

MADRAS RECORD OFFICE.

Government of Madras.

Revenue DEPARTMENT.

G.O. No. 3313

Press
~~Mis.~~

93-94

Dated

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Not to be folded or roughly handled

Proceedings of the Madras Government, Revenue Department,
10th December 1866.

No. 93. Read the following Proceedings of the Madras Government in the
Public Works Department:—

Communicating Proceedings of Government of
India, forwarding correspondence on the subject
of the price to be charged for water supplied by
the East India Irrigation and Canal Company in
Orissa. } (Here enter 27th November 1866, No. 3,761A.)

No. 94. ORDER THEREON, 10th December 1866, No. 3,313.

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. 3,761A.

Exd. S. T. Augustin.

CIRCULAR No. 93 PUBLIC WORKS.

GOVERNMENT OF INDIA.

PUBLIC WORKS DEPARTMENT.

Civil Works.

Agricultural.

SIMLA, OCTOBER 22, 1866.

Price to be charged for water supplied by the East India Irrigation and Canal Company in Orissa.

Read the following papers:—

No. 39, dated 22nd February, 1864.

From—R. B. CHAPMAN, Esq., Secy. to the Board of Revenue, Lower Provinces,

To—Secretary to Government of Bengal, in the P. W. Dept.

I am instructed by the Board of Revenue to acknowledge the receipt of your letters marginally noted, and to submit the accompanying Report from the Commissioner of Cuttack, No. 30, dated 14th September last, together with a supplementary communication from the same Officer, No. 37, dated 30th idem, upon the manner in which the contract between the Government and the East India Irrigation Company, in regard to their Orissa scheme, should be carried out.

2. The Board of Revenue have given to the several important questions discussed in these papers their most careful attention, and desire me now to offer the following observations and suggestions.

3. *Terms of the Contract.*—By Article 6 of the Contract between the Secretary of State for India in Council and the East India Irrigation and Canal Company, dated 28th November 1861, the Company covenant that, as soon as the works which they undertake by that instrument to construct for the supply of water, &c., in the Districts and Deltas of the Rivers Mahanuddy, Byturnee, and Brahminee, and their affluents, in the Province of Orissa, shall be completed so as to be available for the purpose of supplying water for the irrigation of land, the Company will thenceforth sell the water which can be thus supplied to the Secretary of State alone; and the Secretary of State covenants to buy all such water to the extent to which the cultivators of the soil are willing to take it. Further, the Company agree to supply this water in such manner and to such person or persons as the Supreme Government may direct; and the Secretary of State agrees to pay to the Company the whole price of the water as fixed by a plan agreed upon in Article 9, deducting only—

1st.—Any extra general charges to which the Supreme Government may be put in carrying out these arrangements.

2nd.—The expense of the distribution of the water, and the collection of the rate from the cultivators.

The Company and the Government may, at any time, agree to commute these deductions to a percentage charge estimated to cover them.

4. By Article 9, it is covenanted that the price to be paid by the Secretary of State to the Company, for the water to be used for irrigation, shall be determined by arbitrators; and it is provided that it be fixed so as to represent, as far as can be ascertained, a fair charge upon those who consume the water.

5. By Article 9 B, it is provided that the water may be sold to the cultivators upon a long lease or in perpetuity.

6. *Instructions of the Government.*—In calling the attention of the Board to these provisions of the Contract, the Government* remarked

*No. 2040 above quoted.

that the Commissioner of Cuttack might probably be able, in communication with the Agent of the Company, so far to fix the price to be paid for the water that the duty of the arbitrators would be little more than nominal, and added, for the

guidance of the Board and the Commissioner, that the Government did not desire to derive additional revenue from the irrigation of lands already fully assessed, and that, therefore, the only questions for consideration were, on the one hand, what is the *maximum* price a ryot can afford to pay for water for irrigation, and, on the other hand, what is the *minimum* price at which the Company can afford to supply the water? Between these two limits, a mean, it was presumed, would be found satisfactory to both parties.

7. The Government desired that the price should be fixed, *first*, by volume, in case it should be resolved to sell the water by measure; and *secondly*, by area of land irrigated, in case it should be determined to charge for the water a fixed rate per acre irrigated, so that the Government and the Company might be free to adopt whichever mode of sale might appear advisable. It was remarked that, though the sale of the water by measure was theoretically the better plan, it was generally found necessary, in practice, to charge by the area irrigated.

8. If the latter principle were adopted, it would be necessary to consider whether more than one rate should be fixed, according to the nature of the soil to be irrigated, or of the crops to be grown, or according to the distance from which the water was to be brought. The Government remarked upon this that, it was most desirable to fix as few varieties of rates as possible; and that if one uniform rate could not be adopted, there should certainly not be more than two rates in all. A special reduction, it was added, might be made from the fixed rates, whether they were calculated by volume or by area irrigated, to meet the case of the cultivators being compelled to conduct the water to their fields from any considerable distance at their own charge.

9. The Commissioner was to report as to the question of compounding with the cultivators for long leases, or in perpetuity, as provided for in Article 9 B of the Contract; but the Government remarked that, till experience was gained, it would be inexpedient to conclude any such arrangements, and that the rates themselves should probably not be fixed for more than five years in the first instance.

10. *Lastly*, the Commissioner was to report in detail, after careful local enquiry, as to the system on which the village distribution should take place, and as to the mode in which payment for the water should be made; but it was suggested that the plan best suited to Cuttack would probably be, that some person responsible, either on behalf of the Zemindars or the Villagers, should give a receipt for the water supplied; and that the Government should pay to the Company the gross amount of all such receipts, after deducting a percentage to be fixed under Article 6 of the Contract, realizing the amount through the Zemindar as if it were an arrear of land revenue.

11. *Experience at Madras.*—From the various records of proceedings had at Madras, both in regard to the Government irrigation schemes, and to that of the Madras Irrigation Company, which have been forwarded to the Board of Revenue in the course of this correspondence, they gather that the following principles and details may be said to be settled in the Madras Presidency, and the first two, more or less, generally:—

1st.—That the charge for water supplied to cultivators from irrigation channels is to be levied and accounted for independently of the land revenue assessment; and that a consolidated assessment of land revenue and water-rate is not to be restored to.

2nd.—That a *uniform* water-rate is to be charged upon all land irrigated, and not a rate graduated according "to the proportionate advantages which the different descriptions of soil may derive from the application of water."

3rd.—That in the Kistna and Godavary Deltas, the rate per acre for land fully irrigated is to be Rs. 3 for wet lands for each crop, or Rs. 5 for the two crops; and Re. 1-8 for dry crops, in tracts temporarily irrigated.

12. *Secretary of State's final instructions.*—By the Secretary of State's Despatch No. 25, dated 16th July 1863, received with your No. 5155, dated 3rd September, the Government is instructed that the proper construction of Article 9 of the Contract is, that the water-rate must be fixed so as to "give a considerable advantage to the ryot, in the use of the water, and, at the same time, to afford to the Company a liberal remuneration for the expense of supplying it;" that it is not the intention of Her Majesty's Government that the charge for the water should vary proportionately to the variation of the money-value of the water to the actual consumer, but that a *fair* and *uniform* charge should be carefully determined in the first instance, and should, on no account, be permitted to be increased subsequently, as it was the principal object of the Government, in foregoing all claims to participation in the profits arising from irrigation in Orissa, to enable the ryots to share more largely in the benefits of irrigation, and not to swell indefinitely the gains of the Company.

The price of the water, it is added in conclusion, was intended to be an absolute price, and not one "varying with the quality of the land, or in any way dependent on the amount of the revenue demand." The Government, consequently, retain full power to "obtain and fix, in the usual way, the ordinary revenue assessment on fresh land brought under cultivation in consequence of the irrigation works."

13. *Instructions of the Board to the Commissioner.*—In forwarding the papers received from the Government to the Commissioner of Cuttack, the Board informed him that his Report should embrace the following subjects:—

1st.—The price to be paid by the Government to the Irrigation Company for water supplied—

- (a) by cubic measure; or
- (b) by area of land irrigated.

2nd.—The manner in which the water is to be supplied and distributed.

3rd.—The mode in which the price is to be realized by the Government and accounted for to the Company.

14. *Commissioner's Report.*—The Board will now refer to the excellent and well-considered Report furnished by the Commissioner of Cuttack, for which they consider that he deserves great credit.

15. In his first 13 paras., Mr. Shore discusses the important questions of the money-value of an artificial water-supply to the different crops grown in the Province of Orissa. Had Mr. Shore, when he drew up his Report, been in possession of the Secretary of State's views upon this subject, as recapitulated in my 12th para., he would not probably have detailed so minutely the circumstances of each separate crop. Nevertheless, the particulars which he has so laboriously collected cannot fail to be of very great value in enabling the Government to decide upon the rate to be finally proposed to the arbitrators on the part of Government.

16. The Board entirely agree with the conclusion to which Mr. Shore has come in his 14th and following paras.* that, in the Province of Orissa, the fairest and most expedient method of charging for the water will be, for the present, at any rate, by the volume supplied. There will always apparently be a considerable difficulty in storing a sufficient supply of water in this Province, and the objections adduced by Mr. Shore to the system of charging for the water by the area irrigated, could only be overcome by the employment of an army of underlings to watch the irrigation process.

17. The land revenue system of the Madras Presidency admits of this close supervision extending to every field; but it is happily not so in Orissa. The Board see no reason why, with the necessary precautions, water should not be supplied, like gas, by metre. Holding this opinion, in which they venture to anticipate the concurrence of the Government, the Board have not thought it necessary to require from Mr. Shore, or to prepare themselves from the materials which he has supplied, any more exact return to the enquiry of the Government as to the rate or rates per acre which should be charged for irrigation, if it be determined to sell the water upon that principle.

18. Assuming, then, that it will be resolved, for the present, at all events, to charge for the water supplied by the Irrigation Company in Orissa by cubic measure, it remains for the Board to state the rate at which, in their opinion, the water should be sold.

19. As the law at present stands, it must be left perfectly optional with the landholders of every class to take, or to refuse to take, the water supplied by the Company, and in this respect the Board desire to see no alteration in the law; but if the use of the water is to be entirely optional, it is very necessary that the rate should be fixed as low as possible, with the view of attracting customers. Moreover, it is in accordance with the expressed wishes of the Government that the rates fixed should, while providing a fair profit to the Company, be favourable to the cultivators.

20. Upon this principle, the Board recommend the experimental adoption of the rates suggested by the Commissioner as the result of his investigations, *viz.*, 8 annas per 1,000 cubic yards, from the 15th June to the 15th November, and Re. 1 per 1,000 cubic yards, from the 16th November to the 14th June. That these rates will prove to be fair rates to the cultivators, *i. e.*, that the approximate to what the cultivators will be willing to pay in the moment of need, the Board feel to be to some extent a matter of conjecture. As regards the interests of the Company, there is this security that, they are not greatly erroneous; that the Agent only proposes to increase them by two annas in the wet season, and eight annas in the dry.

21. The Board do not think it is possible, without experience, to fix at once, as is required by the Secretary of State, a permanent rate, and they recommend that the rates now suggested should remain in force as an experiment only, and be re-considered after the scheme shall have been in full work for the period of one year.

22. (*Commissioner's paras. 26—28, and Supplementary Report No. 37.*)—The Board presume that no expression of opinion is expected from them, or from the Commissioner, in regard to the extent to which, or manner in which, the subsidiary water channels should be multiplied. This must obviously form the subject of professional enquiry and report. But the Board remark that, by the terms of the Contract, the distribution of the water is left in the hands of the Company under the control of the Government, and they think that it is a matter of great importance that the arrangements should be such as to bring the distribution channels close to each village: for the villagers will be unable to bear any great

expense in making village aqueducts from the Company's water channels. The rates which the Board have proposed ought, in their opinion, to cover all the expenses of bringing the water within easy reach of the fields of the ryots; and where this is not done, a reduction should be made according to distance. Upon what principle this reduction should be regulated it is impossible for the Board at present to say, as they have no data to guide them.

23. The Board are glad to see that the Agent of the Company is willing that the minimum supply of water to the cultivators should be 1,000 cubic yards, instead of 5,000 yards, which was originally proposed. This original minimum would, they think, have been much too high, and would have given rise to an objectionable retail trade injurious to the interests of both cultivators and Company.

24. As to the person or persons to whom the water should be supplied, the Board are not prepared at present to submit any specific proposals: it will be sufficient probably to prescribe that, water shall not be supplied except to persons authorized to receive it, either by the Collector of the District, or by some person to whom the Collector may have delegated the power of granting an authorization, and that to persons authorized to receive water, it shall be supplied only to the extent specified in their license.

25. The question as to the person to whom the Collector shall delegate the power of authorization indicated in the preceding para. is closely connected with the question as to the mode in which the price of the water shall be realized by the Government. The Commissioner, it will be observed, proposes in his 29th and following paras., that the sales of water should either be for cash or upon the security of landed property, and, to meet the cost of water sold on the latter plan, he proposes that a short Act should be passed supplementary to Act XI of 1859.

26. The Board of Revenue, however, do not see how it will be possible, consistently, either with the terms of the Contract (which require that all collections shall be made by the Government, and not by the Company), or with the convenience and habits of the people, to enforce, in any case, cash payments; the efficient checking of such payments would be, moreover, extremely difficult, if not impossible.

27. Further, they see strong objections in principle to making the estates of the Zemindars liable to sale for non-payment of a water-rate, as they are saleable for non-payment of the Government revenue. It would be impossible, the Board conceive, to apply this principle to estates which are not assessed to the Government revenue, and the operation of such a system would be harsh and unequal.

28. The Board think that it will answer every useful purpose, and be consistent with sound principle, to treat the charge for water as rent, and make it recoverable by the laws applicable to the recovery of arrears of rent, with the proviso that the produce of the land should be hypothecated for the water-rate only after the landlord's demand for rent had been satisfied.

29. This plan would allow of every arrangement that is now in force for the collection of rent being applied at once to the collection of the water-rate, and, in practice, the persons responsible to Government for the collection of the land revenue would, it is probable, ordinarily undertake, for a reasonable percentage, to be responsible also for the collection of the water-rate. The owners of revenue-free land would analogously accept, it may be hoped, ordinarily the duty of collecting the rate, and all necessity for any detailed interference by the Government Officers would be avoided. If experience should demonstrate that the Government could not rely upon the Rent Laws for the recovery of the water-rate from the land-owners, the propriety of treating arrears of water-rate as arrears of land revenue might then be considered; but the Board have no doubt that the Rent Laws, with the power of withholding the right to receive water, would be amply sufficient to ensure the regular realization of the rate.

30. In any case, the amount to be recovered by the Collector for the rate should be, suggested by the Government, the amount represented by the receipts for water given by the recipients to the Company, and by them transferred to the Government or the farmers of the rate, as might be arranged hereafter.

31. It is impossible at present to specify what percentage it will be necessary to fix, in accordance with the concluding Clause of Article 6 of the Contract, to cover the various deductions that the Government are by that Article entitled to make from the price of the water delivered by the Company: but the majority of the Board think that it must be at the least 10 per cent., as the Government are to be responsible for all bad debts.

32. *Recapitulation.*—To recapitulate the recommendations contained in this letter, the Board are of opinion:—

1st.—That the water should be sold by volume and not by area irrigated.

2nd.—That the price suggested to the arbitrators should be eight annas per 1,000 cubic yards, from 15th June to 15th November, and one Rupee per 1,000 cubic yards, from 16th November to 14th June.

3rd.—That from this price a deduction should be made according to distance, in case the Company's channels are not within easy reach of the cultivation to be irrigated.

4th.—That the rates now fixed be experimental for one year from the date on which the water is first supplied for irrigation, and subject to revision at the end of that period.

5th.—That the water be supplied only to persons licensed to receive it, either by the Collector or by persons to whom the Collector shall delegate the authority to grant licenses; the quantity to be received to be specified in the license.

6th.—That an Act be passed declaring all laws now in force, or which may hereafter be enacted, for the recovery of arrears of rent to be applicable to the recovery of the arrears of water-rate, with the proviso that a priority of hypothecation of the products of the soil shall be maintained, as at present, for the rent of the land.

33. The Board regret that the chief of these recommendations, that relating to the price to be fixed for the water, is made upon such imperfect data. They have felt considerable difficulty in fulfilling at all the task entrusted to them. There appears, however, to be every reason to hope that the Agent of the Company will co-operate cordially with the Officers of the Government. Should he do so, the Board do not doubt that, after the experience of a year or two, it will be comparatively easy to arrive at satisfactory conclusions in regard to the price to be charged for the water.

34. They cannot admit the force of Mr. Boothby's argument based upon the superiority of river over rain-water. They are doubtful as to the fact: in their natural condition, rivers, like the rivers of Cuttack, deposit certainly more sand than silt; in any case, the quality of the water does not affect the cost of the irrigation works, and cannot be admitted as an argument for raising the retail price to the cultivators.

35. The Board will not be surprised to find in Orissa at first considerable backwardness to accept a water-rate, but if the rate fixed be, as they believe that which they have recommended to be, very moderate, many will try the experiment, and the benefits of a safe and permanent supply of water for their crops will soon become so apparent, even to the ignorant and prejudiced Uriya ryots, that the Company are not likely to lack customers for the water.

36. The landholders of the Province of Orissa have always received very liberal treatment from the Government. Remissions of revenue have been granted with no sparing hand whenever the crops have suffered considerably from the vicissitudes of the season. It is possible, therefore, that the landholders may be inclined to trust too much, as heretofore, to rain-water, chance, and the liberality of the Government. The Board recommend that, as soon as the works of the Irrigation Company are open for the supply of water, the landholders be warned that, if they neglect to avail themselves of the protection offered to them by the Company against calamities of season, they must expect no relief from the Government in their time of trouble.

37. The Board will offer no remarks upon Mr. Shore's calculations as to the returns to be expected by the Irrigation Company from the works. The Government have only a very remote direct interest in the question. But the Board are glad to observe that the Company are represented by a gentleman who is fully alive to the great importance of putting as low a price as possible at first upon the water to be supplied by the Company.

No. 30, dated 14th September, 1863.

From—R. N. SHORE, Esq., Commissioner of the Cuttack Division,

To—Secretary to the Board of Revenue, Lower Provinces.

I have now the honour to submit the Report on the price to be paid for water supplied by the East India Irrigation Company, required by your docket No. 18 of the 21st April, with its enclosure from the Government of Bengal, in the Public Works Department, and by your subsequent letter No. 22 of the 22nd June.

2. I shall take up the question whether water should be charged by the volume, or by the area irrigated, in a subsequent part of this letter. Whichever method be adopted, it is obvious that the value of the irrigation to the cultivator per acre, must be the basis of our calculations, whatever the quantity of water that may be required.

3. The staple crop of the Deltas of Orissa is well known to be rice. In the Sarud lands, which may be considered as corresponding to the wet cultivation, or Nunjah of Madras, and which occupy full two-thirds of the cultivated tract, the maximum yield of paddy may be taken at $2\frac{1}{2}$ Bhurrun, the average at $1\frac{1}{2}$, and the minimum, of course, at very much less. A Bhurrun contains 80 gouns or 400 seers. Thus the maximum yield is about 25 maunds, and the average $12\frac{1}{2}$ paddy, or about $6\frac{1}{2}$ and $3\frac{1}{2}$ respectively of rice. At the present market

rate of about 18 seers to the Rupee, the value of the difference between these two yields would be about Rs. 7. This does not, however, represent the ordinary difference in the returns from these two classes of soil to the ryot, both because prices are now exceptionally high, and because the market rate includes, of course, the grain dealers' profit, as well as the ryots'. On the whole, the average difference in the value of the yield to the ryot may probably be reduced nearly one-half, say to Rs. 4. The question is, whether the general effect of irrigation will be to increase the produce in a similar or nearly similar proportion. I believe it will. Even the best lands in favourable seasons will gain something by the water being applied at will and occasionally changed; the worst, which are simply the most elevated, will be benefitted enormously. Where the rain-fall has been scanty, the best lands will profit even more than the others, but our calculations, to be safe, must be made on ordinary, not exceptional, seasons. Allowing, then, say Rs. 2 for the increased yield on the best land, and Rs. 4 for that on the worst, we may, I think, fairly assume from Rs. 2-8 to 3 to be the average extra profit derived in ordinary seasons from artificial irrigation of the heavy rice-crop of the country.

4. The yield of the Beallee, or early rice crop, which is reaped at the end of August and beginning of September, is about half that of the Sarud crop. But, on the other hand, being on higher ground, it stands more in need of irrigation, though, requiring it for a shorter time, I do not think the benefit from artificial irrigation would, on these lands, exceed Re. 1-8 an acre.

5. The third rice-crop is that raised in the hot weather, known here by the name of Dalus. It is wholly dependant on irrigation, and can, by consequence, be grown only in creeks or natural excavations, where a plentiful supply of water can be obtained. The yield is even more valuable than that of the Sarud land, and the cultivators could undoubtedly afford to pay Rs. 3 or 4 an acre for their water.

6. The principal cold-weather crops are kalae, kulthee, moong, urhur, (all pulses of different kinds), mustard seed and castor-oil. These crops suffer severely if the rains come to an early close, but they do not require a large quantity of water, and the yield is not valuable. They do not, on an average, give the Zemindar more than Rs. 2 per acre as rent; and the produce, therefore, cannot exceed Rs. 4 to 5. One Rupee per acre is quite the outside of what the ryot could afford to give for irrigation in these cases. Some of the crops, the pulses for instance, are sown on Beallee land, which would make the total value of the water for the two crops Rs. 2-8 an acre.

7. Of the hot-weather crops, by far the most important is sugar. It is admitted that its cultivation costs some Rs. 18 per acre, of which full half, or Rs. 9 to 10, is due to irrigation alone, and, of course, though the crop occupies the ground for the greater part of the year, the principal part of this expenditure is incurred in the hot season. Without, then, taxing the ryot to the full extent of what he now pays on this account, the Company may still expect a liberal price for their water. I should put it down at Rs. 6 to 7 per acre.

8. With regard to cotton, it is difficult to estimate the average value of the crop, while the future of the cotton trade is so uncertain. At all events, there is no crop in this Province for which irrigation is more necessary; and it is certain that, when the supply of water is certain and abundant, cultivations will largely increase. At present, a good cotton yield is worth some Rs. 24 an acre, and, though the price is now exceptionally high, it must be remembered that, with improved means of irrigation and improved seed, the actual produce will be very greatly increased, so much so, as in some measure to counterbalance a probable fall in price. On the whole, therefore, I think, that the hot-weather crop can afford to pay, as highly as sugar, and the Huldea, or rainy-season crop, as highly as Sarud rice.

9. There remains the suparee or betel-nut, and the pawn or betel-leaf; neither of which can exist without incessant water. The profit on betel-leaf is very high indeed, as shown in my Report on the proposal to levy a tax on pawn, No. 482 of the 2nd October 1861. I based on an estimated profit in Cuttack of Rs. 12 to 15 per cottah, or Rs. 300 to 375 per acre. It is manifest that such a crop would bear an infinitely heavier water-rate than any hitherto suggested; but the cultivation is on too limited a scale seriously to affect the general average, nor, as the rate whether by volume or area is not compulsory, would it be of any avail to charge more than the water already costs the ryot, however great the profits or about Rs. 10 per acre. I should fix the prices at the same figure as that for sugar.

10. It will be observed that, though my calculations thus far agree tolerably with those made by Sir Arthur Cotton for the Madras Deltas, there is one important difference that the single heavy rice-crop can afford to pay more for water than the two-crop land; the main reason being, as I imagine, that, in Madras, the heavy crop is cleared off the ground in time to allow of spring crops being raised. This is not the case here. On the other hand, the crops which occupy the ground for all and most of the year, such as sugar-cane and pawn, can, as in Madras, bear a double assessment.

11. Thus the value of the water to the different crops per acre would stand as follows:—

	Rs. As.	Rs. As.	Rs. As.
Heavy Rice	2 0	to 2 8	or 3 0
Huldea Cotton	2 8	„	3 0
Early Rice	1 0	„	1 8
Hot-weather Rice	3 0	„	4 0
Cold-weather Crops, Pulses, &c.	1 0		
Two-crop Land	2 8		
Sugar	6 0	to 7 0	
Hot-weather Cotton	6 0	„	7 0
Pawn	6 0	„	7 0

12. There is a small quantity of wheat cultivation as well as* grain and peas. The former I would assess at heavy rice rates, as though it requires less water it ripens later in the season, and is, therefore, more dependant on an artificial supply. Grain, &c., should be classed with cold-weather crops.

13. Tobacco is grown in considerable quantities on river banks, but the situation is chosen as much on account of the soil as the facilities of irrigation. After the plant has sprung up, it requires water only three times, and the expense of irrigation cannot, therefore, be great. One Rupee per acre would, probably, be quite as much as would be paid.

14. I now come to a much more difficult question, the proper charge per volume, but it is one necessary to enquire into thoroughly, because, as I shall proceed to shew, the volume rate is the only one which can be carried out in the present conditions of the country. In Madras, the rate formed part of the settlement,—it was just as compulsory as the regular land-tax; the only option given to the cultivator being to compound for the whole year, or pay for each crop separately.

15. It is obvious that, even thus, there was great temptation to waste, and this alone would, in Cuttack, be a most serious consideration. The Company's Officers admit that their whole projects depend on their finding sites for enormous reservoirs high up the country; and though I certainly would not undertake to say that it will not be possible thus to store up a sufficient supply of water to last through the hot weather (for navigation as well as irrigation), it is certain that it will always be necessary to economise every drop; and this is just what is impossible under the acre-rate system. A man, under such a system, contracts, say in the beginning of the year, to have as much water supplied to him as he can require for a specified number of acres at a fixed rate per acre; all that he will care about is not to swamp his land. If he takes twice as much as he really requires, it is nothing to him, provided he can pass the surplus off, and this propensity to waste will, in the hot weather, become a mischief of the very first magnitude, and one that it will be impossible to check. How can the Authorities interfere to any purpose in the countless wrangles that would ensue between the purchasers of the water and the sellers? Or, supposing the Government themselves are, in accordance with the contract, the sellers, the case will, if anything, be still worse, for we should, in this instance, be judges in our own cause. The cultivators will contract with us, and then, if the Native subordinate in charge of the sluices hesitate to supply according to their demands, they will assuredly turn round and charge the distributing establishment often, I dare say with great justice, with extortion or carelessness.

16. But a much more serious evil is, the temptation afforded to fraud. It will be impossible to prevent a man taking twice as much as he wants, and selling the surplus to his neighbours. The practice may, by a special Act, be made penal, but even thus it will be impossible seriously to check it. We should require a policeman's beat for every rivulet; and even then who is to judge whether a ryot lets off his water *bona fide* to prevent his crop being swamped, or to sell it to his next neighbour? I do not say that there would be no limit to this kind of fraud. If it were found that a ryot had been taking 10,000 cubic yards for a single acre of rice, there would be but one conclusion; but I do not believe it would be possible to prevent the Company being robbed, under this system, of the value of 25 per cent. of the water supplied by them.

17. There is yet another consideration, and that is, the extreme difficulty of meeting the case of the supply falling short in the hot weather. Where water is sold by the volume, the matter adjusts itself; the ryot pays for as much water as he gets, and no more; but how is the loss per acre to be estimated in the other case? A failure in the supply would give rise to endless disputes and heart-burnings, and end, probably, in deterring the people from having anything to do with the Company.

18. In spite, therefore, of the opinion expressed in para. 4 of the letter from the Secretary to Government, in the Public Works Department, I most respectfully, but earnestly, submit that we have no alternative but to charge by the volume. There may be some practical difficulties in carrying out the system, but they must be met and overcome; for the other system, where payments are voluntary, is simply impracticable.

19. At the same time, though I believe we have really no choice but to charge by the volume, it behoves us to take most especial care not to fix the rates one anna higher than it is well worth the ryot's while to pay; for, if we do, we may be certain he will not buy. The Company's Officers are fully alive to the danger thus attending over assessment; and, in the

main, therefore, their views and those of the Government officials may be considered identical. The one only point on which they might possibly be disposed to bear hardly on the people, would be to take advantage of the interruption to the natural means of irrigation caused by the interception of river water, and the construction of extensive embankments and canals between the river and rice-fields. To this extent only will they have the means of driving a harder bargain with the people than would fairly result from the natural law of supply and demand. I do not mean that the Officers of the Company have shewn a disposition to deal otherwise than fairly and liberally with the people, but it must not be forgotten that this is the one point where, if anywhere, the action of Government for the protection of the people's interests might be required.

19½. In calculating the quantity of water that may be required for the different kinds of crops, I must necessarily rely principally on the data given from the past experience in Behar and the Madras Presidency. I have not myself the means or opportunity of ascertaining by actual experiment, but it will not be difficult to get pretty near the truth by comparing the results obtained in other parts of the country as applying them to Orissa, with due reference to local peculiarities.

20. I observe that, even for the same part of the Madras Presidency, there is some little difference in the estimates of different Officers. Sir Arthur Cotton in his work, "Public Works in India," calculates that the heavy or monsoon crop of rice will require as a maximum, 70 cubic yards per acre per diem, or, for the season, 8,400 cubic yards. This, however, is the extreme. On an average, he assumes 7,500 to be the consumption, from which he deducts one-half the quantity received from a rain-fall of 30 inches, or 2,000. This leaves half to two-half cubic yards per hour as the quantity required, and, in his letter to the Secretary to the Government of Madras, No. 227 of the 18th June 1862, he takes 50 cubic yards per diem as the requirement of the first crop of paddy in Kurnool. This is, in fact, rather an excess of Sir Arthur Cotton's estimate after all, owing to the quantity provided by the rain-fall. But if Colonel Rundall includes in his calculation the natural supply, his estimate is 30 per cent. less.

21. Dry grains in hot weather appear in Madras to require about one-third the quantity of water consumed by rice in the rains; but, as they occupy the ground for a much shorter time, the average per hour may be taken at one-half or about one cubic yard. This is considerably in excess of Colonel Dickens' estimate for spring crops, whose calculations come to about 41 cubic yards per hour per acre; but the difference may be accounted for, partly by the nature of the crop, which in Behar is mainly wheat and barley; partly, probably, by the heat of a tropical sun producing in the Madras Presidency greater evaporation. In Orissa, these "dry grains" are not sufficiently grown to make an important item in the calculation.

22. The rice crops in Orissa will undoubtedly require far less water from artificial sources than in Madras, for two reasons:—In the first place, as in Behar, the evaporation is less; and in the second, the rain-fall is about twice as great as that on the east coast of Madras. It does not certainly follow that the ryot will be able to supplement his wants from this source as may probably be the case, that Cuttack rice-crops will, from first to last, take on the average 7,000 cubic yards, we may fairly put down 3,500 cubic yards to the rain. This will leave 3,500 per acre to be purchased. In the former part of my letter I calculated that the ryot could afford to pay Rs. 2 to 2-8 per acre for the heavy rice. This would give from 11½ to 13½ annas per 1,000 cubic yards. For cotton, the value would range somewhat higher, or about one Rupee. On the other hand, the early rice-crop, though consuming somewhat less water, as being a shorter time on the ground, could not afford to pay anything like the same sum as the more valuable crop, and the rate or price would consequently be much less, although, in the event of a failure in the rains, its need would be much greater. On the whole, then, I should recommend an average rate all round of 8 annas per 1,000 yards for the rainy season, i. e., from the 15th June to the 15th November.

23. From the 15th November, the natural supply will begin to fail, and water will, by consequence, be far more valuable. The people must, therefore, be prepared to pay a much higher price for it. Not only so, but the crops which then consume the greatest quantity of water, Dalao rice, sugar, betel-leaf, and cotton, are also the most profitable grown in the Province. Sugar, to begin with, consumes from 10,000 to 15,000 cubic yards per acre, of which one-half is fairly due to the artificial supply received after the close of the rains. Taking the rates per acre given in para. 11 of this letter, we get an average of about a Rupee per 1,000 cubic yards. Cotton and pawn could afford to pay still more, because they consume less water. The hot-weather rice crop, on the other hand, is of far less value, and absolutely dependent on an unfailing perpetual supply. I doubt if it could afford to pay so much as a Rupee per 1,000 cubic yards; but I could not on this account lower the rate all round. This kind of rice is now grown, as I have already mentioned, only where the water still lies after the close of the rains. I do not imagine that this natural supply will be any way affected by the Company's operations, and, at the worst, therefore, this kind of cultivation will not, if the price of water be prohibitive, be extended. It will not be checked.

24. The Board will observe that the result of my calculation is to make the price of water for Orissa, whether by the area or the volume, almost the same as that advocated by Colonel Rundall for the Kurnool irrigation project.

25. The countries differ so much in almost all points, soil, climate, crops, &c., that I certainly do not adduce this coincidence taken by itself as any corroboration of my views. *Prima facie*, Orissa, as a poorer soil and poorer country, could not afford to pay nearly so much as most parts of Madras. But, on the other hand, as she needs much less water, an equal rate per volume will produce a smaller rate per acre; and, above all, as the rate is not compulsory, there is far less danger of its being fixed too high. It would be simply suicidal in the Company to put so high a price on its water that nobody would buy it.

26. The next point for consideration is the manner of distribution and collection. Into this question it is difficult at present to enter at any length, because we have no details as to the number of channels of irrigation which the Company propose to construct.

27. If the terms of the Contract are not considered to make the arrangement inadmissible, I should be inclined to recommend that the distribution of the water, supposing my proposal to charge for it by the volume be adopted, be left with the Company, who would probably manage it more cheaply and effectually than Government could do. The Government would, of course, have the general control and superintendence of this part of their operations, and would reserve the power of taking it into their own hands, should they at any time desire to do so.

28. It would be necessary to frame some few simple rules in regard to the manner in which applications are to be made, and the water paid for. The Company will undoubtedly be averse to entertaining applications for a very small supply. It would be impossible to keep separate accounts with two or three hundred people in each village, each of whom would require only a few annas' worth at a time. It might fairly be laid down, therefore, that the Company's Officers should not be obliged to open their sluices for less than, say, 5,000 cubic yards of water at any time. Practically, the result will be that the headmen of the village will take the responsibility of applying for the water, and retail it, possibly at a trifling profit, among the villagers. To this there can be no objection, the rates being sufficiently low to allow a margin for this extra charge.

29. With regard to the manner of collection, I should recommend that, unless the application be made on the security of landed property, all the dealings should be for cash. I think this will entail less hardship and heart-burning than giving the Native employes of the Company or Government power to refuse a supply on the ground or pretext of a former supply not having been paid for. Moreover, as the Company will have nothing to do with the destination of the water after it has once left their sluices, a defaulter could easily get all he wanted by arranging with his neighbours.

30. Where credit is given on the security of landed property, payment must be enforced by the Collector by the process for recovery of arrears of land revenue. To enable him to do so, I imagine it will be necessary to pass a short Act supplementary to Act XI of 1859. There would be no difficulty in fixing the responsibility. The Zemindar would obtain a certificate from the Collector to the effect that, he was entitled, as a proprietor of such and such an estate, to run up an account with the Company; he would file a duplicate of this certificate with his first application, and the Company would hand in his receipts for water from time to time to the Collector, who would deal with the amount as an arrear of revenue.

31. If this plan be not adopted, it appears to me that the Government will have to construct all the village or subsidiary channels, and to take charge of the sluices through which water will be conveyed, either from the main lines or the secondary branches, as the case may be. Each sluice would, on an average, require one Peon, and a Mohurrir on Rs. 10 to Rs. 12 a month would have to be entertained for a given length of channel, or a given number of sluices. The expense, which would be heavy, would, of course, fall, in the end, on the Company; and there would be the disadvantage that the Government has not the same direct interest in promoting the distribution and sale of water as the Company would have. There is, it may be observed, no existing agency which could be made use of for the purpose, except that of the Canoongoes, whose number would be inadequate to the task, and whose appointments will be abolished if the existing settlement is declared permanent.

32. It is obvious that one serious disadvantage attends the system which I have so strongly advocated—of sale by volume. It is this, that it opens a door to extortion by Native underlings, whether they be employed by Government or the Company. In the Madras Presidency, where the collections are made on the area irrigated, the channels are kept always open and running, except on occasions of heavy floods, when the supply from the river is for a time shut off by the closure of the sluice-gates. Undoubtedly, there is immense waste under this plan, but at all events so long as the supply does not fall short, each man can help himself to as much as he wants without waiting for the permission of a scantily paid Native official.

33. I admit the evil, which is a great one. This much may, however, be said that, it will be more readily checked if the supply be in the hands of the Company, under the check

and supervision of Government Officers, who may be regarded as in some sense an antagonistic power, than if both the distribution and the check of abuses in the distribution lay in the same hands.

34. For the reasons already given, I believe it to be a matter of simple necessity, under existing circumstances, to charge for the water by volume. But circumstances will change on the expiry of the term of the present settlement. The rate can then be made compulsory, and, by consequence, assessed on the land itself. I do not recommend this plan, though it has the advantage of certainty, simplicity, and, till the people know how far a given volume of water will go, greater intelligibility. My greatest objection to it, is the possibility that the supply may occasionally fall short. It will always be more likely to do so under the "area," than the "volume," system, because there will be greater waste; and when it *does* fall short, the embarrassment to all parties will be much greater.

35. Should it, however, be decided to adopt this system, a species of re-settlement will be necessary. Deputy Collectors must be appointed to re-measure all the irrigable lands, or— at all events, such of them as have been brought into cultivation since the last settlement. The operations of the Company, while water is in the meantime sold (as for a beginning it must be) by volume, will be an excellent guide to them as to what land is, and what is not, irrigable, and a separate assessment can then be imposed on the principle laid down in the former part of this Report.

36. It must not be forgotten that, in the Pooree District especially, there are large tracts of lakheraj or quit-rent lands. We cannot compel the owners of these lands to pay a water-rate, but they are not so extensive as to make it impossible, though it may be difficult to watch them, and check, if not entirely prevent, the theft of water. If this can be done, I have no doubt the lakherajdars will cheerfully agree to pay a water-rate, realizable, like that on revenue-paying lands, by the sale of their estates.

37. It is hardly necessary to add that, if the rate be laid on the area irrigated, Government must deal with the Zemindars alone, and leave them to settle with their ryots, the rate being made a part of the rent payable by the latter, though separately exhibited. In calculating the addition to the Zemindars' sadder jumma, the usual 10 per cent. deduction for collection expenses must be made, and the balance, less any other, contingent charges, paid over to the Company immediately after the latest day fixed for the payment of revenue.

38. I have the satisfaction of being able to say that the views of the Agent of the Company agree on the whole with those which I have now set forth. Mr. Boothby considers 10 annas per 1,000 yards a fair rate for the wet season, but proposes Re. 1-8, or somewhat more than double that rate, for the dry. He, however, qualifies this proposal by an exceptional rate for sugar cane, in consideration of its large consumption of water. The principle, however, of charging according to the crop has been disapproved even where the rate is laid on the area irrigated, and would be still more objectionable, if not impracticable, where water is sold by the volume. This manner of selling the water has his cordial support.

39. He has, however, in a communication with which he has favoured me, set forth some considerations which may not have been sufficiently adverted to in my letter. In particular, he very justly brings to my notice the great superiority of river over rain-water, in that it brings with it a valuable deposit. This is unquestionable, and it is a most important consideration, because we have here a tangible benefit, which will be at once appropriated by the people, and will make them ready to buy water from the Company even when the supply from the rains is not seriously deficient. The fact, moreover, furnishes a valuable argument in favour of the price which I have proposed not being excessive, although Mr. Boothby does not urge it as a ground for increasing the price.

40. Mr. Boothby has further brought forward several other considerations which would be of great importance if the rates were to be made compulsory. I subjoin an extract from his letter in which they are given in full. They relate to the less direct, though enormous, benefits to be conferred on the country by the proposed operations, *viz.*:—*first*,—Protection from inundation; *second*,—The value of drainage; *third*,—The increased value of produce consequent on greater facility of communication; *fourth*,—The value of a certainty of water, whereby a ryot can choose his own time for sowing.

41. All these are good and valid reasons for imposing a tolerably high compulsory rate on area, because they go to show that the ryot can afford to pay. But so far as he will reap these advantages in any case, they will not act as an inducement to pay more than the artificial supply is worth to him at the time he purchases it. And this value will vary so much with the season, that it is obviously politic, when to buy is optional, to fix it at the lowest remunerative rate.

42. The general result will undoubtedly be that the Company will gain very largely, indeed, in years of drought, but that in such a season as we have this year been blest with, the demand during the rains will not be great. On the whole, however, provided the Company succeeds in maintaining a supply during the hot weather, I believe that the prices and rates which I have proposed will yield a fair dividend. At the last settlement there were, in round numbers, 17 lakhs of acres cultivated, and 24 lakhs uncultivated, land in the Province. I suppose that no less than from 5 to 8 lakhs of acres has been since brought into cultivation, making a total of, say, 24 lakhs of cultivated acres. This, it may be observed, is

exclusive of some extensive estates settled in perpetuity, the greater part of which will undoubtedly come under the influence of the Company's operations. On the other hand, a portion of the temporarily-settled land will not be irrigable. In particular, Killah Khoordah, which occupies the northern half of the Pooree District, and contains six lakhs of acres, will be almost entirely excluded by its situation from the benefits of the Company's operations. But in this estate the proportion of unculturable land is greater than in any other part of the Province.

43. On the whole, I think, we may reckon on some 15 lakhs of culturable acres taking water from the Company's canals. This, at an average of a Rupee an acre (and it cannot well be less), would give 15 lakhs of Rupees, or $7\frac{1}{2}$ per cent. on the two millions which constitute the present capital of the Company. But, in point of fact, I believe that the rate will considerably exceed one Rupee per acre, and the very large returns which may with certainty be anticipated from navigation tolls, have not been taken into the account at all. I am aware how exceedingly deceptive such vague estimates as that which I have attempted often prove; but it seemed desirable to shew that, as far as we can yet judge, the proposed rates are fair to the Company as well as to the people.

44. I have not touched on the question how far the existing means of irrigation will be interfered with. I have requested the Superintending Engineer to give me some particulars as to the number of existing sluices and the area, as far as can be known, which they water; but have not thought it necessary to delay my Report for this, which is a mere matter of detail. The Company's Officers have been carefully measuring the discharge of the various sluices, and eventually some reduction may be necessary in the rates paid for the water where the action of the sluices has been interfered with. This, however, can be easily arranged when the operations of the Company approach their completion.

45. In conclusion, I would submit the advisability of making whatever rates or prices may be fixed, experimental in the first instance. The voluntary system of selling by volume has not yet been tried in this country, and it appears to me extremely desirable that we should see how it works before fixing the rates to be levied under it, either in perpetuity or for a term of years.

Extract of a letter from G. W. BOOTHBY, Esq., Agent and Manager of the East India Irrigation and Canal Company,—dated the 5th September 1863.

3. "The additional points to which I have alluded, I would briefly state as follows:—

1st.—*The value of protection from inundation.*—It is true that there are many lands which are not subject to inundation; but, if the carrying out works for irrigation necessitates at the same time a large expenditure for protective works, it must be allowed to be but fair to consider the cost of those works in fixing the rate at which irrigation water should be sold.

2nd.—*The value of drainage.*—An efficient system of this most important desideratum in all kinds of agriculture will be included in our works for irrigation, and, therefore, I think the Company may fairly be entitled to have this point considered when fixing a value on irrigation.

3rd.—*The increased value of produce from the facilities of communication.*—This point must be allowed, I think, to bear importantly on the money-return from an acre of rice; and hence, on what a ryot can afford to pay for water, every disbursement for cost of carriage of rice to market, whether paid by the cultivator or the merchant, being an actual deduction from the profits of the producer of the rice. When the district is intersected with canals, leading from various points to the coast, a good market, at a low cost of carriage, will be open to producers. I can speak positively to the fact that, for many years, the price of rice in this district has ruled about one-third below the prices in Rajahmundry, the principal cause being the want of facilities for carrying it to a shipping port. I am aware that the answer to this commonly is, that all the rice that can be purchased in the district is shipped, but I think that this only proves my argument to be correct, by showing that the price merchants can pay to the producer, owing to the high cost of carriage, is so low as not to encourage an extended cultivation.

4th.—*The value of a certainty of water-supply as enabling the ryot, by commencing his sowing at a fixed time independent of the uncertainties of commencing of a monsoon, to count on two crops.*—In Godavery District, the seed beds are prepared and sown in May, about six weeks earlier than in this district, where the rain-fall has to be waited for; thus, in that District, the first crop is off the ground in for another crop to be sown in February, and harvested in May.

4. As regards the difference of return from an acre of rice due to irrigation, we must take the average return without irrigation over a series of years, including years of failure of crops from drought and inundation, and then, I think, the increased return will be greater

than you make it. I think we have to consider, not merely the abstract value of so much water to the ryot, but also the value of the certainty of that supply to be secured to him by very costly works: for it is obvious that, in agriculture, the value of water is vastly enhanced by the cultivator being able to count on getting it when he wants it.

5. I have made these remarks with no desire to advocate a high rate for the water, but simply because I believe such considerations may fairly be urged by the Company as belonging to the question.

6. The rates you have named are very nearly the same as those I have thought of as fair. Referring to your para. 22, you there arrive at 9½ to 11 annas per 1,000 cubic yards as a fair rate for the Sarud rice, which is the great crop of the district, and to which the other descriptions of rice form a very small proportion. I think, therefore, this crop may fairly be taken as a guide, which would give, say, 10 annas per 1,000 cubic yards during the wet season. And with you I agree that the difference should be somewhat more than half between the dry and wet seasons; the rate for the former would, therefore, be about Re. 1-8 per 1,000 cubic yards.

7. The only crop that this could bear heavily upon is sugar-cane, but for it cultivators might compound and pay for the year's supply at one per 1,000, or pay the two rates.

8. Reservoirs are, no doubt, a necessity to perfect our scheme of works, but even without them, I think, the period would be a short one when we could not afford a year's supply of irrigation water, as the combined dry-season supplies of the Mahanuddy and Brahminee are found to be very considerable.

9. In regard to the interception of river water noticed in para. 18, I would explain that this point has been already most carefully attended to by the Company. At all the existing sluices on the Bargovee and Dyah, which the people use for irrigating their lands, flood and fall of the water; the levels of the sluices and their dimensions have been carefully taken, so that the quantity of water the people have taken for their crops this year can be ascertained exactly. This has been done with the view of allowing the same quantity free to the cultivators after the completion of our works."

No. 37, dated 30th September, 1863.

From—R. N. SHORE, Esq., Commissioner of the Cuttack Division,
To—Secretary to the Board of Revenue, Lower Provinces.

With reference to para. 28 of my letter* on the price to be charged for water by the East India Irrigation Company, where 5,000 cubic yards is suggested as the minimum quantity to be sold to any one applicant, I beg to note that I am informed by the Agent to the Company, that he would have no objection to reducing the minimum to 1,000 cubic yards. Mr. Boothby very justly remarks that, if water is not sold to the cultivators in sufficiently small quantities, a very injurious retail trade in water will spring up.

No. 138, dated 6th May, 1864.

From—R. B. CHAPMAN, Esq., Secy. to the Board of Revenue, Lower Provinces,
To—Officiating Secretary to Government of Bengal, in the P. W. Dept.

In continuation of my letter No. 39, dated 22nd February last, I am directed by the Board of Revenue to submit, for His Honour's information, copy of a letter No. 58, dated 27th ultimo, from the Commissioner of Cuttack, offering remarks relative to the Board's proposal to make the laws for the recovery of rent applicable to the recovery of the water-rate to be levied on account of the East India Irrigation Company.

2. The Board continue to consider cash payments for the water that may be sold to be impracticable, and they do not find in the objections urged by the Commissioner any insuperable obstacle to the plan, which has been proposed by them, of making arrears of water-rate recoverable as arrears of rent; their views on the subject are not, therefore, in any way modified by the Commissioner's present letter.

No. 58, dated 27th April, 1864.

From—R. N. SHORE, Esq., Commissioner of the Cuttack Division,
To—Secretary to the Board of Revenue, Lower Provinces.

I have the honour to acknowledge receipt of your letter No. 4 of the 8th March, with Report from Board to Government, copy of the correspondence noted in the margin, and to No. 39, of 22nd February 1864, with submit my opinion on the question mooted in your 2nd enclosure. para.

2. If the water is to be charged for by the area irrigated, there would be little difficulty in realizing the rates by the provisions of Act X of 1859. The produce will always, it may

be presumed, suffice to answer the demands both of the receiver of land-rent, and of Government, for the supply of water. It will merely be necessary to provide that, where both parties have distrained, the rent receiver's claim shall first be satisfied.

3. But if water be sold by the volume, the difficulties in the way of realizing the price in the manner proposed would be considerable. We should have to call on the purchaser to specify exactly the land for which he requires the water, i. e., to pledge its produce as security, and it would then be necessary to satisfy ourselves that the land in question is really in his possession, and further that the value of the produce is likely to cover the price of the water; otherwise, it is manifest that frauds to any extent might be practised.

4. But I doubt if such a course is practicable. The Collector has not machinery that could receive and promptly dispose of the thousands of applications which would be poured in at the beginning of each season for water. It would be a very great convenience if we could induce the ryots to combine and present a single application, on the security of some one respectable and substantial person in the village; but so long as we are willing to receive individual applications without further security than the hypothecation of the expected crop, so long we may be sure they will be presented.

5. It is true we can also have recourse to a regular suit under Act X of 1859 against defaulters; and, so long as there is no doubt or mistake about the identity of the applicant for water, this process will probably be in general pretty effectual. It will not, however, preclude the necessity of some preliminary enquiry into the position and means of the applicant, and it is this preliminary enquiry, where the applications are so numerous, that appears to me the great difficulty and objection to the whole scheme.

6. A middle course might, however, be found to answer. Ready-money payments to the Collector, i. e., in advance, might be insisted on where the applications are below a certain amount, say 20,000 yards; above that amount, security should be taken either on hypothecation of the crops, or the security of the village middle-man, or the security of the Zemindar, in which latter case, the estate itself would be hypothecated as for arrears of revenue.

7. I admit the objections on principle are urged by the Board to making the estates of Zemindars liable to sale on non-payment of a water-rate. But it will be observed that, on the plan which I have proposed, this hypothecation of the estate is purely optional.

Dated 1st September, 1864.

From—LIEUT.-COL. F. H. RUNDALL, Chief Engr., E. I. Irrign. and Canal Company,
To—Secretary to Government of Bengal, in the P. W. Dept.

Being desirous of submitting my opinion on the important subject of the water-rate to be levied by the Company, and having been unable, owing to absence from India, to do so at the time the Commissioner of Cuttack submitted his Report, I requested permission from the Lieutenant Governor to take the opportunity of the recent receipt of the Board of Revenue's review of the Commissioner's Report, to forward my views on the subject. I have, therefore, the honour to enclose the accompanying Memorandum, and to beg that the informality of addressing you direct, instead of through the Agent, may be excused, on the ground of the delay that would be caused by transmitting the letter hence to Cuttack.

Dated 2nd September, 1864.

Memo. by LIEUT.-COL. F. H. RUNDALL, Chief Engineer, East India Irrigation and Canal Company, on the Water-rate to be levied in consideration of the scheme of works executed by the East India Irrigation Company in Orissa.

Having been absent from India at the time the subject of the water-rate was being discussed, I was unable to communicate with the Commissioner of Cuttack, and, therefore, now avail myself of the opportunity afforded by the receipt of the review* made by the Board of Revenue on that gentleman's Report.†

2. The Board review, first, the clauses of the contract specifying the grounds on which the water-rate is to be considered, viz., that it is to represent a fair charge upon those who consume the water.

3. The question properly hinges on, not what is the value of the water only when applied to the soil, but what is its value when accompanied with several other benefits conveyed by a scheme of works like those now being undertaken by the Company. It appears to me that, to found calculations simply on the ground of the difference between a maximum yield and an average yield of the staple crop of the Province (rice), is to restrict the question within too narrow limits. The mere supply of water is but one link in the chain of benefits conferred on the agricultural community by a comprehensive scheme of works. The whole question, moreover, is begged in the term "average yield." Before, however, discussing that term, I will follow the Board in their remarks on the instructions of Government relative to the mode of levying the rate.

4. Unquestionably, the most economical method is to sell water by volume; but there are many practical difficulties attending it, which, though not perhaps insuperable, may yet prove so troublesome as to render the desirability of its adoption an open question. It appears to me that there can be no objection to adopting the sale by area as well as by volume, as a unit of measurement may be fixed in either case, and it would, perhaps, be premature to fix the precise method arbitrarily at the outset.

5. The Secretary of State's "final instructions," as given in para. 12, appears to be an interpretation of the clauses in the Contract given long subsequently to its adoption. It is a point for the Directors of the Company to consider how far the announcement therein made agrees with the views communicated to them at the time the Contract was originally entered into, but the injunction, that the price of the water is intended to be absolute and not one varying with the quality of the land, coupled with the intimation that the Government retain full power "to obtain and fix in the usual way the ordinary revenue assessment on fresh land brought under cultivation in consequence of the irrigation works," is an acknowledgment of possible effects of those works apart from the mere office of supplying water; and hence those effects must of necessity form important elements in the discussion as to the amount of remuneration to be made to the Company, or, in other words, of arriving at the "fair charge" to be fixed. For it could never have been the Secretary of State's intention to reap for the State important benefits at the Company's expense without giving them a share in the profits arising therefrom; the expression "to afford the Company a liberal remuneration for the expense of supplying it," indeed, forbids the supposition.

6. This, then, must form the basis of the subjects next treated by the Board, *viz.*, the price to be paid to the Company for water, and the manner in which the Commissioner of Cuttack has arrived at the conclusions which have received their approval.

7. It is difficult to see how an idea of the value of water could be formed without first ascertaining the effect it produced on the several kinds of agricultural produce; for, as the Commissioner and the Board both incline to the method of selling water by *volume*, it would have been anything but a fair way of determining its value from application to any one particular kind of crop; the very principle of paying for the water by *volume* is to enable the cultivators to make it *go as far as possible*, or, in other words, to apply it to the most remunerative purposes. Its value in that case should, therefore, be referred to a *high* and not a *low* standard. When the Secretary of State says that it was not the intention of Her Majesty's Government that the charge for the water should vary proportionately with the money value of the water to the actual consumer, I take it to mean only that the charge should be *fixed* and not variable, and not that it should not have reference to the absolute money value of the article, for, to what other standard is it possible to refer?

8. The data on which, however, Commissioner has proceeded are, as I said before, confined to very narrow limits, and hence the results at which he has arrived are such as do not represent a "fair charge" for the works executed by the Company. The mistake arises in looking only to the one point of a supply of a given quantity of water as the aim and end of the Company's operations. Such, however, is not the case: neither does the difference between the maximum and an average crop represent the value of the water to the cultivator.

9. I would here observe, without presuming to question the accuracy of the returns given in the Commissioner's letter, that they are so much below those yielded in the Godavery and Kistna Deltas, as to lead to the inference that far greater results than those anticipated by him will be realized under a perfect system of river irrigation. The *average* crop of transplanted *paddy* in the Godavery yields from 1½ to 2 pooties, or from 2,000 to 2,700 lbs. per acre. The *maximum* varies from 2½ to 3 pooties, or from 3,370 to 4,050 lbs. With the same prices only as those quoted by Mr. Shore, *viz.*, 18 seers, or 36 lbs. of *rice* per Rupee, the value of the crop in the Godavery would amount for an average crop from Rs. 27-8 to Rs. 37-8, and for a maximum from Rs. 46 to 56. I know of no reason why a standard of 2,500 lbs. of *paddy* should not be reached in Orissa, and the corresponding value be realized by the cultivator.

10. Moreover, the mere conveyance of water to his fields would be but a small advantage were it unaccompanied with security both as to time and quantity, and were he not also sure of protection to his crops from injury by inundation.

An *ordinary* yield, too, is not the fair criterion for comparison: it should be, as stated by the Agent in his letter, the yield over a *series of years* in which losses by drought or inundation have occurred, whereby the *average* yield is greatly affected. The works in course of prosecution by the Company are precisely similar to those executed by the Government in the Godavery and Kistna Deltas, where the following advantages have resulted. First, although the commencement of the rains is simultaneous with that in Orissa, the certainty of the supply of water enables the cultivation to be commenced at an earlier date, and it is a well known fact that the earlier the seed beds are transplanted out, the heavier the crops of *paddy* are: the long or six months' crop is more valuable both in quality and quantity, and commands a higher price in the market. Much of the *paddy* in Orissa is not planted out till the end of August; the plant has consequently not sufficient time to mature, and hence, I conceive, the reason of the quality of the rice from Orissa being coarser than that produced along other parts of the Coast.

11. The next advantage is, the security afforded from inundation. In the Godavery and Kistna, before the rivers were embanked, the country used to suffer severely from periodical inundations, the face of the district was swept bare of crops, and the cultivator had to commence again after the floods to gather what little he could from the ground during the short season that remained. So in Orissa. And just as those two districts were gradually relieved from the effect of floods, will the lands in Orissa be likewise?

12. Hence it is apparent what important elements in calculating the profits of the cultivator these two points present.

13. According to official returns, it appears that, in a period of 13 years, remissions to the amount of Rs. 5,26,594 have been granted on account of either drought or floods in Cuttack, making an average of Rs. 40,500 per annum. These remissions, I have been told, bear but a fractional proportion to the actual extent of loss sustained by the cultivators, on the ground that the lowness of the assessment enables them to compensate periodical losses by the profits of intermediate years. The remissions do not represent 20 per cent. of the actual losses; and hence there must have been an annual average loss of at least from 2 to 3 lakhs during that period to the cultivators. In subsequent years, these remissions have been reduced to almost nothing, not because they were not wanted, but because a different mode of calculation was ordered to be pursued: but even in 1862-63 they amounted, in the Delta of the Mahanuddy, to Rs. 54,237, which would represent a loss of at least 5 lakhs to the ryots.

14. Two remarks in the Commissioner's Report here call for notice. He states that the difference of Rs. 7 does not represent the *ordinary* difference between the value of a maximum and average crop; first, because of the exceptionable high prices; secondly, because of the grain-dealers' intermediate profit.

15. To these I would reply, first, that it is an absolute certainty not only that present prices will not retrograde, but that they will rise still higher, and that Orissa will never again see low prices for agricultural produce of any kind. The general progression of prosperity throughout India has reached even Orissa, and caused a rise in price of almost all the necessities of life; but the local prosperity that will follow the construction of the works will enhance prices still further. Every individual cultivator will feel their effects, consequently the increase of individual incomes will beget increased wants and expenditure, increase of expenditure will cause increase of demand, and that will be followed naturally by a rise in prices. This is no picture, but what has actually taken place in the improved irrigated districts in Madras; the tide of wealth has flowed in largely to the producer, and, though the rise in prices has been considerable, yet it has not pressed hardly upon the consumer, for the simple reason that the whole community have been gradually getting rich together, and are able to live with more ease and comfort than when the price of food was 50 per cent. lower than at present.

16. The second deduction mentioned by the Commissioner, *viz.*, the intermediate profit of the grain dealer, is done away with to a great extent by the increased facility and cheapness afforded by water-carriage. One immediate effect is the almost general equalization of prices throughout the district, whereby the intervention of a dealer is no longer a necessity, for the ryot manages his own transactions. In the Godavery, the tables have been completely reversed: instead of the crops being mortgaged for advances, the ryots are now the holders and hang back for a rise in prices, as they have perfect security in being able to transport their crops at any season to the port, and, being no longer steeped in poverty, can afford to hold back their produce so as to seize upon the most favourable conditions of the market. Hence the deductions made by the Commissioner for the differential value between a maximum and an average crop will not occur in actual transactions. There need be no fear, then, of "the gains of the Company being swelled indefinitely at the expense of the people." The above particulars have been cited, not for the purpose of insisting on the highest possible water-rate, but to illustrate what the Secretary of State has laid down, that every advantage being secured to the ryot in the use of the water, is quite compatible with affording the Company a *liberal* remuneration for the expense of supplying it. That the former has been the consequence of similar works in Madras has been shewn, while the Commissioner's own rough calculation is sufficient to prove that a *liberal* remuneration will not be secured to the Company at his rates. No joint-stock undertaking in India is considered prosperous that yields so little as 7 per cent., while the Commissioner's calculation, taking no account of necessary deductions for charges for maintenance, repairs, &c., for which an allowance of 5 per cent. must be made, would reduce the net return to 2 per cent. From the above, I think it is clear that, in order to determine what will be a *fair charge* for the water, it is necessary to take into consideration the *general effects* of the works, and not merely the one effect of a supply of water if the returns to the Company are to be levied merely on the sale of that article.

17. The Board again decline to admit the Agent's representation of the superiority of river over rain water, and are further of opinion that the rivers in Orissa deposit only sand and not silt. No more convincing reply to that remark occurs to me than to suggest a walk of a mile over tracts from which the river has recently subsided.

18. With respect to the argument used by the Commissioner in reference to the relative quantities of water required in Madras and Orissa, I would explain that the seasons

vary so in different parts of Madras, that different allowances have to be made varying according to the locality, and, therefore, any correct general inferences cannot be drawn therefrom; but the seasons in the Godavery District are nearly similar to those in Orissa. The rain-fall in the latter exceeds that in the former, but not in anything like the proportion stated by the Commissioner. Were it, however, as he says, it appears to me more an argument for raising than lowering the rate, on the ground that the ryot can afford to pay a higher rate for a small quantity.

19. As the Secretary of State has laid down that the rate once fixed should not be raised while there is no prohibition to its being lowered, the right course is to commence with the higher rate, as, in the event of its proving too high, it can be lowered, while in the opposite case an increase is absolutely prohibited.

20. It is immaterial what the absolute quantity of water in Orissa may be as compared with that in Madras. If required at all, it must be because the crop would be injured or perish without it, and, therefore, it is of just as much consequence to the ryot, and as valuable, as far as his crop is concerned, as though he required twice the quantity. Hence the Company's works will be the medium of supplying an article of such value as the cultivator absolutely requires for the salvation of his crop, and in all justice to them they should be allowed to reap the equivalent.

21. Again, with respect to the cost of the works, the Government have unquestionably the power of executing irrigation works more cheaply than private Companies can. More than 16 years have elapsed since the commencement of the Godavery works, during which time there has been a great advance in the price of labour and materials all over India. The cost of similar undertakings now must, of course, be higher, hence the unit on which their returns are to be based must be higher, and this can be done without in the least pressing on the cultivators, as their condition has been to a similar extent improved with the general improvement and rise in prices on all agricultural produce throughout the country.

22. A revision of the rates on the Ganges Canal, as published in the Official Papers for 1862-63, shews that the charges there for rice crops are at the rate of nearly one Rupee per 1,000 cubic yards, the quantity consumed, or allowed, being at the rate of one cubic foot per second for 204 acres, or 65 cubic yards per hour per acre, which is almost identical with the quantity the Commissioner allows as the probable requirement in Cuttack.

23. Why, then, should there be so great a difference in the rate per volume between that levied in the North Western and in Orissa? Confessedly, the consumption is optional in both instances, and, if 170,000 acres of rice were irrigated at the above rate under that canal, is it unreasonable to suppose that where the same amount of water is required, there will be the same readiness to take it at the same rates?

24. I would, therefore, recommend that that be the rate charged for the first crop, and Re. 1-8 for the second or dry-weather crop; more especially if the rates are to be tentative.

25. With respect to the period of trial, however, I must deprecate so short a period as that of one year. The knowledge of such a proposal would lead inevitably to the postponement of the use of the water, especially when it was understood, in addition, that, after that period, the rates were to be lowered rather than raised.

26. In supporting the Commissioner's recommendation, the Board urged that it cannot be far from the mark, as the Agent proposes an increase of only two annas in the wet season, and eight annas in the dry. When looked at in the intrinsic value of annas only, the increase seems trifling; but when compared with the Commissioner's rates, the Agent's will be found to be in the one case 25 per cent., and in the other 50 per cent. higher! and yet the Agent's rate for the monsoon crop I consider below the mark, for the general effects from the works have been omitted from the calculation.

27. The date fixed for the commencement of dry-season rates should be the 1st, and not the 15th November, for the monsoon may be said to be virtually over by the former date.

28. With respect to the minimum supply which the Company should sell, I think that the Agent has placed it too low. One thousand cubic yards would not be sufficient for one-third of an acre. The expense of selling water for cultivation purposes in such small quantities would be more than the return therefrom would be worth. I should myself advocate the principle of distributing it wholesale to villages, allowing the villagers themselves to make arrangements for its partition within certain limits. Wholesale manufacturers never think of retailing their wares themselves, and, similarly, I think, great Water Companies can scarcely undertake a distribution of such minuteness as that proposed, and I should be disposed to fix the limit to something like one-tenth of a square mile.

29. As regards the degree of detail to which the distributary channels should be conveyed, there can be no call for the Company to execute them with greater minuteness than now obtains on Government works. No specific rule can be laid down, as the necessity for greater or less minuteness will depend on peculiarities of situation and other circumstances. As a general rule, however, sluices and channels may be excavated for the command of certain specified areas, while the field channels should be made by the cultivators themselves.

30. There remains yet one point to which I am desirous of drawing attention, and that is, that the interests of the Government are not only *not remote* but *much nearer* than is commonly supposed. It has been already stated above that the remissions have amounted to an average rate of Rs. 40,500 per annum. Besides the above, there has been an expense incurred by the State during the last 10 years of upwards of 6 lakhs of Rupees for repairs only to the embankments in Orissa, giving a yearly average of Rs. 60,000. During the last 2 years, 1862-63 and 1863-64, however, the outlay on this head was Rs. 72,742 and Rs. 66,513 respectively, besides Rs. 29,477 and Rs. 35,255 for new work in connexion therewith, making Rs. 1,02,219 and Rs. 1,01,768 as the aggregate outlay on embankments, exclusive of professional establishments. This sum alone represents the interest on a capital of 20 lakhs, and will be saved to the Government just in proportion as the Company's works progress, and are successful.

31. So, likewise, with the remissions which represent the interest on a capital of 8 lakhs. These are figures, regarding which there can be no mistake, I solicit especial attention thereto, as they show how large, and how *near*, an interest the Government have in the success and speedy execution of the works, both of which are necessarily dependent on the amount and quickness of returns obtained.

32. Besides the above, and all the indirect sources of revenue, is the direct increase of the Customs, which will inevitably follow. In the Godavery the exports have increased from 5 lakhs to 50 lakhs in 15 years, causing a proportionate increase in the Customs' dues. The exports, of course, measure the amount of bullion circulated throughout the district, and, as they consist mainly of agricultural produce, this bullion finds its way chiefly into the hands of the agricultural classes, and furnishes them with the means of indulging in foreign luxuries which they had hitherto been unable to afford. One source of prosperity thus re-acts upon another, and, while the people are gradually enriching themselves, they are at the same time contributing to the coffers of the State.

33. The impression is abroad that the Government have the prospect of being involved in a large expenditure for the purchase of the land necessary for the Company's works, with yet, at the same time, as in the opinion of the Board, a "very remote direct interest in the profits" from the same. I think, however, that undoubtedly great as is the boon of the gift of land by the State, the above quoted figures go far to shew that the pecuniary sacrifice on the part of the Government is not only not so great as has been supposed, but that, in all probability, it will in the end prove to be exceedingly small, if any at all, while, by their diminished outlay on public works in the Province, their establishments will be lessened, and consequently their profits will proceed almost simultaneously with those of the Company.

34. To recapitulate the opinions set forth in this letter, I would add:—

1st.—That the water should be sold either by volume or area, as may be agreeable to the purchasers or Company in different localities.

2nd.—That the price suggested to the arbitrators be one Rupee per 1,000 cubic yards from 15th June to 30th October, and 1½ Rupee from 1st November to 14th June.

3rd.—That these rates be experimental for five years, from the date on which water is first supplied for irrigation.

No. 25, dated 15th September, 1864.

From G. W. BOOTHBY, Esq., Agent and Manager, E. I. Irrign. and Canal Company,
To—Secretary to Government of Bengal, in the P. W. Dept.

I have the honour to enclose Colonel Rundall's letter No. 136, of this day's date, to your address, being a continuation of the Memorandum on the water-rate which he submitted direct to the Government of Bengal on the 2nd current, and to request that you will have the goodness to lay it before His Honour the Lieutenant Governor.

No. 136, dated 15th September, 1864.

From—LIEUT.-COL. F. H. RUNDALL, Chief Engr., E. I. Irrign. and Canal Company,
To—Secretary to Government of Bengal, in the P. W. Dept.

When submitting my Memorandum on the water-rate on the 2nd instant, I find I omitted to point out a fundamental error in the calculations made in para. 3 of the Commissioner's Report of 14th of September 1863, and which error has likewise escaped the notice of the Board.

Mr. Shore states that "the maximum yield is 25 maunds, and the average 12½ paddy or about 6½ and 3½ respectively of rice. At the present market-rate of about 18 seers to the Rupee, the value of the difference of these two yields would be about Rs. 7." There has been evidently some confusion in the above calculation, for the proportion of rice to paddy is rather above, than below, *one-half*, while the Commissioner has given it at only *one-fourth*,—hence the differential value is not, as given by him, only Rs. 7, but Rs. 14 while the value of a present maximum crop, to which standard Mr. Shore believes the application of regular artificial irrigation will raise the general out-turn, is Rs. 28 nearly, corresponding to what I have shown in para. 9 of my Memorandum to be the value of the average crop in the Godavery Delta.

This error, you will observe, materially affects the whole of the subsequent arguments in the Commissioner's letter, and is confirmatory of the statements contained in my Memorandum, and of the inferences to be deduced therefrom.

I shall feel obliged, therefore, by your causing the present letter to be appended to my Memorandum, and drawing the attention of His Honour the Lieutenant Governor thereto.

No. 26, dated 17th September, 1864.

From—G. W. BOOTHBY, Esq., Agent and Manager, E. I. Irrign. and Canal Company,
To—Secretary to Government of Bengal, in the P. W. Dept.

With reference to certain remarks on my letter to Mr. Shore, contained in the Report by the Board of Revenue, on the water-rate to be levied by this Company, it seems to me necessary that I should offer a brief explanation, which I have now the honour to request you will be pleased to submit for the consideration of His Honour the Lieutenant Governor, previous to final instructions being given to the arbitrators on the part of Government on this question.

2. It is proper that it should be clearly understood, that my suggestion to Mr. Shore, as to the rate to be charged for water, is not to be regarded as the final decision of the Company, nor even as in any way necessarily affecting that decision: for I expressly stated to Mr. Shore, before making my suggestion, that I was without instructions from the Company on the subject, and that, therefore, any opinion I might give must be received simply as the expression of my personal views; nor, indeed, was my own opinion fully matured, as may be gathered from the phrase I used in stating it, namely, "the rates I have thought of as fair." In fact, Mr. Shore's Report was not sent to me officially, and my reply was an unofficial communication, intended by me simply as an aid to Mr. Shore in arriving at a just conclusion, and by no means designed to deal with the whole question, nor even to meet every point in his Report which was only with me for a very brief period.

3. In naming the rates I did, I was guided by the desire to assimilate our charge for water with the Godavery District water assessment of Rs. 5 per acre, when the compound rate for irrigation for two crops is paid. But a very important fact must here be borne in mind, and which was not taken into account in my suggestion, namely, that the value of the produce of an acre of land in India has been steadily and largely increasing of late years, and is now fully 50 per cent. in excess of what it was when the Godavery water assessment was fixed. Therefore, it seems clear that rate having been confessedly fixed so as to bear lightly on the cultivators, that they can now well afford to pay at least a high rate; indeed, in point of fairness, they may well now pay a higher price for irrigation water, for the present value of agricultural produce cannot any longer, I submit, be regarded as "exceptional." And it is the continuance of these high rates for food, and, consequently, for labour and materials, that has rendered it necessary for this Company to estimate the cost of the construction of their works at 50 per cent. above the cost of the Godavery irrigation works. It will, therefore, cost 50 per cent. more to irrigate an acre of land in the one case than in the other, and this, it will be allowed, is an important consideration in arriving at a "fair charge" for the price of the water to be supplied.

4. It would appear that, in recommending a rate lower than I suggested, Mr. Shore was influenced by the apparently small differential value by his calculation, that would be realized from an acre of rice under artificial irrigation; but Colonel Rundall has shewn in his recent letter, which I forwarded to you, that an error in that calculation has reduced the estimated amount of gain from irrigation by one-half, that, instead of being only Rs. 7, the gain, under an average yield from irrigation, would be Rs. 14 per acre of rice; so that, allowing 3,500 cubic yards of water to be the requirement of an acre of paddy, as stated by Mr. Shore, Colonel Rundall's recommendation of one Rupee per 1,000 cubic yards would give to the Company, as the price of their water, less than one-fourth of the profit derivable from the average yield of an acre of irrigated rice land, setting aside other important benefits which have been noticed as being conferred on the cultivator by the costly works to be executed by the Company.

5. Before leaving this part of the subject, which is really a most important part, I would respectfully solicit attention to a letter, copy of which is enclosed, which I addressed to the Board of Directors of this Company two years ago. The comparison of returns with and without artificial irrigation given at the end of that letter, was drawn up with great care; it shews that, after paying Rs. 4 for the water-supply for an acre of rice, which amount is above what the cost would be at the rate recommended by Colonel Rundall, the excess of gain, as compared with an unirrigated crop, and due solely to irrigation, would be Rs. 4-8 per acre. And that calculation, beyond a doubt, gives too favourable a result for the unirrigated crop, for not only is no allowance made for years of drought or inundation, but the average yield from an acre of rice is stated too high. Mr. Shore gives it at 12½ maunds of paddy, which is equal to 512 lbs. of rice. I would also point out, as being not unimportant that, if the rates for rice now ruling in Cuttack are used, and the average yield from unirrigated rice land as given by Mr. Shore substituted, the comparison will stand as follows:—

RETURN OF AVERAGE CROP FROM AN ACRE OF RICE LAND WITHOUT IRRIGATION.

Yield per Acre.		Charges per Acre.	
	Rs. As. P.		Rs. As. P.
512 lbs. of rice,—value at rates		Land Tax	2 8 0
now ruling ...	9 0 0	Cost of cultivation, including	
Value of straw ...	3 8 0	manure, thrashing, &c. ...	4 0 0
	12 8 0		6 8 0
	6 8 0		
Net profit ...	6 0 0		

RETURN OF AVERAGE CROP FROM AN ACRE OF RICE LAND UNDER IRRIGATION.

Yield per Acre.		Charges per Acre.	
	Rs. As. P.		Rs. As. P.
1,200 lbs. of rice,—value at rates		Land Tax	2 8 0
now ruling, viz., ...	24 8 0	Cost of cultivation, including	
Value of straw ...	3 8 0	manure, thrashing, &c. ...	4 0 0
	27 8 0	Water-rate, say ...	4 0 0
	10 8 0		10 8 0
Net profit ...	17 0 0		

And, it may be added, that the value of rice will still increase does not admit of a doubt.

6. I think, therefore, it will be allowed, from what has been stated, and from Colonel Rundall's Memorandum on the subject, that there are good reasons for arriving at the conclusion that the rate which he recommends shall be charged for water is unquestionably "a fair charge," as giving, on the one hand, not only "a considerable advantage to the ryot in the use of the water," but a very large amount of gain; and, on the other hand, as certainly not affording to the Company more than "a liberal remuneration for the expense of supplying it."

7. As the consideration to be given to this important subject can hardly be too full, I beg to enclose copies of my letters to Mr. Shore in connection with his Report.

8. I defer any further remarks on the Board of Revenue's Report until, as I conclude will be the case, it is officially forwarded to the Company.

No. 24, dated 1st September, 1862.

From—G. W. BOOTHBY, Esq., Agent and Manager, E. I. Irrign. and Canal Company,
To—Secretary, East India Irrigation and Canal Company.

Herewith I beg to hand you copy of answers by the Collector of Cuttack to the queries I sent to him. To these answers I have added a remark here and there. Other points will also require notice by-and-by, but I did not wish any longer to delay sending you the information as it now stands.

I would take this opportunity of offering a few remarks on the subject of the yield of rice from an acre of land in this District as compared with the yield in the Districts of Godavery, Vizagapatam, and Ganjam. It is important to bear in mind the fact that the rice crop throughout the Province of Cuttack (in fact, throughout Lower Bengal generally) depends solely on the rain-fall for its supply of water; a comparison, therefore, of the yield per acre obtained under such conditions, with the yield in the Southern Districts I have named, where the rice lands are irrigated, becomes particularly interesting and important.

I will begin with the return in the Godavery District, and would call your attention to the annexed Tabular Statements and summing up of a Report by Mr. Dykes, who was specially

appointed by the Madras Government to investigate this subject. In forwarding copy of Mr. Dykes' Report to me, Mr. Purvis, for many years the Collector of the Godavery District, wrote as follows:—

"The first question you put, viz., the average yield of rice per acre on irrigated lands, is one on which very various opinions have been held; speaking generally, I believe the yield, in an average season in the Delta, may be fairly taken to be 1½ putti, that is 1,200 Madras seers."

This gives an average yield of 1,200 lbs. of rice from an acre of land in the Godavery Delta.

The yield of rice in the Vizagapatam District is shewn in the appended copy of a Tabular Statement sent to me by Mr. Fane, the Collector of that District, and you will observe that it is exactly the same as the Godavery Return.

Regarding the yield in the Ganjam District, Mr. Forbes, the Collector, writes as follows:—

"The best lands of this District, with every advantage from irrigation and manure, and good husbandry, are computed to yield in the gross as much as 1,350 seers of paddy per acre, a higher figure than either Rajamundry or Vizagapatam, though probably the average yield of all these Districts would be nearly the same."

We may, therefore, safely take the average yield to be the same as in Godavery and Vizagapatam.

We now come to this District, where the yield is found to be nearly one-half less, nor is this surprising when we consider that the crop is left for its water-supply to the uncertainty of the rain-fall. The general character of an Indian monsoon is heavy bursts of rain, continuing with little intermission for three weeks or a month, and then as long, or often a longer, period of dry weather with a scorching sun, which not seldom seriously injures the growing rice crop; and then, again, the absence of water until the rains set in prevents the rice crop being sown as early as it should be to give it the full advantage of a long growth which tells very materially on the yield. In the Godavery District, the paddy is sown fully six weeks earlier than in this District. As regards the yield of rice per acre in this District, Mr. Money gives it at 10½ maunds of 82 lbs each, but this is not an average yield, as will be seen by the following extract from a letter from Mr. Shore, the Commissioner, to me:—

"The best land here will give (per acre) about two bhurruns of the five-seer qownei = to 800 seers or 1,660 lbs. This, when reduced to rice, will be something less than 800 lbs."

On enquiry I find that the average yield is not above 650 lbs. rice per acre, little above one-half what the average return would be under irrigation.

I will now shew the profit a ryot makes per acre of rice land under the present system, contrasted with what it would be under irrigation:—

PRESENT RETURN.

Rs. A. P.			Charges.		
Yield per acre on an average about 650 lbs. of rice.			Rs. A. P.		
Value taking average of two years					
past	10	0	0	Land Tax	2
Straw	3	8	0	Cost of cultivation, including manuring, thrashing, &c.	4
	13	8	0		0
	6	8	0		6
Net profit	7	0	0		8

RETURN UNDER IRRIGATION.

Rs. A. P.			Charges.		
Yield per acre in average 1,200 lbs.			Rs. A. P.		
Value at foregoing rate	18	8	0	Land Tax	2
Straw	3	8	0	Cost of cultivation	4
	22	0	0	Water-rate, say	4
	10	8	0		0
Net profit	11	8	0		10

There can be no doubt, also, that, generally, the quality of the rice from an irrigation crop will be superior to the produce of a crop watered only by the fall of rain, and thus often subjected to drought, which very injuriously affects the development of the grain. The increased facilities of communication, too, which our works will afford, must be considered as bearing importantly on the question of the value of the return from an acre of rice, and hence on what a ryot can afford to pay for water; for, at present, when the rice is produced, it cannot be put into a good market without a ruinous cost for carriage.

Dated 5th September, 1863.

From—G. W. BOOTHBY, Esq., Agent and Manager, E. I. Irrigh. and Canal Company,
To—Commissioner of Cuttack.

I have read with great satisfaction your Report on the water-rate, which you so considerably sent to me for any remarks I might wish to make, but the able and liberal manner in which you have treated the subject renders few comments necessary.

There are, however, a few points which I may present for your consideration:

I have always strongly advocated, as you are aware, the method of charging for the water by volume, but in regard to the basis of calculation for the water-rate, I would remark that, though undoubtedly the value of irrigation water must be the main guide, there are other points which may fairly be taken into consideration; and before stating these points, I may remark that irrigation or river water from the rich deposit it leaves is much more valuable than rain water; a fact which is fully appreciated by the people in this District, as evidenced by their anxiety, even when rain water is abundant, to contrive to get rid of it, and flood their fields with river water, and this undoubted benefit from river water, which will be conveyed by our channels, seems a not unimportant point in considering value of irrigation during the freshes. The additional points to which I have alluded, I would briefly state as follows:—

1st.—*The value of protection from inundation*.—It is true there are lands which are not subject to inundation, but if the carrying out of works for irrigation necessitates at the same time a large expenditure for protective works, it must be allowed to be but fair to consider the cost of those works in fixing the rate at which irrigation water should be sold.

2nd.—*The value of drainage*.—An efficient system of this most important desideratum in all kinds of agriculture, will be included in our works for irrigation, and, therefore, I think the Company may fairly be entitled to have this point considered when fixing a value on irrigation.

3rd.—*The increased value of produce from facilities of communication*.—This point must, I think, be allowed to bear importantly on the money return from an acre of rice, and hence on what a ryot can afford to pay for water; every disbursement for cost of carriage of rice to market, whether paid by the ryot or the merchant, being an actual deduction from the profits of the producer of the rice. When the District is intersected with canals leading from various points to the Coast, a good market, at a low cost of carriage, will be open to producers. I can speak positively to the fact that, for many years, the price of rice in this District has ruled about one-third below the prices in Rajahmundry, the principal cause being the want of facilities for taking it to a Shipping Port. I am aware that the answer to this commonly is, that all the rice that can be purchased in the District is shipped, but I think this only proves my argument to be correct by showing that the price merchants can pay to the producer, owing to high cost of carriage, is so low as not to encourage an extended cultivation.

4th.—*The value of a certainty of water-supply*,—as enabling the ryot by commencing his sowing at a fixed time, independent of the uncertainties of commencement of a monsoon, to count on two crops. In Godavery District the seed beds are prepared and sown in May, being about six weeks earlier than in this District, where the rain-fall has to be waited for; thus, in that District, the first crop is off the ground in time for another crop to be sown in February and harvested in May.

As regard the difference of return from an acre of rice due to irrigation, we must take the average return without irrigation over a series of years, including years of failures of crop from drought and inundation, and then, I think, the increased return will be larger than you make it. I think we have to consider, not merely the abstract value of so much water to the ryot, but also the value of the certainty of that supply to be secured to him by very costly works; for it is obvious that, in agriculture, the value of water is vastly enhanced by the cultivator being able to count on getting it when he wants it.

I have made these remarks with no desire to advocate a high rate for the water, but simply because I believe such considerations may fairly be urged by the Company as belonging to the question.

The rates you have named are very nearly the same as those I have thought of as fair. Referring to your para. 22, you there arrive at 9½ to 11 annas per 1,000 cubic yards as a fair rate for the Sarud rice, which is the great crop of the District, and to which the other descriptions of rice form a very small proportion. I think, therefore, that this crop may fairly be taken as a guide which would give, say, 10 annas per 1,000 cubic yards during the wet season. And, with you, I agree that the difference should be somewhat more than one-half between the dry and wet seasons—the rate for the former would, therefore, be about 1·8 per 1,000 cubic yards.

The only crop that this could bear heavily upon is sugar-cane; but for it, the cultivators might compound and pay for the year's supply at one Rupee per 1,000 cubic yards, or pay the two rates.

Reservoirs are, no doubt, a necessity to our scheme of works, but even, without them, I think the period would be short when we could not afford a good supply of irrigation water, as the combined dry season supplies of the Mahanuddy and Brahminee are found to be very considerable.

In regard to the interception of river water noticed in para. 18, I would explain that this point has been already most carefully attended to by the Company. At all existing sluices on the Bargoove and Dyah, which the people use for irrigating their lands, flood gauges were placed before the rains set in, and a careful register has been kept of the rise and fall of the water—the levels of the sluices and their dimensions have been carefully taken, so that the quantity of water the people have taken for their crops this year can be ascertained exactly: this has been done with the view of allowing the same quantity free to the cultivators after the completion of our works.

Dated 9th September, 1863.

From—G. W. BOOTHBY, Esq., Agent and Manager, E. I. Irrign. and Canal Company,
To—Commissioner of Cuttack.

Mr. Stoddard will call at your Office at about 11 to-morrow forenoon.
I enclose copy of a Memorandum relative to Godavery Delta crops.

On the subject of distribution of water, I send you a Report from Master to Newell, at pages 15 and 44 of which you will find some information. I also send Reports on effects of Godavery and Coleroon Anicuts, at page 55 of which you will find a most interesting survey plan of village irrigation.

In the Godavery Delta, the ryots have to make their own channels to convey water to their fields.

With our Company it is so clearly our interest to induce cultivators to buy water, that there can be no fear as to our not making enough channels. Before laying out the subsidiary channels, we shall have carefully to ascertain who will be our customers.

P. S.—I also enclose sketch maps showing irrigation channels in Godavery Delta.

Dated 14th September, 1863.

From—G. W. BOOTHBY, Esq., Agent and Manager, E. I. Irrign. and Canal Company,
To—Commissioner of Cuttack.

With regard to what you said this morning, as I understood you, viz., that the points urged in my letter about water-rate, though right to be mentioned, could not be taken into account (save the one about deposit from river water), because the rate is not a compulsory one; I have been thinking the matter over, but cannot satisfy myself as to the line of argument by which you arrive at that conclusion. There is doubtless some point that escapes me, for to me it seems that the rate not being a compulsory one, allows of the more boldness in dealing with every consideration on the Company's side, since any error in fixing the rate too high could only result in the Company's loss by parties not taking the water.

The point we want to arrive at is, what will be a fair rate to both parties, and I do not at present see that the rate being compulsory, or not being compulsory, should affect our decision, save in the manner I have mentioned.

It must, I think, be conceded that the Company is entitled to just as high a rate as though the rate was a compulsory one: ergo I should argue that every consideration admissible in the one case, should be equally admissible in the other.

Dated 16th September, 1863.

From—G. W. BOOTHBY, Esq., Agent and Manager, E. I. Irrign. and Canal Company,
To—Commissioner of Cuttack.

Many thanks for again sending me your Report in a completed state.

I am very glad to find that you recommend the distribution of the water being left to the Company, and also that you advocate ready cash payments, save in cases of applications from landed proprietors, from whom there would be no difficulty in collecting the water-rate. As to the smallest quantity of water to be supplied at a time, I note you have fixed it at 5,000 cubic yards, representing about the average requirement of irrigation water for an acre

of rice, but I incline to think that it may be found desirable that the Company should not refuse demands even for 1,000 cubic yards. The retail of water to the smaller ryots, at a profit by parties taking large quantities, might be attended with such serious evils to the Company, that I think every means should be used to prevent such transactions. If landed proprietors can be induced to engage for a whole year's supply for their estates, and will act in good faith by letting the cultivators have the water at the rate at which we supply it, the arrangement will be an admirable one, as saving all the trouble and expense attendant on petty distributions; but, on the other hand, if the Zemindars or others once get the idea that they can make a trade of the sale of water, I fear the demand would be seriously curtailed by their avariciousness.

In paras. 32 and 33 you notice the one strong objection to the sale of water by volume, namely, the opening given for extortion on the part of the Native subordinates in charge of the distributing sluices, and this would doubtless be a very serious disadvantage if it did not admit of remedy, but I think it does. The form I imagine that this extortion might be expected to take would be that, especially in seasons of drought, the employé in charge of the sluice might tamper with the quantity of water supplied, giving more or less than the proper quantity as a means of extorting money. A self-registering water metre on each of the distributing sluices would meet this species of fraud, being simple and effectual contrivances for measuring the flow of water, and now used by all the great Water Companies in England.

On your remarks in para. 38, relative to what I have said about the rate for sugar-cane, I would explain that I did not at all mean to propose an exceptional rate for this crop, for I am quite opposed to the principle of charging according to the crop; all I intended was to give an instance in which a rate for the whole year might be compounded for: even for rice-lands, when it is found that two crops can be regularly harvested, it may be found advantageous to compound rather than pay the higher rate for the whole of the short or dry season crop and for part of the long crop. In the Godavery District I believe nearly all the ryots pay the compound rate of Rs. 5 per acre all the year round.

In para. 41 you remark that the considerations which I brought to your notice are good and valid reasons for imposing a tolerably high compulsory rate on area, because they go to show that the ryot can afford to pay, but since the buying of water is optional, you consider it obviously politic to fix the lowest remunerative rate; but I would submit that the rate should be at least as high as if it was a compulsory charge on the acre, for in that case a decision could only be arrived at by a careful estimation on the one hand of what the ryot could afford to pay with manifest gain to himself, and, on the other hand, of the value of all the advantages that would accrue to him from the Company's works. And though the rate now to be fixed is on optional purchases, it seems to me that it is only by nicely weighing those two points that a decision can be come to fair to both parties. For example, consider the cost to the Company of maintaining by means of vast reservoirs a continuous summer supply of water, and the very great value of the certainty of that supply to the ryot. It is true, as you observe, that the consideration of these costly advantages will not operate as an inducement to the ryot to pay more than the artificial supply may be worth to him at the time, but it seems to me to be the special province of the arbitrators to fix what ought to be paid, having due regard both to buyer and seller.

In paras. 42 and 43 you point out, as it seems to me on very just grounds, the certainty, humanly speaking, that, on the lowest computation of distribution of water, the Company will derive a profit from their irrigation project alone of $7\frac{1}{2}$ per cent., an estimated result which you point to as shewing that the rates you propose are fair to the Company as well as to the people. From the fact of the Government having fixed 25 per cent. as the limit of profit, on irrigation only, after which they are to share, it would seem that we may, without being over-grasping, look for a very much higher range of profit than $7\frac{1}{2}$ per cent.; in fact that rate could not be considered in India a fair return on outlay,—a consideration which I would submit in favour of the adoption of the addition to your rates which I have suggested.

Regarding para. 44, I would only observe that, instead of making any reduction in the price of the water taken on account of existing supplies, I think it will be more easy, and in every way better, to estimate what these latter have been and continue to give them free as explained in my letter of the 5th instant.

The suggestion in your concluding paragraph, however desirable in many respects, is surrounded, I fear, by too many difficulties to admit of its being carried out. The shareholders of the Company being entitled by the contract to a fixed water-rate will not, I imagine, be satisfied that this point should be waived, though it seems to me not improbable that it might be to the Company's advantage to have the option of altering the rate by arbitration.

In returning your Report allow me to repeat my thanks to you for sending it, and for giving me so full an opportunity for offering remarks, and I may add that I think the Company have cause for congratulation on the liberal spirit in which you have dealt with the whole question.

Dated 16th March, 1865.

Note on Water-rate by R. N. SHORE, Esq., Commissioner of Cuttack.

The main point on which Colonel Rundall and myself appear to be at issue, is the value of the yield of an acre of rice land. On looking over my Report, I find that it is quite true that, as pointed out in Colonel Rundall's letter of the 15th September 1864, I have under-rated the proportion of the rice to paddy, and by consequence, as the calculations were made on the market rates of rice, not of paddy, the value of the crop. I have corrected the calculations on this particular point by marginal pencil figures in my Report: all the other weather crops has been somewhat under-stated. On the whole, the conclusion to which I have come is nearly the same as Colonel Rundall's: I would fix Rs. 4 per acre for Sarud or heavy rice-land, Rs. 5 for ordinary two-crop land, and Rs. 6 for sugar and cotton; or, on the area system, as recommended by Colonel Rundall, one Rupee per 1,000 cubic yards up to 1st November, and Re. 1-8 from 1st November to 14th June.

I retain my opinion as to the impracticability of fixing the rate per area, until by the expiration of the existing settlement, we are enabled to make a compulsory assessment.

I also, in spite of the Board's opinion, continue to think that, if water be sold by the volume, we must have ready-money payments. It would be impossible to realize by an Act X process.

No. 16, dated 27th March, 1865.

*From—G. W. BOOTHBY, Esq., Agent and Manager, E. I. Irrign. and Canal Company,
To—Officiating Secretary to Government of Bengal, in the P. W. Dept.*

I have the honour to submit, for the consideration of His Honour the Lieutenant Governor, the enclosed Draft Rules for the distribution of water from the Company's canals.

Draft Rules for the distribution of water from the East India Irrigation and Canal Company's Canals under the Orissa Contract.

I. The standard measure for water issued from the Company's canals shall consist of that quantity of water which will flow in an hour through an opening of one square yard under a constant head pressure of 3 feet 5 inches. Any proportion of the above shall be calculated in sixteenths of that quantity.

II. The charge for irrigation water shall be at the rate of one Rupee per 1,000 cubic yards from the 15th of June to the 30th of October, and Re. 1-8 per 1,000 cubic yards from the 1st November to the 14th June. A compound rate for the whole year may, however, be arranged for.

III. The Collector shall arrange for recording in each year the applications from Zemindars, Village Officers, and individual ryots, for water to be supplied for irrigation to the first crop in the next ensuing season of cultivation, and the register shall be closed on the 1st of May.

IV. Applications may be made direct to the Company's Officers, who shall communicate them to the Collector as soon as received, so that they may be registered in order. Applicants will be supplied in the order of their respective application.

V. The Company shall be at liberty, if they please, to enter into contracts through the Collector or other Civil Officers of the Government, for the supply of water in leases for any number of years.

VI. The Company shall be furnished monthly by the Collector with an Abstract Statement from the Irrigation Register, and the Collector shall likewise cause to be maintained a village account, showing the amount due by the Government to the Company for water supplied.

VII. Applications for occasional irrigation for such crops as do not need continuous irrigation shall be registered at any time; or, in case of immediate necessity, may be made direct to the Company's Officers, who, on obtaining a receipt, will supply the required quantity, and forward the receipt to the Revenue Officers. The charge for such irrigation shall be for the present at the rate of one Rupee per acre for each effective flooding.

VIII. Villages not taking water for irrigation shall be liable to the following charges for watering their cattle from the canals, and for filling their tanks:—

For watering cattle per 100, Rs. 6 per year.

For watering sheep or goats per 100, Rs. 2 per year.

For filling tanks, the contents of which are not to be used for irrigation of land, the water shall be charged for at the rate of Rs. 5 per 1,000 cubic yards.

IX. In situations where the water may have to be raised by artificial means, a special arrangement may be made with each applicant.

X. The Company shall have power to close their irrigation channels for purposes of repair or clearance, namely, once in each year, without being liable to claims for compensation, care being taken that the time chosen for their repairs shall be when there is least demand for water.

XI. The Company shall have power to close their canals on the occasion of any sudden exigencies without incurring any liability for compensations, provided such closure does not exceed 10 days.

XII. In cases of insufficient supply arising from the failure from the Company's works, remissions shall be granted to such an extent as shall be arranged between the Government and the Company's Officers after personal inspection of the locality, and, in cases of difference of opinion, it shall be open either to the Government or the Company to refer the matter to arbitration. The arbitrators shall be nominated by the Government's and the Company's chief local Officers, and shall choose an umpire. The decision of the arbitrators to be final.

XIII. Distributary channels constructed and carried to each village shall be maintained by the Company. All minor channels subsidiary to these shall be made and kept in repair by the cultivators themselves.

XIV. Sluices will be placed in the distributing channels at intervals of quarter-of-a-mile where necessary. All field channels from these sluices must be made by the parties applying for the water.

XV. Complaints relative to an insufficient supply of water to be made by the cultivators to the Company's local Officers, who, in the event of inattention, will be called upon for explanation by the Agent, to whom the Government Officers will make known such instances of inattention to complaints.

XVI. Wasting or stealing water shall be punishable by fine, and, in aggravated cases, the Company may, if they think fit, deprive the offenders of any further use of the canal water.

XVII. All proprietors of land situated within the limits to which irrigation from the Company's canals may be extended shall be bound individually or collectively to grant a passage through such land to the channels of all parties duly authorized to demand the same.

XVIII. Any parties may, therefore, claim a right of passage for their channels when they jointly or severally are under agreement to take water from the Company's canals to be employed for the irrigation of land or other purposes.

XIX. The Government to pay over to the Company's Agent the amount due for water supplied for the past season on the 31st December and 30th June respectively, that is, for the quantity supplied from the 15th June to 31st October, to be paid for on or before the 31st December, and for that furnished after the 1st of November on or before 30th of June.

No. 18, dated 30th March, 1865.

*From—G. W. BOOTHBY, Esq., Agent and Manager, E. I. Irrign. and Canal Company,
To—Officiating Secretary to Government of Bengal, in the P. W. Dept.*

With advertence to my letter No. 16 of 1865, forwarding Draft Rules for the distribution of water from the Company's canals, I have the honour to suggest that, that the water-rate specified therein, shall be a trial rate for a period of not less than three years, so that its working in an average of seasons may be ascertained.

No. 20, dated 1st April, 1865.

*From—G. W. BOOTHBY, Esq., Agent and Manager, E. I. Irrign. and Canal Company,
To—Officiating Secretary to Government of Bengal, in the P. W. Dept.*

With advertence to my letters Nos. 16 and 18, I have the honour to inform you that we fully expect to be in a position to deliver irrigation water in the neighbourhood of Midnapoor, and also of Cuttack, in the month of June next; I would, therefore, solicit that such preliminary arrangements may be made by the Local Officers of Government as may seem necessary for commencing the distribution of irrigation water at the period indicated.

No. 25, dated 16th June, 1865.

*From—LIEUT.-COL. F. H. RUNDALL, R. E., Offg. Agent and Manager, E. I. Irrign. and Canal Company,
To—Officiating Secretary to Government of Bengal, in the P. W. Dept.*

With reference to Mr. Boothby's letter No. 16 of 27th March last, and the Draft Rules which accompanied it, I have the honour to inform you that a communication has been received from the London Board, instructing me to represent to His Honour the Lieutenant Governor that they are not prepared at present to assent to the sale of water from their canals by volume, unless accompanied by special protective measures. Full particulars regarding their views are promised at an early date, and shall be submitted to Government as soon as received.

No. 60, dated 21st October, 1865.

From—T. E. RAVENSHAW, Esq., *Offg. Commr. of Cuttack Division,*
To—*Officiating Secretary to Government of Bengal, in the P. W. Dept.*

I have the honour to transmit herewith, in original, a letter No. B, dated 20th October, with enclosures, received from the Collector of Cuttack.

2. The present season is one of unusual drought; the rain-fall has been scanty and partial, and in very many parts of the country there is every prospect of the crops being entirely lost through want of sufficiency of water. This is particularly the case in the direction of the Kendraparah Sub-division, and in the vicinity of the canal recently opened for a considerable distance by the Irrigation Company. Water has been admitted into this canal, and the Company are prepared to supply a moderate quantity of water for irrigation. This water, if promptly given, will save a considerable tract of rice land and valuable crops from destruction.

3. Under Clause 6 of the Irrigation Company's Contract, the distribution and sale of water must be made under the control and through the agency of Government Officers.

4. It may be questionable if, under ordinary circumstances, the orders of Government should not have been taken before permitting supply of water, and whether either the Collector myself are competent to pass orders on the subject.

5. I have, however, personally consulted the Collector and the Irrigation Company's Officers, and fully concur in the necessity of at once making the water-supply available for irrigation as far as possible; and, in anticipation of the orders and approval of Government, I have confirmed the Collector's permission to the Irrigation Company to supply water at the rates noted in Colonel Randall's letter, namely, 6 annas per bucket used in irrigation during the 24 hours, which gives approximately the rate of Re. 1-8 per 1,000 cubic yards originally proposed by Government.

6. It must be taken into consideration that it has been customary in this Division to make large remissions of revenue in seasons of unusual drought and scarcity, and that, by affording water now, the Government will be saved from ultimate risk in the tract of country to irrigated, and it is as much the interest of Government as of the people and the Company to supply water.

7. A further reason suggests itself for promptly supplying water, and that is, that at this juncture the people having once discovered the facility afforded by the Irrigation Company's distributaries and canals for obtaining water for their crops, they will hereafter freely and willingly avail themselves thereof, and we shall overcome the general feeling of disinclination on the part of the people to adopt any thing new, however much it may be to their advantage.

8. I have already forwarded, for the formal sanction of Government, through the Board of Revenue, the draft declaration and estimate of cost of lands to be made over to the Irrigation Company for the Kendraparah Distributaries, and I would urge the necessity of early sanction, in order that the Company may be in a position to prosecute these useful and necessary works, and render the water-supply available at once, and also that orders may be passed as to the rate to be charged for water, and the agency through which the water-rates are to be collected. In the meantime I have informed the Collector of my approval of his arrangements, and directed that Officer to depute a responsible person to collect the rate at 6 annas per bucket, leaving an adjustment to be made with the Company hereafter.

9. It may be a question whether it would not be desirable to allow the Company to collect the water-rate, at any rate for the present, as their Officers are competent and able men; and the interests of the Company and the country being identical with those of Government, no loss is to be anticipated by placing confidence in the Irrigation Company's Officers. Indeed, I am of opinion that, so far as the feelings of the people are concerned, they would prefer making arrangements direct with the Company for water than through the intervention of an Officer deputed by Government.

Soliciting orders and instructions.

No. B, dated 20th October, 1865.

From—W. J. MONEY, Esq., *Collector of Cuttack,*
To—*Officiating Commissioner of Cuttack Division.*

I have the honour to forward, in original, a communication* received by me yesterday from the Officiating Agent and Manager of the East India Irrigation and Canal Company, and copy of my reply thereto. I trust the course pursued will meet with your approval.

* No. 220 of 18th October 1865.

2. So very serious are the reports of the state of the crops in the district, that every day is of most urgent importance as regards prompt action in the matter.

No. 220, dated 18th October, 1865.

From—LIEUT.-COL. F. H. RUNDALL, R. E., *Offg. Agent and Manager, E. I. Irrign. and Canal Company,*
To—*Collector of Cuttack.*

Agreeably to Clause 6 of the Contract, which directs that the distribution and sale of water is to be made under the direction of the Government, I have the honour to forward you an application made by Gunsham Misser, Zemindar of Burparra, &c., Pergunnah Asseressur, for water from the Kendraparah Canal.

You will see from the accompanying letter from Mr. Levinge that the people are most anxious to get water for their crops, which are now perishing for want of it. I request, therefore, you will be good enough to give the necessary permission for the sale of water to all parties desiring it. As for the present the water does not stand sufficiently high to admit of its being drawn off, the ryots are desirous of erecting machines for raising it, and the present applicant offers to pay the rate of six annas per day for each bucket, a sum which the Company are willing to accept, being near the rate they proposed to Government, viz., Re. 1-8 per 1,000 cubic yards after the 15th October.

Within a few days I expect to have the water in the river raised sufficiently high to allow of irrigation proceeding from the canal without the necessity for using any machines to raise it; and, as some time ago several Zemindars sent me applications, in anticipation of the water being let down the canal, I beg to forward the same to you in the order in which they were received, and request you will be so good as to ascertain from them the extent of land for which they require water, and the village in which it is situated, so that the Company's Officers may do their best to lead distributing channels thereto, and do what is possible to save the crops at the present crisis. Without some idea of the extent of land to be irrigated, or of the quantity of water required by each Zemindar, it is impossible to judge of the size of sluice required; but if those gentlemen will communicate with either Mr. Levinge or with his Assistants direct, their requests will receive immediate attention as far as is practicable. I need scarcely add that the sooner the particulars are furnished the sooner will the requisite relief be afforded.

No. 497, dated 18th October, 1865.

From—H. C. LEVINGE, Esq., *Essec. Engr., East India Irrigation and Canal Company,*
To—*Officiating Agent and Manager, East India Irrigation and Canal Company.*

Enclosed I send in original an application for water from Ghunsam Misser, Zemindar of Burparra, in Pergunnah Asseressur.

2. As there is plenty of water in the canal, and the crops throughout the country are perishing for want of it, and the people most anxious to get it, I beg you will forward the application to the proper authorities and obtain permission for us to sell the water as soon as possible.

3. The water will have to be raised, as it does not stand sufficiently high at present in the canal to flow over the country.

4. I have calculated that, with the beam and bucket in ordinary use, 1,000 cubic yards of water would be raised in four days if worked continuously for 24 hours; and, as our charge for water after the 15th of October is Re. 1-8 per 1,000 cubic yards, it would appear that 6 annas per day should be the charge for each bucket used in the canal, and this sum the Zemindar has informed Mr. Glass, Assistant Engineer, he is willing to pay.

5. The baling basket used for low lifts will raise twice as much water; 12 annas per day should, therefore, be charged for each basket. Of course they can be worked with relays of men night and day, and the people can raise as much water as they like.

List of Applications sent in for water from the Kendraparah Canal in the order in which they were received.

1. Mohesh Chunder Banerjee, Agent of Ram Nath Roy Chowdhry, Zemindar of Talook Brispati, Pergunnah Teekun, &c.
2. Chowdhry Roghoo Nath Dass, of Jhingarpur, in Pergunnah Kotedess, Zemindar of Gopaulpur, in Pergunnah Asseressur, &c.
3. Dina Bundhu Dey, of Bahogram, Pergunnah Puddumpoor, Zemindar of Talook Lukhi Narainpur, Pergunnah Puddumpoor.
4. Surja Mani Dei, of Maidharparah, Pergunnah Soojahugger, Zemindar of Talook Narainpur, Pergunnah Puddumpoor, &c.
5. Moonshee Russul Baksh, Zemindar of Talook Boorooloo, Pergunnah Soongra.
6. Mukkoond Bullabh Raya, and Anunda Bullabh Ghose, Zemindars of Jamalpur, Pergunnah Korimool.

7. Ram Narain Dass, and Gunga Persad Bose, of Lukhi Narainpoor, Pergunnah Asseressur.
8. Baboo Lukhi Narain Raya Chowdhry, Chowdhry Rughoonath Dass, Chowdhry Kassi Nath Dass, and Kuntala Dei.
9. Gunsham Misser, Zemindar of Burparra.

No. A, dated 19th October, 1865.

From—W. J. MONEY, Esq., Collector of Cuttack,

To—Offg. Agent and Manager of the E. I. Irrign. and Canal Company.

I have the honour to acknowledge the receipt this day of your letter of yesterday's date; and, in reply, to state that, under the circumstances of the case, I authorize, in anticipation of the sanction of the Commissioner, your selling water to parties desiring it. The emergency them, can be saved.

I have taken steps to acquaint the several Zemindars, whose petitions accompany your letter, that they should wait upon Mr. Levinge, or his Assistants, and state what they require; but to expedite matters still more, I would suggest your deputing responsible persons to the Zemindars and their Agents. It seems to me that this arrangement would save time.

No. 5274, dated 10th November, 1865.

From—LIEUT.-COL. J. E. T. NICOLLS, R. E., Offg. Secy. to Govt. of Bengal, in the P. W. Dept.,
To—Officiating Commissioner of the Cuttack Division.

In acknowledging the receipt of letter No. 60, dated the 21st ultimo, with enclosures, I am directed to state that, under the circumstances therein represented of the apprehensions entertained of a drought in the Sub-division of Kendraparah, in consequence of the scantiness of the rain-fall this season, the Lieutenant Governor approves of your having, in anticipation of the sanction of the Government, authorized the East India Irrigation and Canal Company to sell water to the people during the present emergency for the irrigation of their lands from the Kendraparah Canal, and this arrangement may continue until water is available from the distributaries of the canal, or until further orders.

2. The rate at which you state the water is to be sold, viz., 6 annas per day for each irrigation bucket, which gives approximately the rate of Re. 1-8 per 1,000 cubic yards, is also approved of as a temporary and provisional rate.

3. With reference to para. 9 of your letter, I am directed to state that, it is desirable that the collection of the water-rate and payment to the Irrigation Company should be effected in the manner prescribed in Clause VI of the Contract with the Company. You will, therefore, be so good as to report, as soon after the 31st December as possible, how the present arrangement has worked, and under what rules you would propose, having careful reference to local wants and circumstances, that the interference of the Government between the Company and the cultivators should be regulated, so that, while affording requisite protection to the latter, the utmost facility may be given to the operations of the Company, and the freedom of interchange between those who supply the water and those who receive it may be as little as possible impeded.

No. 5275.

Endorsed by Govt. of Bengal, in the P. W. Dept.

Copy of the above letter and of the one to which it is a reply, with a copy of its enclosures, forwarded to the Board of Revenue, Lower Provinces, for information.

No. 5276.

Copy of the above letter, forwarded to the Officiating Agent and Manager of the East India Irrigation and Canal Company for information.

No. 132, dated 21st March, 1866.

From—T. E. RAVENSHAW, Esq., Officiating Commissioner of Cuttack Division,
To—Officiating Secretary to Government of Bengal, in the P. W. Dept.

In reply to your No. 5274, dated 10th November 1865, I have the honour to report that the permission to take water at six annas per day from Kendraparah Main Canal was not in time to be of much assistance. Moreover, the people had an idea that water was to be

supplied to them gratis, and, as soon as they learned that it was to be paid for, and, moreover, that raising the water over the canal banks in buckets involved considerable labour, no one came forward to take water, and, consequently, none was supplied.

2. His Honour the Lieutenant Governor has so recently personally inspected the canal works, particularly the Kendraparah line and its distributaries, that it is unnecessary for me to report progress beyond that; during the past few days, I have again visited the locality, and that the first three or four distributaries are in an advanced state. Water has been admitted, and is now standing over the country available for irrigation could the people be only induced to take it.

3. The subject of proposed water-rate has been so fully reported on by Mr. Shore in his No. 30* to address of the Board of Revenue, which will, probably, have been forwarded to Government, that I feel there is no necessity for any further remarks beyond that I fully concur in Mr. Shore's observations.

4. There are practical objections to supply of water by volume, which have as yet been but partially overcome. The volume rate is, without doubt, theoretically the proper principle, securing economy of water and certainty of payment for the exact quantity supplied. The people, however, do not appear to understand it as yet, and, as far as I have been able to ascertain from personal local enquiry, they would prefer payment on the area irrigated; and I am of opinion that, at any rate, for the present, it will be desirable to leave it optional to take water either by volume, area irrigated, or contract per year, or for one or two crops separately.

5. Draft Rules were prepared by Colonel Rundall and Mr. Boothby, and submitted to Government in Mr. Boothby's letter No. 16, dated 27th March 1865, but I find no correspondence regarding them in my Office. These rules appear to be unobjectionable. A clause, however, should be entered providing for supply of water at option by area irrigated.

6. Clause VI of the Irrigation Company's contract appears to render it necessary that the water-rate be collected by Government, but I am very strongly of opinion that water might be distributed and payment received by the Company direct, providing that it be done in a manner satisfactory to Government. Government Offices are, at all times, open to receipt of complaints, and any irregularities would be at once brought to notice. The Company are too deeply interested in the financial success of their operations to afford any but the utmost facilities to persons requiring water for irrigation. The Company have and always must retain a body of Officers to superintend their canals and channels; so far as I have been able to ascertain, the Company's Officers are exceedingly popular, and the villagers would much prefer dealing directly with them for water than with a Government subordinate Officer. The books and accounts of the Company being always open to inspection would afford sufficient check that all sums realized on account of sale of water are brought properly to credit.

7. At present there is a strong feeling among every class of people that their lands will be highly assessed at the next settlements if they improve them by irrigation. This idea is most firmly fixed in the minds of all I have spoken to, so much so that, unless a very strong and unmistakably worded proclamation be issued direct from Government on the subject, disclaiming all connection between irrigation and water-rate, and the future settlement of the land revenue, Orissa Zemindars and Ryots will abstain from taking water. I have been asked on many occasions to issue such a proclamation, but have hesitated to do so without distinct orders on the subject. Referring to an extract from a despatch from Her Majesty's Secretary of State for India, No. 9, dated 30th March 1863, to the address of the Governor of Fort St. George, forwarded with Secretary to Government of India's No. 2361 of 26th May 1863, to your Office, I find the following orders in para. 5:—"It is most important that means should at once be taken to make it clear to the ryots that the payment for the use of the water supplied by the Irrigation Company is altogether separate and distinct from the land assessment, and that the latter will, under no circumstances, be liable to be increased on account of the advantages which the land may derive from supply of water." I think, therefore, there can be no difficulty about issuing a public notice on the point, which requires to be at once and finally settled, more particularly as it appears that Government is, under its engagements with the Cuttack Irrigation Company, debarred from making any addition whatever to the present or prospective land revenue assessment, as a consequence of the lands having been rendered more valuable by receiving water from the Company's canals and distributaries, and that, with the payment of water-rate, all charges for the benefit of irrigation will end.

8. It will be necessary at the same time to notify the manner in which payment for water is to be levied; and I solicit early orders as to whether either distribution of water or receipt of payment therefore may be made by the Company's Officers. Should it be considered possible under terms of the Contract to concede even distribution to the Company, the most feasible method of collecting the water-rate will be for receipts for all water supplied to be taken by the Company's Officers, and forwarded to the Collector for realization of the rate, which might be made payable on the dates fixed for payment of land revenue instal-

ments, viz., 28th April and 8th November; but even then many difficulties arise, as in case of default, the only procedure will be by a civil suit. Who is to institute and carry on such litigation, Government or the Irrigation Company?

No. 4, dated 10th April, 1866.

From—G. W. BOOTHBY, Esq., Agent and Manager, E. I. Irrign. and Canal Company,
To—Officiating Secretary to Government of Bengal, in the P. W. Dept.

As the time has now fully arrived when it becomes necessary that the method of procedure between the Government and the Company for the distribution of irrigation water, and the collection of the water-rate, should be decided upon, I have the honour to submit, for early approval, the enclosed Circular, with the forms mentioned therein, which I have issued to the Divisional Officers of the Company. The method I desire to adopt is, it will be perceived, strictly in accordance with the rules for distribution of water, which I submitted to you on the 27th March 1865; and also conformable to the terms of the Company's Contract. For although, for reasons of obvious convenience and facility to the agriculturists, the arrangements for the distribution of the water are left to the Company, still the power over the distribution remains with the Government, the form of agreement for taking water being sent to the Collector for ratification and registration. And if, owing to any causes, such as default of payment of water-rate, the Collector should deem it necessary to stop the water-supply, he has only to intimate instructions to that effect to the Company's Officers.

No. 34, dated 7th April, 1866.

Circular from G. W. BOOTHBY, Esq., Agent and Manager, E. I. Irrign. and Canal Company.

In order to establish a convenient and clear record of all irrigational transactions, the two blank forms with counterfoils, herewith forwarded, have been drawn up with the view of meeting every requirement.

2. By Clause No. 3 of the Rules for distribution of water, it is provided that the Collector shall arrange for recording all applications for water from Zemindars, Village Officers, and individual ryots. But as long as the distribution of the water is in the hands of the Company, it is probable that all applications will be made direct to the Company's Officers, and this is provided for by Clause No. 4. The accompanying form for irrigation leases, or for agreements to take water, will enable the Executive Engineers to comply with this clause.

3. Books with these forms should be supplied to the employés in charge of each range of the canals, so as to afford every possible facility to parties requiring water. It will be perceived that these forms are equally applicable to leases for a number of years, vide Clause No. 5, at the compound rate of Rs. 5 per acre, or for agreements to take water for short periods for single crops, either per acre or per volume. When, therefore, application is made for water, the form of agreement is to be filled in according to the wish of the applicant, and in accordance as to the rate with Clause No. 2 of the Rules, by which it will be seen that "a compound rate for the whole year may be arranged for." This compound rate has now been fixed for the present at Rs. 5 per acre.

4. When the Lease or Agreement Form and the counterfoil have been correctly filled in, great care being taken in recording the name and residence of the lessee; the applicant is to sign the agreement. The agreements thus signed are to be forwarded by the Divisional Officers direct to the Collector on the last day of every month, the counterfoil being retained as a record of the transaction. The applicant will then be supplied with water in accordance with the terms of his agreement.

5. At fixed periods, which can only be decided upon by the circumstances of the case, receipts under the form now forwarded are to be taken from every person to whom water is supplied. The receipts are to be forwarded once a month direct to the Collector. And as the collection of the water-rate will be made in accordance with these receipts, it is essentially necessary that the rate, whether by volume or by acre, at which the water is to be charged for, shall be clearly specified.

6. Clause No. 7 of the Rules provides for applications for occasional floodings and for the rate of payment for the same. In the case of such irregular irrigation, the Form of Agreement will not be needed, but receipts must be taken as directed in that clause and forwarded, at the time specified herein, direct to the Collector.

7. For the information of the Board of Directors, the Executive Engineers are to send to this Office without fail every month, with their other accounts exact copies of the counterfoils of their Irrigation Lease Book and Water Receipts Book.

KENDRAPARAH CANAL.

Irrigation Leases.

Distributary No.....
Branch A. The.....186
Lease No.....
Name and Residence of Lessee.....
.....
.....
Number of Acres.....
Where situated.....
.....
Rate.....
For what period.....
.....
Periods of payment to Collector.. ..

KENDRAPARAH CANAL.

Irrigation Leases.

Distributary No.....
Branch A. The.....186
Lease No.....
I.....
of.....hereby engage to
take water for.....acres of land
situated.....from the
.....to.....
at the rate of Rs.....Rs.....per cubic
yard, or Rs.....per acre, and I engage to pay
the water-rate for the same to the Collector
in the months of.....

KENDRAPARAH CANAL.

Receipt for Irrigation Water.

Distributary No.....
Branch..... The.....186
Receipt No.....
Name and Residence of Receiver.....
.....
.....
Quantity of water supplied.....
Area of land irrigated.....
Rate per acre.....
.....
Rate per volume.....
Periods of payment to Collector.....

KENDRAPARAH CANAL.

Receipt for Irrigation Water.

Distributary No.....
Branch..... The.....186
Receipt No.....
I.....
of the Village.....Zillah

hereby acknowledge to have received from the
East India Irrigation and Canal Company
.....cubic yards of water for irrigating

acres of, and I agree to pay
for the same at the rate of Rs. per
cubic yard, or Rs..... per acre, to the Col-
lector in

No. 10, dated 28th May, 1866.

From—G. W. BOOTHBY, Esq., Agent and Manager, E. I. Irrig. and Canal Company,
To—Officiating Secretary to Government of Bengal, in the P. W. Dept.

By the mail last received, a Resolution passed by the Board of Directors of this Company has reached me, on the subject of the disinclination of the Zemindars and Ryots to utilize the water available from our canals; and I have now the honour to forward a copy of this Resolution, with the request that it may immediately be laid before His Honour the Lieutenant Governor.

2. It is with much concern I have to state that the attitude assumed by the Zemindars and Ryots, which led to the Board's Resolution, has not only remained unaltered to the present time, but has acquired a far deeper significance, from the fact that I have now reliable reports before me from the Company's Officers, showing that the people, even in this time of sore distress, are allowing their "Beallee," or dry rice crop, now six inches high, to suffer seriously from drought rather than make use of our water which is flowing past their spoiling crops, and not only so, but the seed again of the Sarud or wet rice crop, which has recently been sown, and has not yet germinated, is being seriously endangered, and will, probably, in many cases, be lost, rather than ensure its safety by occasional waterings from our canals.

3. These facts are full of importance, as evidencing the deep determination of the people to risk any loss, and forego any advantages before they will accept irrigation without being fully assured of the conditions on which it is offered to them.

4. His Honour the Lieutenant Governor is well aware of the measures that were adopted by the Company, dating as far back as early in January last, by the establishment of model farms, in order to show the people that crops could be grown out of their usual seasons; our hope being that the fullest advantages obtainable from the use of the water might thus be derived. Nothing but disappointment was the result. To those, however, who have been long familiar with the prejudices, and the ignorance of the Ooryahs, it was not very surprising that they would not take their first essay in artificial irrigation in endeavouring to raise crops at a time of the year when, judging by their long established custom, such crops would not grow. It seemed to me, therefore, that before being fully justified in arriving at the conclusion that any fixed opposition existed to using our water, it was necessary to see how the people would act at a period when water was required for their customary cultivation. It has so happened this year that unusually abundant rain fell throughout the District in the end of April, when ploughing takes place for the Beallee rice crop; that period consequently passed without any necessity arising for water from our Canals. But this necessity has since arisen, and does now exist, as already stated, not only for the preservation of the growing Beallee crop, but for the germination of the seed of the Sarud crop.

5. I have of late repeatedly in official and demi-official communications pointed out that the cause of this extraordinary unwillingness to accept the immense advantages of irrigation arises solely from uncertainty as to the entire conditions and liabilities connected therewith. In fact, that fears, that the water-rate would not be the only charge for irrigation, but that an increased assessment on the land might also be added, had led the Zemindars into an organized combination not to allow their lands to be irrigated until in possession of such a pledge from Government as would remove all reason for their fears.

6. In addition to the facts already mentioned, another circumstance goes to prove the existence of the combination indicated. Numerous verbal applications have been made for water by Zemindars and by Ryots; the former in some instances having made definite promises direct to the Commissioner to give irrigation a fair trial on their lands, and yet in every case these applications and promises have ended in nothing being done, the fact being that the persons who made them were prevented by the combination above-mentioned from carrying out their intentions. Here, too, I may remark there is evidence that it is not the question of the price of the water that is keeping the people back from irrigating their lands. And on this subject I would mention an incident that carries with it a considerable amount of proof to the cultivator. A ryot surreptitiously took water from a distributary leading to one of our farms, and made an experiment on his own account in cultivating a rice crop wholly out of the ordinary season, for he sowed some time in January, and the crop will be harvested in this month. The ryot finding his experiment promising to answer extremely well, applied for water for his Beallee crop. Enquiry then led to the discovery of what he had done, when he gladly not only signed a receipt for the water taken, but also an agreement for further supply, and this is the first and only receipt and lease that have been signed.

7. I have, therefore, earnestly to solicit that effectual measures may immediately be taken for removing so serious a cause of impediment to the success of the Company and to the welfare of the District. So strong a hold have fears and suspicions on this question taken possession of the minds of the people that nothing short of a most unequivocal pledge

to the effect that, as expressed by the Board of Directors, lands irrigated from the Company's canals will be treated on precisely the same footing as other lands in the District not irrigated by the Company's canals, and irrespective altogether of such irrigation and the increased returns therefrom.

8. I desire also very strongly to urge that, in accordance with the terms of the Contract, whereby the responsibility of distributing the water and collecting the rate is undertaken by the Government, the Company shall be aided in overcoming present difficulties, and in giving a fair start to the distribution of water by the active co-operation of the Local Government Officers. The Officiating Commissioner has afforded to the Company all the aid in his power, but the Collector and his Assistants are without instructions to take any part in the irrigation arrangements, and thus the people in the District have no one to appeal to for advice and information, except the Company's Officers, from whom, too, all that they know as to the terms on which irrigation is offered to them has been derived; whereas, it is to the Government Officers to whom the people naturally look for guidance in such matters, and especially is this the case with the Ooryah population.

9. It is most necessary, I have also to add, that, as requested in my No. 4 of the 10th September last, the method of procedure between the Government and the Company for the distribution of irrigation water, and the collection of the water-rate, shall at once be decided upon.

10. The extent to which relief might be afforded from the high-level and Kendra-parah Canals between the present time and the end of the year, is represented by the certainty of irrigation over an area of 100,000 acres. This breadth of country, thus rendered capable of producing a food crop, may, if energetically taken advantage of, go a considerable length in making good deficiencies in other quarters in the event of another season of drought occurring; or if, as during the last rainy season, there should be more than an average quantity of rain, but the whole of it falling during only three instead of five months, to the serious injury of the crops.

11. Looking, then, to the very important interests dependent on an early and satisfactory settlement of this question, rendered doubly urgent, too, by the famine now wasting the country, I feel confident that the bare statement of the facts now placed before His Honour the Lieutenant Governor, without any attempt on my part to enlarge thereon, will suffice to call forth a prompt remedy, which remedy will, I would earnestly beg to submit, be found in the following procedure:—

1st.—In the issue of a proclamation in such terms as will be regarded as a pledge from the Government that, lands receiving irrigation from the Company's canals will, in any new settlement of assessment that may be made, be treated precisely in the same manner as lands not receiving irrigation, the payment for irrigation water being the sole charge for the same to which those who take the water can be subjected. The same proclamation to contain such a statement of the water-rates as is announced in the appended Notification which was issued by me, but which, as I quite expected, has proved of no avail, the people still expecting from the Government full assurances as to all the liabilities to be incurred connected with the acceptance of irrigation. 2nd.—In the active co-operation of Revenue Officers in the initiation of the distribution of water, towards which object, no move whatever has yet been made by those Officers, who, up to the present time, are without instructions on the subject, whereas, I have respectfully to point out the obligation imposed on the Company under the terms of the contract ends with the completion of their works so as to be available for the purposes of supplying water for the irrigation of land, the business of selling and distributing the water to the cultivators, and of collecting the rate appertaining to the Government.

THE EAST INDIA IRRIGATION AND CANAL COMPANY.

At a Meeting of the Board of Directors of this Company held at the Offices, 8 and 9, Queen Street Place, on Thursday, the 12th day of April, 1866.

It was unanimously resolved—

The Board regard with great regret the apparent reluctance of the Zemindars to avail themselves of the benefits of irrigation from the Company's works, arising from the apprehension that their doing so may induce the Government to increase the assessment upon their lands at the approaching re-settlement in 1868. It is to be hoped that the Lieutenant-Governor's remarks in Durbar, on his recent visit to Cuttack, may, to some extent remove this apprehension, but, at the same time, the Board feel that, without some more definite and distinct assurance that the assessment will not be increased, the known timidity and suspicious character of the Orissa people will continue to prevent their accepting the improved cultivation placed within their reach. This would be a grievous loss to the Company, and a no less serious misfortune to the country, for, while it would postpone the realization of expected returns on a heavy outlay to the former, upon which much depends as to the raising of further capital for the completion of the works, it would likewise delay the improvement of the country which will immediately follow the adoption of general irrigation from the Company's operations. The Board are under the impression, from the information afforded them, and, indeed, the same is evident to the English mind from the words of the Lieutenant Governor, that the Government have no intention of raising the assessment at the ensuing re-settlement; but, on the contrary, will find it expedient materially to reduce it. It is, however, open to be inferred from what fell from the Lieutenant Governor, that the principle which will regulate

the next Revenue Settlement is the present price of grain; and, as the value of this necessary of life has advanced consequent upon the scarcity from bad seasons and deficient crops, the apprehension of the Zemindars, that the assessment will be raised, is not without reason. On this point it may be observed that the value of land in a country barely self-supporting, is not to be estimated so much by the high price of the food which it produces, for this, taken by itself, is a proof of poverty rather than of wealth, but by increase in the quantity of production, by which food is provided at a moderate cost, and by which both the producers and consumers are benefitted; the former by extended trade, and the latter by a more certain and less expensive supply. The effect of extended irrigation works, by stimulating production, should be to lower prices of rice, and not to raise them, but, at the same time, by economizing labour and making the land greatly more productive in proportion to its acreage, the effect will be vastly to improve and enrich it. This, however, must be the work of time: for it is dependent upon external trade and improved facilities of intercourse, and it would appear, therefore, as the Board are convinced is the case, to be the policy of the Government not to discourage at the outset a spirit of enterprise on the part of the natives to make the best use of the water placed at their command, influenced, as the same must be, by hopes of self-profit, and which would certainly result from an increased rent charge based upon the existing high price of food, which might not, and it is to be hoped, in the interests of the people, would not be maintained. Under these circumstances to remove a possible misapprehension, which is calculated to inflict serious injury upon most important interests, the Board hope that the Government will be willing to make an official announcement in the District, that the assessment will not be raised on lands irrigated from the Company's canals, and that such lands will be treated on the same footing as other lands in the same District not irrigated by the Company's canals, irrespective altogether of such irrigation and the direct returns derived from it. Something akin to this has been done in Madras, and with good effect, and it appears to the Board that it involves no difference to the Government beyond a statement of an authoritative character, which will carry weight with it, in anticipation of what they purpose doing when the time comes. The value of such a proceeding now would be very great.

The Board are not aware what may be the sentiments of the Government in respect to a permanent settlement of the land assessment in these Orissa Provinces. The time seems to be favourable for this being done with, certainly, immense advantage to the country, for, by removing all doubt as to the future, it would encourage in a way that can scarcely be estimated the general cultivation and improvement of the country. The discouraging effect of the present uncertainty in respect to the land assessment, affords an index of what the contrary effect would be if this uncertainty was finally removed.

The Board appreciate the kind desire manifested by the Lieutenant Governor to encourage irrigation from the Company's works to the fullest extent, and they are assured that this Government will be willing, so far as they can consistently with other interests, to provide a remedy in the way that may appear to them most effectual for the difficulty which now threatens unforeseen and most injurious consequences.

Notification by G. W. BOOTHBY, Esq., Agent and Manager, East India Irrigation and Canal Company, dated 27th April, 1866.

The undersigned has received full authority from Government to assure Zemindars and Ryots, that the water-rate is wholly distinct from, and independent of, land revenue; that by approaching settlement, and, therefore, that all fears should be abandoned of having to pay twice for irrigation water supplied by this Company.

A proclamation to the above effect is about to be issued by the Government, but, to prevent loss of time, the undersigned desires speedily to make these important facts widely known.

And he takes this opportunity of publishing the terms at which water will be supplied by the Company, viz. :—

1. The charge for irrigation water shall be at the rate of one Rupee per 1,000 cubic yards from the 15th of June to the 31st of October, and Re. 1-8 per 1,000 cubic yards from the 1st November to the 14th of June. A compound rate for the whole year may, however, be arranged for, and this has been fixed for the present at Rs. 5 per acre for the year, and Rs. 3 for a single crop.

2. Villages not taking water for irrigation shall be liable to the following charges for watering their cattle from the canals, and for filling their tanks :—

For watering cattle per 100, Rs. 6 per year. For watering sheep or goats per 100, Rs. 2 per year. For filling tanks, the contents of which are not to be used for irrigation of land, the water shall be charged for at the rate of Rs. 5 per 1,000 cubic yards.

3. Application for water may be made direct to the Company's Officers, who shall communicate them to the Collector as soon as received, so that they may be registered in order. Applicants will be supplied in the order of their respective applications.

4. Applications for occasional irrigation for such crops as do not need continuous irrigation, shall be registered at any time, or, in case of immediate necessity, may be made direct to the Company's Officers, who, on obtaining a receipt, will supply the required quantity and forward the receipt to the Revenue Officers. The charge for such irrigation shall be, for the present, at the rate of one Rupee per acre for each effective flooding.

No. 13, dated 5th June, 1866.

*From—G. W. BOOTHBY, Esq., Agent and Manager, E. I. Irrign. and Canal Company,
To—Officiating Secretary to Government of Bengal, in the P. W. Dept.*

Two days after my letter No. 10 of the 20th ultimo was written, intelligence reached me which at first led me to hope that a general movement had at last commenced towards the full utilization of the water from our canals, but, on further enquiry, I find that, although a number of irrigation leases have been signed, water for the same having been distributed in fact beforehand, yet the movement is not by any means general; nor does it appear that the Zemindars have taken any part therein, the ryots who took the water having simply done so from urgent necessity, the alternative being the loss of their crops.

2. The enclosed copy letter from Mr. Levinge, affords all the particulars of what has taken place, and I have the honour to request that this communication, and my present letter, may forthwith be forwarded for the information of His Honour the Lieutenant Governor.

3. In replying yesterday to what Mr. Levinge states, as to the ryots objecting to pay Rs. 3 per acre for the Beallee crop, I wrote as follows :—

"In regard to some of the ryots having given as a reason for not taking water for their Beallee crop, that Rs. 3 per acre was too much for that crop alone, it will be well at once to let it be again clearly explained to them that they are not obliged to pay at the rate of Rs. 3 per acre for the Beallee crop; they are at liberty to take the water by volume, that is, as they will understand it, by floodings. If they ask for these floodings at irregular periods without any agreement being made, they will be charged at Re. 1 per each effective flooding per acre, but if they take a lease for a number of cubic yards of water, they will be charged at the rates published for the same, and for the Beallee crop probably not more than 1,000 cubic yards of water at Re. 1-8, and 500 cubic yards at 1 Rupee (after 15th June) would be needed, making a total of Rs. 2. But by far the most advantageous method for them to take water is, by the compound rate of Rs. 5 per acre for the year, which enables them to water two entire rice-crops for that small sum. Baboo Koylas Chunder Ghose shall go along the canal shortly fully to explain again all these matters; meantime, please let the people at once know that they can save their Beallee by occasional floodings without paying the full Rs. 3 per acre."

4. I would respectfully urge that Mr. Levinge's letter contains matter which adds to the validity of the request preferred in my letter No. 10. For the very serious injury that the food crops now growing and commanded by canals have sustained for want of water, is clearly stated by a trustworthy eye-witness, who justly remarks that the alleged high price being the cause of the water not being taken is a mere subterfuge, as proved by those who have taken the water, and found how valuable it is; indeed, looking at the wide-spread famine, with rice now hardly obtainable at 3½ seers per Rupee, it is impossible to believe that men in their senses would allow an acre of rice to perish, the grain from which is now worth fully Rs. 60, rather than pay from Rs. 2 to 3 to save it. I submit that there is strong evidence to show that the Zemindars have positively forbidden the use of the water by the ryots, and those ryots who have used it are probably of the Khoodkast class, who are almost independent of the Zemindars.

5. I, therefore, earnestly solicit a full consideration of, and compliance with, the requests contained in my letter No. 10 of the 28th ultimo.

No. 769, dated 2nd June, 1866.

*From—H. C. LEVINGE, Esq., Exec. Engr., E. I. Irrign. and Canal Company,
To—Agent and Manager, E. I. Irrigation and Canal Company.*

Within the last few days, some applications for water have been made along the Kendraparah Canal. I have this day forwarded to the Collector leases for 22½ acres: these leases are all for very small areas, other leases for about 40 acres at the lower end of the canal, have been signed, but not forwarded, as the water has not as yet gone down so far.

The move is not by any means general, and the people are only taking the water to save their growing Beallee rice crop from being burnt up.

I visited yesterday the land that is being irrigated along the third distributary, and the contrast between those fields that have been watered, and those that have not, is most striking; the latter are in many places completely destroyed and must be sown again. I saw several fields in which the plants were withered beyond all chances of recovery; whereas, those fields that have had water are green, and the plant thriving and luxuriant.

Much of the *Saral*, or late rice crop, is sown, but the seed has not germinated for want of moisture; the people say that it will not spoil, and that they can afford to wait till rain falls, even for a month.

On questioning those people whose crops were being spoilt for want of water, and asking their reasons for not taking it like their neighbours they said that Rs. 3 per acre was too much for the Beallee crops; that they could not afford to pay so much, as the profits from it were not great. This, I think, was merely an excuse, otherwise why should others be able to afford to pay for water.

No. 2252, dated 23rd June, 1866.

From—W. B. MACRONE, Esq., *Offg. Asst. Secy. to the Govt. of Bengal, in the P. W. Dept.,*
To—Secretary to the Board of Revenue, Lower Provinces.

I am directed by the Lieutenant Governor of Bengal to forward, for the information of the Board of Revenue, a copy of the correspondence, which has taken place subsequent to the date of the Board's letter No. 39 of the 22nd February 1864, relative to the manner in which the contract between the Government and the East India Irrigation and Canal Company in regard to their Orissa scheme, should be carried out.

2. The questions which have to be determined may be thus defined:—

1st.—The terms by which the water is to be supplied by the Company, with reference to the rate of payment, to the mode of calculation of such payment, whether on the volume of water supplied, or on the area irrigated, and, in the former case, to the manner in which the supply by volume shall be measured, and the correctness of the measurement tested.

2nd.—The agency by which the mode in which, and the time during which, the distribution of the water shall be effected; and the procedure which shall regulate the applications for the supply of water.

3rd.—The agency and the procedure to be adopted for the recovery of the water-rate.

4th.—The disposal of all complaints with regard to refusal, failure, irregularity, or insufficiency of supply, or to misconduct in connection therewith, or of claims for compensation for the non-use of the water on failure of crops, or for the deprivation, owing to the operations of the Company, of the means of irrigation available anterior to those operations.

3. After careful consideration of the several questions as set forth in the correspondence, the Lieutenant Governor has directed me to communicate to the Board the following directions.

4. 1st.—*Water-rate.*—Where the supply is by volume, the water-rate should be fixed uniformly at 1 Rupee per 1,000 cubic yards for all water supplied for purposes of irrigation from 15th June to the 31st October, and at Rs. 1-8 per 1,000 cubic yards for all water so supplied from the 1st November to the 14th June. If the water is supplied for the purpose of watering cattle, sheep, goats, &c., or for filling tanks not used for irrigation, the rate should be Rs. 2-8 per 1,000 cubic yards.

2nd.—Where the supply is to be taken on the area, the rate should be fixed at Rs. 3 per acre for a single crop; at Rs. 6 per acre for two or more crops, commutable to a charge of Rs. 5 per acre per annum; and at Rs. 1-8 per acre for occasional irrigation for each crop.

5. It will be observed that it is determined to adopt the alternative method of supply either by volume or by area. The Lieutenant Governor is aware that the late Commissioner of Cuttack was of opinion that, in the present condition of the Province of Orissa, the mode of supply by volume was alone suited to the circumstances of the Province; but there would appear to be so many practical difficulties in carrying out this mode of distribution that His Honour has decided to leave to the cultivators the option of adopting either this mode or that of supply by acreage. It will, perhaps, be found that the latter will, at all events at the commencement of irrigation operations, be generally preferred, and this opinion is held by the present Commissioner, who states that the preference of the people is for the supply by acre.

6. The rates per volume, which have been adopted for water supplied for irrigation, are those to which both the late Commissioner of Cuttack and the Agent and Manager of the Company have agreed. In lieu of charging per head for watering cattle, and, instead of the very high rate of Rs. 5 per 1,000 cubic yards for filling tanks, as proposed by the Manager, it is deemed preferable, with a view to avoid confusion and risk of dispute in the former case, to fix the rate on the quantity of water supplied for these purposes; and, as the charge proposed by the Manager in the latter instance appears excessive, the rate prevailing in Madras for water supplied for other purposes than those of irrigation, namely, 400 cubic yards per Rupee, is preferred.

7. No rates for water supplied per area have been distinctly or explicitly proposed in the correspondence which has been laid before the Lieutenant Governor; but it is presumed from the fact, that the composition rate (namely, Rs. 5 per acre per annum) suggested by the Manager, agrees with that prevailing in Madras, that the remaining rates now fixed, which are also those in operation in Madras, in accordance with which the composition rate has been there determined, will meet with the concurrence of the Company.

8. If the rates thus adopted by the Lieutenant Governor be accepted by the Company, the reference to arbitration, required by the terms of the contract, will be a mere matter of form as between the Government and the Company, and these rates can be at once provisionally adopted pending their confirmation by the arbitrators.

9. It is to be understood that the minimum quantity which the Company can be required to sell to any one applicant is 5,000 cubic yards, and that the rates now decided on are to be tentative for a period of three years, after which they will be subject, with the concurrence of the Government and the Company, to further adjustment.

10. The use of metres of approved construction must be insisted upon in those cases where water is to be supplied by volume. The more intelligent class of consumers will readily learn to check the quantity of the delivery when thus gauged, and to protect their own interests, if necessary, by complaint to the Collector, by whom the correctness of the metres could be tested through the agency of a duly qualified Officer to be deputed for that purpose.

11. *Distribution.*—The distribution of the water is vested, by the terms of the contract, in the Government; yet, though the complete power thus reserved to Government should be insisted on as an indisputable right, it will be, practically, expedient to waive the exercise of this right to allow the Company's Engineers to carry on the system of minor irrigation channels, and to place the immediate management of the distribution in their hands under the general control of the Government. The Manager of the Company has expressed his willingness to undertake this duty, and has justly observed that, "for reasons of obvious convenience and facility to the agriculturists, the arrangements for the distribution of the water are, according to his Draft Rules, left to the Company, but the power over the distribution remains with the Government."

12. The principle which the Manager advocates for "distributing the water wholesale to villages, allowing the villagers to make arrangements for its distribution within certain limits," quite meets the views of the Lieutenant Governor, as expressed in a previous communication, to the effect that "the Company should be required to provide irrigation channels to within easy reach of every village, and that the distribution within the village should be made by the people themselves."

It is to be distinctly understood, however, as an essential condition, that the Company's minor distributary channels shall lead up to the boundary of every village, for any portion of which, application for the prescribed quantity of water for irrigation may be made.

13. With a view to avoid a multiplicity of applications, and the consequent probability of confusion and intricacy of accounts, the Zemindars of estates should be encouraged to apply in aggregate for the water required for their respective estates; and to make themselves responsible for the due distribution of the water amongst the cultivators, and for the payment of the amount charged for the supply.

14. It may be expected that, in consideration of the benefits which the landlords will derive from the use and extension of irrigation within their estates, they will be willing to undertake this duty in connection with that of collecting the water-rate, if allowed a small percentage to cover cost and risk of collection.

15. All agreements for the supply should be executed as between the Government and the applicant, at least for the present, so that the Government, which is responsible for the water-rate, may be in a position to prosecute for non-payment of the amount due under the agreement.

16. The question of the time during which the water is to be supplied, whether continuously or at intervals, for short and uncertain periods, or in certain quantities at stated periods, must form matter of agreement between the applicant and the party responsible for the distribution of the water, and should be distinctly specified in the body of the agreement.

17. *Collection of the Water-rate.*—The responsibility of collecting the water-rate and of its payment to the Company, devolve under the terms of the contract on the Government, and the measures which are to be adopted to carry out these objects, require the most careful consideration.

18. In a former letter from this Department, it was suggested that "a receipt should be given by some responsible person on behalf of the Zemindars and villagers for the water supplied by the Company's Officers from each point of distribution; that these receipts should be forwarded by the Company's Agents to the Collector, who should pay the Agent the amount represented by the receipts, less a fixed percentage to cover costs of collection, and should realize the amount through the Zemindars as though it were an arrear of revenue."

The late Commissioner of Cuttack was in favour of all dealings being for cash, or on security of landed property, the latter being made liable in case of default to the provisions for the recovery of arrears of land revenue by the enactment of a short Act supplementary of Act XI of 1859.

The Board have expressed themselves opposed to the suggestions of the Commissioner, and consider it "would answer every useful purpose, and be consistent with sound principle, to treat the charge for water as rent, and make it recoverable by the laws applicable to the recovery of the arrears of rent, with the proviso that the produce of the land should be hypothecated for the water-rate only after the landlord's demand for rents has been met."

19. In the present state of the land, arrears of water-rate can be recovered only by means of a civil suit. A more summary process for the recovery of such arrears will be undoubtedly required, and, therefore, recourse must be had to the legislature to legalize such a process. I am to request that the Board will prepare the draft of a Bill for this purpose, to be brought before the Bengal Council at its next sitting.

20. The Lieutenant Governor is of opinion that the object in view can be best attained by an Act based on the principle laid down in Section 15 of Act XV of 1863, for the recovery of water-rates in the North Western Provinces; that power should be given to the Government to appoint any proprietor, or farmer of an estate, with his consent, to collect the water-rate due on any lands in such an estate; that, subject to an abatement on account of commission, the amount annually payable for such water-rate should become a charge on the estate, and be recoverable as an arrear of revenue; and that, for the purpose of collecting the water-rate from the ryots and others liable thereto, the proprietor or farmer should have the like powers, and be subject to the like liabilities, as are provided in the laws in force in respect of the collection of the rent of land.

21. It is probable that, as previously observed, the proprietors and farmers of estates will willingly come forward to undertake the duty of collection on the grant of an adequate commission; but, to meet the case of refusal, it would be necessary to empower the Revenue Authorities to appoint farmers of the water-rates for estates, or circles of estates, with similar powers and restrictions in regard to the collection of rates, and subject for recovery of arrears due from themselves to the same provisions as are applicable to farmers of land revenue.

22. *Complaints and claims to compensation.*—The proposed Bill should further provide for the judicial cognizance, by the Revenue Authorities, of all causes of action arising out of matters connected with the supply of water for any of the purposes noted above in para. 4, whether between the supplier and proprietor or farmer, or between the latter and the ryots or others responsible for the water-rate, and such provisions should follow the principles and procedure laid down for suits cognizable under Act X of 1859, of which the proposed Act should be read and taken as a part.

23. If the proposed Bill should become law, the procedure will be somewhat as follows:—The proprietors or the farmer of an estate, or, on his refusal to undertake the duty, the farmer of the water-rate appointed by the Revenue Authorities, will send in from time to time applications to the proper Officer of the Irrigation Company, for such amount of water as may be required for the purposes of the estate: agreements will then be drawn out in accordance with these applications between the Government and the applicants, carefully executed and registered and transmitted to the Collector for record: the Company will then distribute the water at the boundaries of the villages for which application for water has been made; on the delivery of the water, receipts for the amount supplied will be given by such proprietor or farmer to the Officers of the Company: these receipts will be forwarded to the Collector, and the amount of them, less a deduction for general cost of collections, will be paid to the Company on fixed dates, and the Collector will recover the full amounts of the receipts, less the commission granted to the proprietor or farmer, from such proprietor or farmer, at stated periods, as an arrear of revenue.

24. Again, the proprietor or farmer will enter into separate agreements with the ryots of the several villages of the estate, for such supply of water as they may apply for, and all questions connected therewith, or arising therefrom, will be cognizable by the Revenue Authorities under the Rent Law, under which will also be brought all causes of action between such proprietor or farmer and the Company in connection with supply of water.

25. Immediate facilities are, however, required for the introduction of irrigation as rapidly as the Company's works become capable of supplying water without waiting for further legislative action; and the Board are, therefore, requested to issue instructions to the Revenue Authorities for the supply of water from the Company's irrigation canals, in communication with the Company's Officers, on receipt of applications; and also for the collection of the water-rates which may become due for such supply, either through the agency of the proprietors and farmers of estates or heads of villages, when they consent to undertake the duty and furnish sufficient security for its fulfilment. In case of their refusal, the collection could be made through the agency of the Canongces or such other special agency, and at such moderate rates of commission as the Board may think advisable.

26. The rules for the distribution of the water may be based on those proposed by the Company's Agent and Manager in his letters No. 16 of 27th March 1865, and No. 4 of 10th April 1866. Of these Rules, Nos. 2 to 7, 9 to 11, 13, 14 and 19 may be accepted. The rates given in Rule 8 will require to be altered to those now decided on. Pending the enactment of the proposed Bill to vest the judicial cognizance of all complaints in the Revenue Authorities, the procedure suggested in Rules 10 and 11 may be adopted. Theft of water will be punishable, it may be presumed, under the Penal Code, but under no existing law "waste of water" is probably not an offence, and Rule 16 must, therefore, be modified. Rules 17 and 18 are beyond the existing law, but their object can be attained by the extension of Act XII of 1866 to the districts within which the operations of the Company are conducted.

27. The percentage to cover cost of collection and other expenses as between the Government and the Company may be taken at the rate suggested by the Board, that is 10 per cent.; this rate should, however, be subject to adjustment hereafter. It should not be greater than is necessary to reimburse the Government for actual expenses.

28. With regard to the remarks of the Agent and Manager of the Company, relative to the disinclination evinced by Zemindars and others to utilize the water available from the

canals, I am directed to state that the Lieutenant Governor, on lately receiving somewhat similar information from the Commissioner of Cuttack, authorized the Commissioner in a demi-official letter to "tell the Zemindars and others interested in applying for water, that the water-rate is wholly distinct from, and independent of, revenue; that it will not in any way directly or indirectly affect the revenue assessment at the approaching settlement; that by taking water they will not render themselves liable to an increased rate of assessment; and that they will not have to pay twice for irrigation or for the water supplied to them." "Your official letter," the Lieutenant Governor adds, "will be answered in the same terms, but meanwhile you can call the attention of the Zemindars to the orders of March 1862, and explain the effect of those orders as fully and unreservedly as I have done above, and tell Mr. Boothby that you are authorized to do so."

29. This assurance is now formally repeated and may be embodied in a Notification to be issued by the Commissioner; but, from information subsequently received, it would appear that the Commissioner's action, based on the above orders of the Lieutenant Governor, has been effected, and that numerous applications to take water from the Company's works have been made.

Correspondence forwarded with foregoing.

From the Chief Engineer, East India Irrigation and Canal Company, to the Secretary to the Government of Bengal, Public Works Department, No. —, dated 1st September 1864, with enclosure.

From Agent and Manager, ditto ditto, to ditto ditto No. 25, dated 15th September 1864, with enclosure.

Ditto ditto, to ditto ditto, No. 26, dated 27th September 1864.

Ditto ditto, to ditto ditto, No. 16, dated 27th March 1865.

Note on Water-rate by Mr. R. N. Shore, dated 16th March 1865.

From Agent and Manager, East India Irrigation and Canal Company, to the Secretary to the Government of Bengal, Public Works Department, No. 18, dated 30th March 1865.

Ditto ditto, to ditto ditto, No. 4, dated 10th April 1866.

Ditto ditto, to ditto ditto, No. 10, dated 28th May 1866.

From Officiating Commissioner of Cuttack, to the Secretary to the Government of Bengal, Public Works Department, No. 132, dated 21st March 1866.

From Agent and Manager, East India Irrigation and Canal Company, to the Secretary to the Government of Bengal, Public Works Department, No. 13, dated 5th June 1866.

No. 2253.

Endorsed by Govt. of Bengal, in the P. W. Dept.

Copy of the above letter forwarded to the Secretary to the Government of Bengal for information.

No. 2254.

Copy of the above letter forwarded to G. W. Boothby, Esq., Agent and Manager, East India Irrigation and Canal Company, for information, with reference to his several communications on the subject.

Governments of Madras, Bombay, North Western Provinces, and Punjab.
Chief Commissioners of Oudh, Central Provinces, and British Burmah.
Commissioners of Mysore and Coorg.
Resident at Hyderabad.
Agents to the Governor General for the States of Rajpootana and Central India.

ORDER.—Ordered, that copies of the foregoing papers be forwarded to the Local Governments and Administrations marginally noted, for information.

(Signed) C. H. DICKENS, Lieut.-Col., R. A.,
Secy. to the Govt. of India.

C. E.,

Offg. Asst. Secy. to the Govt. of India.

4706/86

*Proceedings of the Madras Government, Public Works Department,
27th November 1866.*

No. 556. Read the following Proceedings of the Government of India, in the
Public Works Department :—

Communicating certain correspondence on the
subject of the price to be charged for water
supplied by the East India Irrigation and
Canal Company in Orissa. (Here enter 22nd October 1866, Circular No. 93.)

No. 557. ORDER THEREON, 27th November 1866, No. 3,761. A

CIVIL WORKS, No. 111.

Communicated to the Revenue
Department and to the Consulting Engi-
neer for the Madras Irrigation and Canal
Company.

(True Extract.)



Colonel, R. E.,
Secretary to Government.

To the Revenue Department,
Consulting Engineer Madras Irrigation and Canal Company, } with 1 Enclosure.

Ed. S. T. Augustin

GOVERNMENT OF INDIA.

PUBLIC WORKS DEPARTMENT.

CIVIL WORKS.

To

CIRCULAR No. 93 PUBLIC WORKS.

Dated SIMLA, October 22, 1866.

Received

Price to be charged for water supplied by the East
India Irrigation and Canal Company in Orissa.

Permanence 1866 D. of A.
Pro of Govt. 1866
Proceedings in the
P. M. District.

Dated 27th 3rd Nov.
Reverend 29th 1866.
8th 3761a.

8th 3313.

Communicated
to the Board of Trade
and

10th Dec 1866

14 Copy to the 12th of Dec with the 13th and 14th of Dec

Communicated
Pro of Govt of London
receiving correspondence
on the subject of the
price & the charges for
water supplied by the
East London Dock & and
Canal Company in London.

2nd 3313. 1866
H. Miller

1866-94