

MADRAS RECORD OFFICE.

Government of Madras.

Revenue DEPARTMENT.

G.O. No. 2095

Press

~~MR~~

395. 396

Dated

16 - 8 - 1866.

Not to be folded or roughly handled

*Proceedings of the Madras Government, Revenue Department,
16th August 1866.*

No. 395. Read the following Proceedings of the Madras Government in the
Public Works Department :—

Passing orders on papers relating to G. O. pro-
hibiting Madras Irrigation and Canal Com-
pany from using the water of the Toombud-
dra after 1st January in each year. } (Here enter 10th August 1866, No. 2,527.)

No. 396. ORDER THEREON, 16th August 1866, No. 2,095.

Miscellaneous.

Communicated to the Board of Revenue.

(True Extract.)

(Signed) J. GROSE,

Under Secretary to Government.

To the Board of Revenue, with Proceedings Public Works Department, No. 2,527.

Ed. S. T. Augustin.

No. 222. Read the following letter from the Consulting Engineer, Irrigation and Canal Company, to the Secretary to Government, Department Public Works, dated Madras, 21st July 1866, No. 33 :—

1. I have the honor to submit, for the information of Government, a letter, No. 113, of the 18th instant, from the Agent and Manager, Madras Irrigation and Canal Company, with the Resolution of the Board and letters from the Chief Engineer, as per margin,* attached, requesting the re-consideration by Government of the orders requiring the closing of the head sluices of the main Canal at Soonkasala, on the 31st December in each year. The last Order on the subject was that of the 19th April 1865, No. 1,030.

1 Letter in original from Agent, dated 18th July 1866, No. 113.

* Board's Resolution, dated 27th April 1865.
Chief Engineer's letter, No. 225, 6th instant.
Do. do. „ 230, 7th „

2. The Resolution of the Board was originally communicated to me by the Agent on the 8th June 1865; but in order to afford the Directors an opportunity of considering the Order passed on the subject in April, Mr. Henslowe wished its submission to be postponed, and this appeared to be the better course as there were no new facts or arguments to bring forward at that time.

3. The Chief Engineer now brings to notice the circumstances which make it, in his opinion, of much importance that the restriction on the admission of water to the main Canal after the 31st December should be relaxed. These circum-

1st.—The late date of the freshes in the Toombudra. This year the river did not rise until the 23rd June.

2nd.—The length of time which is necessary, with due regard for the safety of the embankments, for passing water down the Canal. It is estimated that 15 days will be required for the first 45 miles to Nagatore.

7 Do. do. do. next 15 do. Jupaud.

3 Do. do. do. „ 12 do. Metacondal.

1 Do. do. do. „ 20 do. Jootoor, by the Caulee.

7 Do. do. do. „ 28 do. Donapaud;

or 33 days for 120 miles.

4. The Pennair is in the 178th mile, so that, at the rate of four miles a day allowed for the part immediately above Donapaud, 14 or 15 days more would be needed to reach the cultivation at the southern extremity of that part of the Canal lying to the north of the Pennair.

5. The Company are allowed to admit water for irrigation to their Canal on and after the 1st of June; and in years in which the Toombudra freshes are not abnormally late, and local rains almost or entirely absent, it is certain that the circumstances of the Canal will be far more favorable than has been the case this season, which, throughout the Presidency, has been a very bad one for all agricultural operations.

6. Were the Canal double banked throughout, the length of time required for passing down water would in all seasons be considerably shortened. In years which must be considered exceptional, the rain-fall may be sufficient to fill the

tanks before, say, the 12th of June, and thus prevent any considerable delay; but in an ordinary year the rain-fall will only partially perform this part of the operation, and the water admitted at Soonkasala must do the rest.

7. The single banked portions of the Canal are all above the 60th mile, and, without a calculation of the capacity of the Canal and numerous tanks in those 60 miles, I cannot say positively what would be a fair length of time for passing the water down thus far when the Canal has been placed in fair working order, a condition to which it has not of course as yet attained; but I should be disposed to think that 15 days would be sufficient, and that for the double banked portion 12 miles a

day would not be too rapid a rate, or say 20 days from Soonkasala to Donapaud, and 25 days to the Pennair, instead of 33 days* and 48 days† respectively.

* Paragraph 3 above.
† Do. 4 do.

8. In seasons, therefore, in which the Toombudra freshes come down before the 1st June, so as to admit of a sufficient supply being admitted to the Canal at Soonkasala on that date, I am disposed to believe that, with the Canal in proper order, the water will be available for every distribution channel down to the Pennair by the 1st of July, after which date there will still be six months available for cultivation.

9. Exceptional seasons, however, call for arrangements other than those which may ordinarily be found to be sufficient, and, if the freshes are late in making their appearance, they may likewise be late in taking their departure. Without therefore altering the rule,

For shutting the Soonkasala head sluices on the 31st December,

which, for the reasons stated in my letter of the 7th April 1865, No. 238, it would not be wise to do, I do not see

any objection to its relaxation under exceptional circumstances, should it be found that such a relaxation can be permitted without prejudice to the interests of the Kistna irrigation.

10. In each season the Government will be informed of all important circumstances connected with the Company's works, and among them of the prospects of the cultivation; and, on the other hand, as the time for closing the Soonkasala head sluices, according to rule, approaches, it will be easy to ascertain the state of the Kistna, and, if necessary, to grant special permission for the continued admission of Toombudra water for irrigation.

11. By such an arrangement the early commencement and completion of the cultivation under the Company's Canal will be encouraged, and it is of much importance that as a rule the sowing should be effected at so early a date as to ensure the maturity of the crops within the time for which a full supply can with tolerable certainty be afforded in average seasons. At the same time, should the season be unusual and the freshes later than in general, there will be nothing to prevent the Officers of the Company showing cause for a special relaxation of the existing regulation regarding the admission of Toombudra water to the main Canal at Soonkasala.

12. The Chief Engineer in speaking of the state of the Kistna at Bezwarah, and in estimating the quantity of water running to sea over the dam after the

close of December, appears to have been unaware that, in October or November of each year, a rubble stone dam is usually placed on a crown of the permanent weir, and that, therefore, the quantity of water running unutilized to the sea is, though considerable, but a fraction of that which is represented by the same depth on the permanent crown passing freely over.

From the Agent and Manager, Madras Irrigation and Canal Company, to the Consulting Engineer, Madras Irrigation and Canal Company, dated Madras, 18th July 1866, No. 113.

1. On the 27th April 1865, the Board of Directors agreed to a Resolution on the subject of the Order of Government which forbids our using the water of the Toombudra for purposes of irrigation after 31st December.

2. I communicated that Resolution to you on the 8th June 1865 (No. 83), but I thought it prudent to delay its submission to Government.

3. The time has, however, I think, now arrived when that Resolution ought to be submitted to Government, and I trust they will give it a favorable consideration. I enclose a copy.*

* Dated 27th April 1865.

4. The freshes in the Toombudra are, I believe, generally looked for in April and May. Last year from the 17th April to the end of the season there was a continuous and ample supply. This year the river remained perfectly dry until the 23rd June; and as it is necessary to observe great caution in admitting the water into the Canal, considerable delay must occur before it can reach the bulk of the irrigable land. The season for cultivation must therefore be very materially curtailed, if Government adhere to this determination to stop the supply on the 31st December. So much so as probably to deter some of the Ryots from attempting operations which may be rendered unnecessary by the summer supply.

† Nos. 223 and 240 of 5th and 7th July 1865.

5. I enclose copies of two letters† which I have recently received from Mr. Latham on this subject, and request you will be good enough to lay them before the Government, together with the Resolution of the Board, and with a request that Government will be pleased to re-consider the subject, with a view, if possible, to remove or modify a restriction which threatens to impair very seriously the utility of our Canal.

THE MADRAS IRRIGATION AND CANAL COMPANY,
8 and 9 Queen Street Place, Southwark Bridge, London, E. C.

At a Meeting of the Board of Directors of this Company held at the Office, 27 Cannon Street on Thursday, the 27th day of April 1865, it was unanimously resolved:—

That it appears to the Board that water may be supplied from the Toombudra river to the Company's Canal without prejudice to the interests of the District irrigated by the Bezwarah Canal so long as water passes the latter by the natural channel of the river, and that every purpose will be served by cutting off the supply at Soonkasala only when the contrary state of things has arisen, and by which also the general interests of the country will be more effectually provided for. This arrangement might be carried out under the directions of the Collectors of the two Districts. The Board trust that the Madras Government will, on re-consideration, be induced to approve of this course.

From the Provisional Chief Engineer, Madras Irrigation and Canal Company, to the Agent and Manager, Madras Irrigation and Canal Company, dated Kurnool, 6th July 1866, No. 225.

1. The Government have on two occasions, when the matter had been brought before them, prohibited this Company from taking water from the Toombudra at Soonkasala after the 1st January, in each year.

G. O. No. 744, of 17th March 1865.

*Proceedings of the Madras Government, Public Works Department,
10th August 1866.*

2. The last time the subject was brought before it, it was not so much I think, on the main question, as upon a partial one, viz. for irrigation above Kurnool, water should be taken all the year round. There has also been a proposal, that, for all irrigation, water should be taken all the year round.

Revised Departmental Order, No. 478, of 24th March 1865.

3. I am not now desirous of raising a question upon the principle of the past Government orders. I assume, that care must be taken to secure the non-interference of this Company's irrigation with that of the Delta Works. I think that experience hitherto authorizes the submission to Government of a modification of the existing rules.

4. By the present rule, the Company are at liberty to irrigate from the 1st Juno. This seems antieconomical. The Kistna comes down in volume about June, long before the Toombudra, so that by the time the Company can take water, the Delta is over-supplied with it.

5. I think, I may assume, that so long as water is passing over the Masulipatam ancient a foot deep, no harm can result from our head sluices at Soonkasala being open. With such a depth, about 11 millions of cubic yards of water an hour must be running to waste besides what enters the Bezwarah head sluices. It is a pity to waste even half that, when avoidable.

6. This year, our head sluices were closed, except enough to supply Kurnool town, and all irrigation stopped on the 1st January; while nearly eighteen inches of water was running to waste at Bezwarah. The water did not stop till the 20th January, when the water fell to the crest of the Kistna ancient. In 1863, there were only about nine inches on the crest at Bezwarah on 1st January. In 1864, more than a foot was running to waste until the 18th January, and the water continued to run over till the 17th February. In 1863, there was a foot (more or less) running over till the end of February, and in 1862, the water ran to waste till that time. Since 1853 the crest has never been dry on the 1st of January.

7. It is not as if the Canal took from the Delta supply 400,000 cubic yards an hour. When the water is running over the crest of the Kistna ancient, the water at Soonkasala generally falls below the crest of the ancient in November, and the whole discharge of the river would generally not suffice to fill the Canal by the end of that month.

8. It has become evident that the water cannot be admitted into the Canal after the dry season at a greater average speed than three miles a day. Even for that, some temporary caissons and Overseers will need to be engaged. The reason for this is, that slips and partial breaches are liable to occur in any part of the bank, four or five days* after the admission of water, even if gradually done, in parts which have previously stood well. The head of the stream of water wants most carefully watching, for the bed of the Canal is not level, whether in longitudinal or cross sections, and for many miles the water, at first, pours down a steep gradient, between the Hill side and the Canal bank, and is often projected against the bank by the slope of the strata of rocks as the softer parts wear away. Under these circumstances it will, I think, prove dangerous to pass down such a quantity of water as would fill all our large out-spreads, and progress at an average of three miles a day, where such a formation occurs. I will assume, however, that the water will move as follows, dating from the opening of the head sluice:—

At Bezwarah, 45 miles on the 15th day, at 3 miles a day.

At Japaud, 60th mile, 23rd, at 2 do do.

At Japaud, 60th mile, 23rd, at 2 do do.

At Japaud, 60th mile, 23rd, at 2 do do.

At Japaud, 60th mile, 23rd, at 2 do do.

At Japaud, 60th mile, 23rd, at 2 do do.

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At Japaud, 60th mile, 23rd, at 2 do do.

At Japaud, 60th mile, 23rd, at 2 do do.

At Japaud, 60th mile, 23rd, at 2 do do.

And so, when it happens, as this year, that the Toombudra is dry till the 23rd Juno, and allowing seven days for unavoidable delays, the water may be reckoned to reach the first four Districts of irrigation about the first 7th of August, and it then requires to be distributed for ploughing to commence.

*Proceedings of the Madras Government, Public Works Department,
10th August 1866.*

9. Whether this be exactly the case or no, does not so much affect my argument. All I contend for, is, that though the irrigation of the fields, say above the Metazondal Cut (or above Japoor even or thereabouts) will have amply sufficient extent, during the five months, August to December, for the application to the fields (which takes some time when the petty channels are five or six miles long) and the ploughing, sowing, and bringing to maturity of the crop, it will be of great importance to the lower part of the Koondaur valley and Cuddapah for a portion of the full discharge of the Canal, sufficient for the wants of the most distant lands, to be kept running, if only one month longer. Water admitted at Soonkasala during the operation of the Canal would reach Donapaud in three days, or rather would affect Donapaud, for the same water would not actually travel to Donapaud owing to the intervening out-spreads of water formed by the Canal. Seeing that the whole discharge of the Toombudra at Soonkasala on the 31st December is rarely, if ever, one-third of that which is running to waste at Bezwarah, and that the abstraction of the whole of it, till the end of January, would, as a mathematical certainty, not affect the supply at Bezwarah sluices one year in ten, I think it is worthy the attention of Government, whether they should not secure the utilization of a little at Soonkasala, rather than add it to a superabundance at Bezwarah. Even in the exceptional years, when the Bezwarah supply runs short about the 20th January, the diversion of 100 or 150,000 cubic yards an hour at Soonkasala could hardly affect Bezwarah, where I have no record of a year in which the water fell at a foot below the ancient till March. The Government may wish to alter the rule, prohibiting the Company from utilizing the water of the Toombudra after the 1st January in each year. For while the Kistna supplies a superabundance of water to Bezwarah until towards the end of February, except in very exceptional years, and there has so far as I know, never been a scarcity at the end of February at Bezwarah, it is proved by experience that those parts of Cuddapah District which are far removed from the source of this Company's supply, will not have time to mature their crops of fine rice, unless the Company be allowed to draw a partial supply for those lands till the end of January. During that month, the mass of cultivation under the Bezwarah ancient must have been ended, and only the long crops and second crops will require water; for this simple reason: that the Riots there know that they cannot get full water as a certainty after the 20th January, and they would be unwise indeed to delay their first crops until they incurred needlessly a chance (even) of losing them.

10. This Company cannot draw more than about 150,000 cubic yards from the Toombudra in January, for there is not more to draw.

If you agree with me, I hope you will bring the subject to the notice of Government, and propose, that the Cuddapah irrigation, and that in the Koondaur valley, be made secure by allowing the Company to take water at Soonkasala till the end of January.

11. It may be said that there is no need to modify the existing rule, until our works are complete to Donapaud and Cuddapah; but there is no question but that economy would result from the modification at once. What I have said above is on the assumption that the Canal and its distributing channels are in their final complete state. Before they have reached that state, water cannot be economically admitted so quickly as I have stated. Experience will show where improvements in the bed of the Canal are needed to ensure safety without the need of close and expensive supervision. The descent into tanks will always be a critical part of the Canal; for the water, as it flows down a steep slope, comes down a steep slope, and the cross slope of the hill side, keeps the water so as to act with greatest force on the toe of the embankment, with a tendency to undermine it in soft ground, and to wash the earth out from behind it in any case. Where the cross slope is uneven, or consists of ledges of rock, the stream is liable to be projected diagonally against the revetment, and precautions have been taken to allow a really compact body of water to flow down such descents, without dangerously trying the banks; the admission of water must be slower than I have estimated. Again, where the Canal is not subject to this, but is a simple even-bedded Canal with banks not yet fully dried, let us suppose an Overseer or Assistant, with a band of common country Wuddahs at the rate of one per mile or so, and one writer, to regulate the water at the top of his range on any morning. By

the first evening it has advanced one and a half miles, by the next morning three miles, by that time it may be three feet deep, say at the top of his range, that day four and a half miles will require personal watching and possibly some repairs, during the night he has six miles to watch and repair; the water rising throughout, by the sixth day the water is entering his 19th mile, and then his first mile may be filled five feet* and require very close attention. Each slip or large leak requires his personal attention and he has to collect any labor necessary.

*Hardly so much. The slower it rises, the greater length it requires watching.

12. I think I have said enough to show that it will, until the Canal banks are in their final consolidated state (and apart from specially extensive repair being needed) be quite unsafe to admit water at the rate of more than two miles an hour, on the average, without an increase of staff for the occasion, nor without more risk than is advisable. The Engineer's attention cannot be relied upon, for there are certain to be repairs or questions of distribution channels, or critical parts of the revetment or works requiring so much attention as will prevent his taking alternate day and night watch with his Assistants. If the time of irrigation be at once extended to the end of January, temptation to dangerous haste will be avoided; for the available time for first passing down the water will be doubled, and so will be the time for ascertaining and meeting the wants of the villagers whose inexperience makes them slow in finding out what channels they want, and who are not at first sufficiently on the alert, with cattle, tools, and seed ready and manure spread, to get their crops into the ground at once.

13. I think it right then, to bring the matter to your notice at once. This is not the only year in which the Toombudra freshes have been late; in 1863, the anicut works were not stopped by water till the 24th June.

From the Provisional Chief Engineer, Madras Irrigation and Canal Company, to the Agent and Manager, Madras Irrigation and Canal Company, dated Kurnool, 7th July 1866, No. 230.

1. In reference to my No. 225 of yesterday, it is well to explain that I have been much disappointed by finding that the Canal can at first be filled only slowly and with considerable risks.

2. The bank on the 4th mile failed this year with four or five feet water against it, though it had six or seven feet on the occasion of the breaching of the 6th mile; so I read the reports of that event. The revetment has never yet got into a stable state, and if not watched may settle until the waves lash over it. The places where the water pours down a slope into a tank until it has filled the tank to the level of the theoretical bed of Canal must be gradually set right by the excavation of a channel, for the water to pour down at a safe distance from the bank.

3. I had hoped that 14 or 15 days would suffice to convey water to the Metacondal Cut, and then it would flow down the Caulee to the Pennair in a few days. I even hoped that a greater speed than this could be obtained (see my letter, No. 110, of 5th ultimo,) in general, because we generally have at least one fortnight's fresh in the Toombudra before June, and that will enable us to fill the tanks ready for the June freshes, and save much time. With the tanks so filled we find that water is quite safely let down to Kurnool from Soonkash in 3 or 4 days,* that is at between 4½ and 6 miles an hour, though the banks are not finished.

*Including stopping the head sluices for repairs for 12 hours and much precaution.

4. What I contend in my letter of yesterday is that, in order to ensure a convenient water supply near Donapaud, in seasons like the present, when there is no early fresh of any useful volume, we need another month's partial supply at the beginning of the year.

5. Until the Canal banks have been fully tested and made up to full section, of course much more delay must occur.

(True Copy.)

(Signed) F. H. HENSLÖWE,
Agent and Manager.

No. 223.

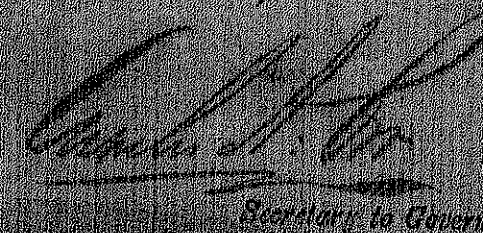
ORDER THEREON, 10th August 1866, No. 2,527.

CIVIL WORKS, No. 36

1. After a careful perusal of these papers, and the fullest consideration of all that the Provisional Chief Engineer of the Madras Irrigation and Canal Company has now brought forward in support of the Company's application for permission to draw off water by their Canal from the Toombudra for irrigation after the 31st of December, the Government see no reason for changing their opinion of the inexpediency of relaxing the restriction imposed upon the withdrawal of water from that river after that date. If, as described by the Provisional Chief Engineer, the construction of the Canal is so extremely defective as to necessitate the admission of water into it so slowly as to delay its reaching the lands to be irrigated until a great part of the cultivating season has past, it is for the Company to devise measures for remedying those defects.

2. The Consulting Engineer has rightly remarked, what appears to have escaped the notice of the Chief Engineer, that long before the 31st of December of each year a deficiency of water is experienced at Bezwarah. When the channels are enlarged, as they ultimately will be, to fully three times their present capacity, this deficiency will be still more severely felt and then, whatever the case may now be, not a drop will be to spare from the Toombudra or any of the affluents of the Kistna after the 31st December. It is to be remembered that the exceptional years in which Mr. Latham thinks the concessions he seeks might be made to the Company are those in which the scarcity of water will likewise be most felt in the delta.

(True Extract.)


Colonel, R. E.,
Secretary to Government.

To the Consulting Engineer for the Madras Irrigation and Canal Company.
Manager for do. do.
Revenue Department.

Ed. T. Cardigan

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