M.R.O. 14—5,450—22-10-25.

MADRAS RECORD OFFICE.

Government of Madras.

Revenue **DEPARTMENT.**

G.O. No. 2478

355. 356

Press ~~Mis.~~

Dated 15-9— 1866.

Not to be folded or roughly handled

Proceedings of the Madras Government, Revenue Department,
15th September 1866.

No. 355. Read the following Proceedings of the Madras Government in the Public Works Department:—

Communicating, in continuation of previous G. O., papers relating to the second series of experiments made in Madras District to ascertain the quantity of water required for paddy cultivation. } (Here enter 4th September 1866, No. 2,813.)

No. 356. ORDER THEREON, 15th September 1866, No. 2,478.

Land Revenue.

Ordered to be 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. 2,813.

Exd. S. T. Augustin.

No. 84. Read the following Endorsement of the Officiating Superintending Engineer, 4th Division, dated Madras, 21st August 1866, No. 1,702 :—

Read the following letter from the Officer in charge No. 3 Range, Madras District, to the Officiating Superintending Engineer, 4th Division, dated Streepermattur, 9th July 1866, No. 67.

1. I have the honor to forward my second Report on the above experiment, and trust it will afford some little information at least on the subject, which only very careful observation can decide. I have done my best in the matter, under circumstances in which the work was imposed on the Department.

1 Report.
1 Particulars of water supply, B.
1 Experimental observations, A.

2. I find it necessary to bring to your notice that the Mirasidar of the land who allowed as to experiment thereon has suffered rather largely by obliging us. I have computed his loss at Rupees 27-8-0 on the first experiment, and Rupees 21-13-0 on the latter. This loss has been occasioned by our having imposed on him an expensive lift for raising the water from well; this usual method was by means of two piccotas, for which four men were hired at a monthly rate. These men served him for ploughing, sowing, &c. By having him use a bullock lift, he has had to support them with a driver at a heavy cost, and provide also leather buckets at the rate of one a month almost at no little cost. When the said Mirasidar undertook the cost of experiment, he did not calculate he would have been a loser, he has too certainly ascertained the fact now. I think he ought to be compensated for the loss, and I would recommend that on the sale of the Government bullocks, which were employed on the experiment, he be paid from the proceeds. Some little compensation is also due to my office establishment, who devoted some time and care in the recording of observations, and collecting other incidental information connected with the experiment. I therefore solicit you will be pleased to permit me to dispose of the sale proceeds of the bullocks in compensating all concerned in the matter, and beg your consideration thereof; a large outlay has been saved by the service my office has done in the matter, and considering the information collected, I think they deserve some little encouragement.

Report, second series, on the experiment to ascertain the quantity of water required for Paddy cultivation.

1. In the preliminary report on the "first series" of the above experiment, furnished on 11th June last, a description was given of the nature and condition of the land on which it was made, and the system and means of irrigation, &c. The present "second series" was observed on the same land, in connection with the "second crop" of the cultivation of the season thereon. It commenced on February 7th, immediately after the first crop had been reaped, and extended over 120 days, or up to 6th June, the crop having been reaped six days after this latter date. The ground was prepared from 7th to 11th February, the seed, "Samba paddy," the same as on the "first series," was sown on the 12th of the same month, and between this date and the 14th March, when the transplanting was made, the ground was being prepared for receiving the plants. From B., accompanying, shows exactly the every day observations, and the particulars of cultivation. There was rain on but one day during the whole period of observation, and this quantity compute d (239 cubic yards) together with the water supplied (14,966 cubic yards) from well, gives the total supply to the crop at 15,205 cubic yards over 2·22 acres, which produces 6,849 cubic yards per acre. From this it appears that 57 cubic yards per acre per diem is the result of the observations.

These figures very closely tally with the "first series" result (65¾ cubic yards), the small difference being accounted for probably by a decrease in the ratio of absorption, since the ground must have been less impermeable, after going through the first crop irrigation. A very different result was expected, as the temperature was, as will be known, extremely oppressive, during the period these last observations were made. The yield of this second crop was 168 mercals of paddy, which with the straw realised, may be valued at present market rates at Rupees 105-14-0. The observations made on this second series are embodied in Forms A. and B. accompanying.

2. It has been shown above that the results of the experiment give 65 cubic yards in the "first series," and 57 cubic yards in the "second series," as the quantity of water required per diem for one acre of land. These figures are obtained from taking a general average, but the observations need be considered from another point of view.

3. From the Forms B. attached to reports of both the series, it will be observed that seventy days were occupied in the one case, and only thirty-five in the other for preparing land, &c., before actual *continuous* irrigation commenced. Dividing, therefore, each series into two periods, one for "preparation" and the other for "actual irrigation," we obtain the following figures:—

1st Series.		*2nd Series.*	
70 day's preparation ...	53 Cubic yards.	35 days' preparation ...	38 Cubic yards.
93 do. actual irrigation...	75 do.	85 do. actual irrigation ...	65 do.

as being the quantity *per acre, per diem* needed for a crop. The great difference, both in time and supply, between the periods of "preparation," as seen in each case, may be explained thus, that it required more water and more time to puddle the land at the start. The average for the actual continuous irrigation afterwards, in both cases, is pretty close.

4. The following Statement exhibits at a view the comparative results of the experiments, as twice taken:—

Particulars of observations.		First Series	Second Series.
Quantity of land	Acres	222	222
Period of observation	Days	193	126
Actual period of supply	Days	163	120
Actual supply from well	Cubic yards	12,925	14,966
Supply from rain	Do.	10,889	239
Total supply	Do.	23,814	15,205
Period occupied in preparing	Days	70	35
Period occupied in actual irrigation	Do.	93	85
Supply for preparation	Cubic yards	8,244	3,033
Supply for actual irrigation	Do.	15,570	12,172
Quantity of seed sown...	Mercals	12	12
Paddy produced	Do.	240	168
Actual cost of each crop	Rupees	170	143
Actual produce	Do.	122	105
Assessment	Do.	21	11

From the above particulars the following are deduced:—

Water required for one Acre per diem.

For preparation	Cubic yards	45
Actual irrigation	Do.	70
Seed required	Mercals	5·4
Probable produce	Do.	92

From the above Statement it appears that the cost of producing a crop of paddy far exceeds the out-turn thereof. This peculiarity appertains to the experiment only, for an expensive method of irrigation was adopted. In the case of the land experimented upon, the usual method was to raise the water by two picottahs, for which four men were employed, these men not only worked at the lifts, but did the ploughing, sowing, &c. Such was not the case in connection with the

experiment; bullocks were used, which required a man to attend them. The support of these formed a large item, besides which contingent expenses for leather buckets, &c., &c., swelled the charges. From the data collected regarding cost, in the usual method, 20 Rupees an acre seems the average for one crop, exclusive of assessment.

4. The above observations apply to lands of one particular class, and therefore cannot be applied as the rule in all cases, as paddy land is very varied in description, each of which would need its own particular rate of supply.

6. To obtain definite information, requires that the subject "what quantity of water an acre "of paddy land requires for cultivation" be treated in all its details under close and undivided supervision, and to realise this, with any certainty, a special establishment should be employed to investigate the matter. It is, moreover, one, on which theory will absurdly fail, put it in any way one will: and as there is only one way of doing a thing properly, the subject should be so treated. As far as was practicable every attention has been paid in obtaining information on the subject under reference, in the experiments carried out in this range, and it is to be hoped that the reports furnished thereon will throw some light on the subject at least.

(Signed) S. OTTMANN,
Acting Sub-Engineer, No. 3 Range, Madras District.

STREEPERMATTUR,
9th July 1866.

Enclosures 3.

1. Submitted to Government in continuation of endorsement No. 1,021, dated 12th July 1866.

2. The second series of experiments were commenced on the 6th February 1866 and concluded on the 12th June 1866, and show 2½ cubic yards of water to be required per acre per hour.

3. Under the circumstances represented by Mr. Ottmann in paragraph 2 of his letter, his proposal to compensate the Meerasidar of the land experimented upon is recommended for the favorable consideration and sanction of Government. The sale proceeds of the bullocks purchased to conduct the experiment to be resorted to to meet the outlay.

4. The money account in connection with the experiment stands as follows:—

	RS.	A.	P.	RS.	A.	P.
Amount granted in G. O. No. 1,686, dated 17th June 1865				300	0	0
Cost of first experiment	311	4	0			
Do. second do.	65	0	0			
Compensation to Meerasidars recommended in this letter...	49	5	0			
	425	9	0			
Deduct amount recovered by sale of bullocks...	63	11	7			
Balance ...	361	13	5			
Deduct amount of grant	300	0	0	300	0	0
Balance in excess of allotment	61	13	5			

5. Orders are requested as to whether the experiment is to be continued in the current official year.

(Signed) J. GODDARD, Captain, R. E.,
Offg. Superintending Engineer, 4th Division.

Proceedings of the Madras Government, Public Works Department,
4th September 1866.

No. 85. ORDER THEREON, 4th September 1866, No. 2,813.

CIVIL WORKS, No. 17.

1. The foregoing papers will communicated to the Revenue Depa ment in continuation of the Orders Government No. 2,333, dated the 24th July 1866.

2. The Superintending Engineer of the 4th Division will furnish in det the particulars of the expenditure reported in paragraph 4 of Captain Goddar endorsement.

(True Extract.)

Colonel, R. E.
Secretary to Government.

To the Superintending Engineer, 4th Division.
,, Revenue Department, with two Enclosures.

Exd. S. T. Augustin.

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Ordered to be commu
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14 Copies to Bd of Revenue with Do Bd's No 2813 Dated 15th
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Rev. June/65 Nos 492-493
2 Augt/66 " 41-42

Revenue 1866. Dept.
Proc: of Govt for September
No. 2983.

Proceedings of the
Madras Govt. in
the P. W. Depart.

Dated 4th
Received 6th } Septr
1866.

No. 2813.
E-2. P.W.D.

Pro P.W.D. Letter dy 21 Septr 66
No 3271.

Communicating
in continuation of previous G.O. papers relating to the series of experiments to ascertain the quantity of water required for Paddy cultivation. —

No 2478-75 Septr

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Exd. S. T. Augustin.