M.R.O. 1—77,006—3-4-37.

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MADRAS RECORD OFFICE.

Government of Madras.

Public works DEPARTMENT.

G.O. No. 2946 / 3526 — Press Mis. 1143

95-96.

Dated 6 — 11 — 18 66.

Not to be folded or roughly handled

No. 717. Read the following letter from the Consulting Engineer for Irrigation and Canal Company, to the Secretary to Government, Public Works Department, dated Camp, Garladinny, 28th August 1866, No. 55 :—

1. I have delayed offering any observations on the reports from the several Divisions, on the experiments made last year with a view to ascertain the quantity of water per acre, per hour, required for paddy cultivation, and which were communicated with the Order of Government of the 12th June last, No. 1,836, until by a reference to the Superintending Engineer of the 3rd Division, I had ascertained whether the calculations made by the Officer in charge of the Anantapore Range were correct and reliable. I have now been to Anantapore, and the Range Officer this morning shewed me the channel, and, from the enquiries I have made, it appears to me certain that the data on which Mr. Wilson's calculations were made were not sufficiently reliable to make it at all certain what quantity of water was really used for the area, 123 acres, under the channel.

2. In the first place, the channel is far from being as regular as I had supposed. It is an irrigation channel crossing the road to the bungalows of the station, and its sides are lined with rather irregular blocks of trap. The bottom is very irregular, and the channel above and below has a much larger cross section than the revetted portion. In the next place, the surface inclination of the water was not ascertained, nor was its velocity taken by a float, and, as in most similar contractions, the velocity is in excess of that appertaining to the channels of larger sectional area above and below, there is good reason for believing that the discharge obtained from the general fall of the channel and the sectional area of the water in the revetted portion is less than the actual discharge.

3. The position of this channel is, however, very convenient for observation, and if it be converted into a masonry channel, with an even width, and perfectly regular fall from end to end, and if a gauge be inserted in the side at each end with the zero on a level with the bed, at each end respectively, and then, if the depth of water at each end be carefully registered, there will be good data for estimating the discharge, and it would be advantageous also, when the Range Officer himself has a few minutes to spare, were the surface velocity carefully taken by a float, in order to check the calculated velocity of discharge, and ascertain the proportion existing between them. Should the water at any time be clear, the bottom velocity could also be taken, by using a small ball with a specific gravity only very slightly in excess of that of water.

4. The experiments made in the 7th Division only shew that $4\frac{5}{8}$ cubic yards an hour per acre, in addition to thirty-six inches of rain, are recorded as having been applied to the land, and of course that information is, as mentioned, valueless. In the 8th Division, however, the arrangements made would, under more favorable circumstances as regards the supply of the tank, which was to afford the water, have afforded valuable data; and in the 6th Division it is much to be regretted that the trouble taken by Captain Hasted, at Tranquebar, led, owing to the circumstances of the season, and the consequent failure of the crop, to conclusions which cannot be deemed reliable, the perfection of the crop being the only criterion of the suitability of the supply.

5. I hope the Government will be pleased to sanction the continuance and extension of the experiments for two or three years. It was hardly to be expected that satisfactory results would be obtained in one season, and those entrusted with the experiments will, when these come to be repeated, be in a much better position than at first for managing the arrangements, so as to obtain useful results. Perhaps, too, the reports received are, in themselves, very strong evidence of the necessity for obtaining more reliable information than is at present to be had. The Superintending Engineer of the 6th Division may be generally correct in supposing that three cubic yards an hour are an ample, but not very excessive supply, though I am disposed to think that two-thirds of this quantity would suffice, with ordinary care in its utilization; but, on the other hand, the Superintending Engineer of the 3rd Division considers that the experiments at Anantapore shew that, even in an unfavorable year, as regards fall of rain and in, it may be remarked, a much drier climate than Tanjore, a cubic yard of water per acre, per hour, is more than sufficient. In projecting an irrigation work, the projector might estimate the probable returns on the supposition that the one cubic yard is sufficient, but it would be open to some one else to object that three cubic yards would be necessary, and thus divide the returns by three; and it seems, therefore, to be of much importance that the fair average should be ascertained, and if, in calculating the probable returns from any outlay, the quantity be increased by twenty-five per cent., as a provision for contingent causes of increased demand per acre, there will be some tangible data on which to discuss the merits of any project, which may be proposed for execution.

6. It may also be remarked, with reference to paragraph 4 of the report made by the Superintending Engineer, 1st Division, that nothing can be better than the registration of the supply in masses to separate areas, if the drainages which carry off the surplus, be also accurately gauged, but without this latter proviso, which I hardly think is contemplated by the expression used "noting if the drainages take off much water," all that would be ascertained would be the quantity used, and not that necessary. If in any of the Divisions the supply to, and the waste from, large areas can be, with tolerable accuracy, ascertained, that will be the best evidence of requirements, but when facilities for such observations do not exist, it seems needful to fall back on small areas, the supply to which can be measured, and waste prevented.

Referred to the Revenue Department for consideration, with reference to the suggestion in paragraph 5. Rupees 800 have been granted for carrying on the experiments in the 2nd and 5th Divisions during the current year.

FORT SAINT GEORGE,
5th Septemler 1866.

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

No. 718.

ORDER THEREON, 31st October 1866, No. 2,945.

Land Revenue.

1. The Government are of opinion that the experiments instituted for the purpose of ascertaining the quantity of water required for wet cultivation should be continued for at least another year.

Proceedings of the Madras Government, Revenue Department,
31st October 1866.

2. The estimates submitted with this view by the Superintending Engineers of the 2nd and 5th Divisions have been already sanctioned.

3. The other Superintending Engineers are each authorized to expend a sum not exceeding Rupees 300 in connection with the experiment.

4. The Government desire that an estimate may be submitted as soon as possible, shewing the probable expense of preparing the channel and resuming the experiments at Anantapore, as proposed by the Consulting Engineer.

5. The Superintending Engineer of the 8th Division will be instructed to report whether the arrangements made by Major Paxton, at Ellendacolum, cannot be taken advantage of for making a fresh attempt to ascertain the quantity of water required for wet cultivation.

(True Extract.)

Secretary to Government.

To the Department Public Works.
The Board of Revenue.

Exd. S. T. Augustin.

P.W. 1866 Dept
Pro: of 1st November
Pro: of 1st in the
Revenue Dept
Dated 31 Oct
Rec'd 2 Nov/66
No 2945

Issuing certain instructions relative to the continuation of the experiments which have been instituted for the purpose of ascertaining the quantity of water required for wet cultivation -

No 2945

No. 3526 - 5 Nov 1866

7/2

Public Works Department.

No 3526

PROCEEDINGS of the MADRAS GOVERNMENT

Under date the 5th November 1866

Read the following

Proceedings of Government in the Revenue Dept (Here enter No 2945 dated 31st Oct 1866)

Communicated to the Consulting Engineer for the Madras Irrigation and Canal Company, and to the Superintending Engineers of Divisions with reference to the order marginally noted -

12th June 66 - 1830

The attention of the Engineers is drawn to Paras 2 & 3.

The Superintending Engineers of the 3d & 4th Divns will furnish the estimates and Reports called for in Paras 4 & 5.

Dept 5 Nov 1866

P. W. 1860. Department.

Pro: of Govt for. Powr

No. 3525

PROCEEDINGS OF GOVERNMENT. g' Madras

Dated 5 Decr 1860

Pro: Rev: Dept

ipaing certain instructions
relative to the Continuation
of the Experiments which
have been instituted for
the purpose of ascertaining
the quantity of water re-
quired for wet Cultivation,
Communicated to the Officers
Concerned.

fog 5-96.