though at the latter were a bridge provided Papanassem might eventually be connected with Road No. 2, by carrying a road along the south bank of the Arasalar, and by providing a bridge in connection with the Coodamoorthy and Moodicondanaur regulating dams; but the proper and more convenient line between Papanassem and Road No. 2 is that direct to Kabistalam, and on it four bridges will be required; under the circumstances, I would not advocate any provision being made in the dams at the Arasalar or Veerasholem heads to regulate the supply by means of planks, and unless a platform of some sort were provided over the piers, with the proposed plan, access to the shutters would be impossible were more than a foot or a foot and a half of water flowing over the dams.

6. With reference to the levels estimated relative to the regulation of the water according to the standard supply, the numbers 127 feet and 159 feet refer, I presume, to the level of the dam, this would give a fall of 2.5 feet on to the apron of the Cauvery dam at the Veerasholem head, and of 4.5 feet at the Arasalar head on the Arasalar apron, and these levels are above those of the deep beds of the rivers. If I understand correctly, the dam, or floor as it is termed, is to be of one uniform level, and the aprons must be far more massive than that proposed; under any circumstances, I regard the proposed section as far too slight, and the stability of the whole work would depend upon the two retaining walls, and I should apprehend that the half a foot of brick-work over the concrete would soon be torn up with a fall of four and a half feet upon it. The standard supply should, in my opinion, be regulated by means of steps in the dam, so that there may be some back-water to form a cushion on the apron before the water rose to the height of the dam.

7. The construction of dams across the Cauvery, below the Veerasholem head, with Rajah Voikals taken from them, would doubtless be advantageous to the people, but they would, I fear, tend to raise the bed of the Cauvery.

8. The construction of these dams would be much opposed by the villagers deriving their supply from sluices below the dams, for while recognizing the advantage of dams and Rajah Voikals, the villagers would wish the dams to be placed just below the heads of their own channels, so that they might enjoy the full benefit of the dams, while the proprietor of every sluice below the dam would oppose its construction, even if assured that the Rajah Voikal should be extended to his channel which was to form a portion of the Rajah Voikal. It is on account of opposition of this nature I have not been able to improve the supply to certain lands under the Odenbogyee. The people are most jealous and distrustful of each other, and would prefer having their separate sluices in the Cauvery to drawing a supply from a Rajah Voikal, unless they drew the first supply, or their sluices were near the head, and if the supply were reduced to the standard supply, unless every sluice were kept under lock and key, much water would be wasted by the proprietors of lands first supplied, and the lands deriving a supply near the tails of the Rajah Voikals would undoubtedly suffer.

9. Before any material changes can be made, or the regulation of the water on a large scale can be undertaken, an Act must be passed vesting the members of the department with power to interfere in the regulation of the supply, of water.

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24th January 1868.*

No. 523. From the Superintending Engineer, 6th Division, to the Chief Engineer and Joint Secretary to Government, Department Public Works, dated Tanjore, 20th December 1867, No. 1,413.

With reference to the instructions contained in your demi-official of the 17th instant, I have the honor to enclose revised estimates, in abstract, for the Arasalar and Veerasholem dams, providing for an extra lineal waterway 30 feet in the former and of 20 feet in the latter.

|                      | Feet. |                                         |
|----------------------|-------|-----------------------------------------|
| { Cauvery ... ..     | 250   | The length of the dams will now be as   |
| { Arasalar ... ..    | 170   | per margin, and the estimates have been |
| { Cauvery ... ..     | 140   | raised by Rupees 700 and Rupees 500     |
| { Veerasholem ... .. | 125   | respectively, and now amount to Rupees  |
|                      |       | 16,500 and Rupees 10,800.               |

No. 524. ORDER THEREON, 24th January 1868, No. 270.

IRRIGATION, No. .

1. The Government, in their Proceedings dated 14th March 1867, sanctioned the construction of the

following regulating works for the Cauvery and its larger branches:—

|                                                                               | RS.    |
|-------------------------------------------------------------------------------|--------|
| Dams, with bridges, for the Cauvery and Coodamoorthy, at an estimated cost of | 72,200 |
| Cauvery and Arasalar dams                                                     | 10,000 |
| Cauvery and Veerasholem dams                                                  | 7,300  |
| Minor masonry works                                                           | 9,550  |
|                                                                               | 99,150 |

2. The Superintending Engineer, in his letter dated 20th December, reports that the designs of the proposed dams at the heads of the Arasalar and Veerasholem were drawn out with a view to their being built at some distance below the heads of the channels, but that this arrangement is objectionable owing to the narrow strip of land which separates the main channel from the branches being liable to erosion, and to the impracticability of securing it by means of temporary works. He therefore proposes to build the dams immediately on the heads of the channels, and to connect the inner flanks by curved masonry abutments, which will completely shelter the tongue of land in rear of each from the direct action of the current.

3. He has also allowed a greater depth of foundations throughout the whole of the works than the original estimates provided for, and, as a further precaution, he recommends the construction of a masonry cutwater in advance of the curved abutments. As regards the last named work, however, Captain Oakes does not appear to be confident of its answering the purpose intended, and the Government are of opinion that the sum which it is calculated to cost would be more advantageously expended in rough stone, which may be collected on the spot, and thrown in as required at any point where the stream may set against the abutments.

*Proceedings of the Madras Government, Public Works Department,  
24th January 1868.*

4. Looking also to the great width of the channels, and to the considerable increase of velocity which would be produced by contracting the waterway of the dams to the extent proposed in the first instance by Captain Mead, and adhered to in the designs now submitted, the Government consider it expedient to allow for an extension of the dams to the following amount :—

|                                      |     |   |       |
|--------------------------------------|-----|---|-------|
| { Cauvery from 220 feet to 250 feet. |     |   |       |
| { Arasalar                           | 140 | „ | 166 „ |
| { Cauvery                            | 120 | „ | 140 „ |
| { Veerasholem                        | 105 | „ | 125 „ |

5. These additions will add 1,200 Rupees to the amount of Captain Oakes' estimates, which will then stand as follows :—

|                                                             |        |
|-------------------------------------------------------------|--------|
|                                                             | RS.    |
| Dams across the Cauvery and Arasalar, at head of latter ... | 16,970 |
| Do. at head of Veerasholem ... ..                           | 11,270 |
|                                                             | <hr/>  |
|                                                             | 28,240 |

or 10,940 Rupees in excess of the original estimates, which amount is hereby sanctioned.

(True Extract.)

*[Signature]*

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

To the Superintending Engineer, 6th Division.  
„ Controller of Public Works Accounts.  
„ Accountant General.  
„ Revenue Department.

Revenue 1868. 20th  
Sept. 1868. 237.

Proceedings of the  
N. Y. Assembly.  
1868.

Attest 21st day  
Received 22nd 1868.

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Notes of the  
N. Y. Assembly.  
1868. 30th day.

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Re. 258.

Committee to the  
Revenue Board.

30th day 1868

14. 25th day 1868. 1868. 1868.

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