M.R.O. 1—89,600—16-10-39.

MADRAS RECORD OFFICE.

Government of Madras.

Revenue **DEPARTMENT.**

G.O. No.	587.	Press	~~Mis.~~
148-49			
Dated	6th	March	1869.

Not to be folded or roughly handled

Proceedings of the Madras Government, Revenue Department,
6th March 1869.

No. 148. Read the following Proceedings of the Madras Government in the Public Works Department :—

Recording Proceedings of the Government of India on the subject of the enhancement of Land Revenue consequent on the introduction of Canal Irrigation. } (Here enter 24th February 1869, No. 592.)

No. 149. ORDER THEREON, 6th March 1869, No. 587.

Irrigation, No. 3. Ordered to be recorded.

(True Extract.)

Acting Secretary to Government.

Exd. G. A. Turton.

Such is the position upon which the Extraordinary Revenue is based. Numerous objections have been taken to the system. The chief are these—

Objections enumerated.

1*st*.—By assessing on canal assets, the Government (it is alleged) gives an implied pledge that water will always be supplied; and the Irrigation Department will be embarrassed should it wish to raise the water-rate, or to divert the course of irrigation to other tracts standing in greater need of water.

2*nd*.—A settlement, based upon assets, one element of which (canal profits) is uncertain, cannot claim to be a permanent settlement.

3*rd*.—Villages so assessed are placed at a disadvantage in reference to tracts not now irrigated by the canal, but which may be hereafter.

4*th*.—Profits created by the canal are allowed to go to the Zemindar, who has no claim to them; whereas these profits should go entirely to Government.

5*th*.—The system of differential water-rates would not in practice answer.

Before noticing these objections, I will describe the plan which it is proposed to substitute for the present system.

The project advocated by Mr. Currie and Mr. Hume, more or less countenanced by some others, and to which Mr. Money has latterly given in his adhesion, is to assess the Government demand irrespective altogether of the canal, and of the increased assets created thereby. The advocates of this system admit that a loss of Land Revenue will ensue, but they hold that the deficiency will be much less than generally expected; that it will be more than compensated by taking the profits at first hand from the cultivator, in the shape of increased water-rate; and that, whatever be the loss, the Government is bound to face it, and not perpetuate a false principle, as they allege we are now doing. The Canal Department, it is added, will thus be released from all embarrassment, and will be free to withdraw irrigation, either by closing at pleasure any branch of the canal, or by imposing rates which for the locality would be prohibitive.

System proposed by objectors.

To this it may be replied that the loss of Land Revenue must, under any circumstances, be considerable; that it cannot be recovered through any system of water-rates, which are demandable not from the landlord, but from the cultivator; that increase of water-rates, and consequent increase of the direct Canal Revenue, will, in practice, be equally attainable under the present system; and that, if any organic change in the distribution of the water should take place and loss ensue, there will be no material difficulty in effecting a corresponding adjustment of the revenue. In short, there would, by the proposed plan, be a gratuitous gift to the landlord and loss of revenue, without any compensation whatever.

Defects of proposed system.

First, then, as regards the amount of revenue at stake,—

Loss of Land Revenue.

Mr. Martin estimated, after a calculation made, village by village, that, in Mozufferнuggur, assessed at between 11 and 12 lacs, there would be a loss of about 2 lacs of Rupees. It will be seen that Mr. Money thinks this estimate of Extraordinary (or Canal Revenue) too high; and, under his instructions, the amount will probably be somewhat reduced; but I should think that, if fair advertence be given to the benefits of the canal, it could hardly be brought below a lac and a half. This District is watered, not only by the Ganges Canal, but largely also from the Eastern Jumna Canal, the irrigation from which is very constant, and has long reached its full development.

Mozufferнuggur.

In Meerut, which is very similarly circumstanced, I believe that a fair assessment of canal profits will, (in proportion as the District is larger than Mozufferнuggur) produce a still larger sum. So also with Saharunpoor; though here, as water is in many quarters nearer the surface, the proposed enhancement of water-rate may to some extent limit the area of canal irrigation by inducing the people to revert to irrigation from wells.

Saharunpoor and Meerut.

In Boolundshuhur, the only other District yet brought under re-settlement, the Ganges Canal alone is in question, (the Eastern Jumna Canal terminating opposite the city of Delhi,) and canal irrigation is yet only in process of development. Here, moreover, as will be subsequently shown, the peculiar views held by Mr. Currie have, without doubt, influenced him (though with every desire of doing substantial justice) to underestimate the Extraordinary Revenue.

Loss in Boolundshuhur.

Premising that these points are to be borne in mind, I note the results in Boolundshuhur, as calculated by Mr. Currie's detailed and otherwise careful investigation. Out of about 1,600 villages, only 650, assessed at an aggregate sum of five lacs of Rupees, are affected by the canal, and even among these, many are still very partially irrigated from it. Of the above sum, Mr. Currie estimates from Rupees 36,000 to Rupees 38,000 to be Extraordinary (or Canal) Revenue.

I apprehend that a full estimate would place the Extraordinary Revenue higher. But for the sake of argument, I will assume that the revenue at stake is only of that amount, and that the district of Boolundshuhur alone is concerned.

A revenue of Rupees 36,000 to Rupees 38,000 represents the Government share in increased assets, amounting to some Rupees 75,000 that is, in an increase of *rental* to that amount paid by the cultivators to their landlords solely in consequence of the increased produce obtained from the use of canal water. Why this sum should be left untaxed with the Zemindars while all other Zemindary rental and profits are assessed to the Land Revenue, I cannot perceive. The effect would be to make the settlement press, at its very commencement, with a patent and most invidious inequality. The canal villages would be more lightly assessed than their neighbours, by all the difference of the increase of rental indicated above. The proceeding would be nothing more or less than a gratuitous relinquishment of the public revenue to the landlord.

No reason why revenue should be remitted to the landlord.

It is argued on the other side that, although some revenue must be relinquished, the loss will be more than compensated by raising the water-rate. But to this it may be replied: (1), that increase of rent levied by the Zemindar cannot be reached by a water-rate demandable from the cultivator; and (2), that the water-rate can, within practical limits, be increased under the existing system equally as under the proposed.

The loss will not be recovered.

Mr. Hume seems to think that, by some arrangement between the ryot and the Canal Department (the details of which are not given), it would be possible to collect directly from the ryot the whole, or nearly the whole, of the increased value arising to him from the use of canal water, and so to intercept it that no portion, or but an insignificant portion, shall reach the Zemindar in the shape of increased rent.

It cannot be recovered by water-rate levied from the cultivator.

I do not suppose that the advocates of this system contemplate a separate bargain with each cultivator,* fixing the water-rate in exact proportion to his profits; for this would in effect be employing the Canal Department to make a second Revenue, or a Ryotwarry settlement; and yet, without such a detailed settlement, it is not apparent how the surplus profits could be got exactly.

* Yet some of the writers in this collection propose a (water) rate to be 'fixed by barjain' between the Canal Officers and cultivators.

Copied for 1869 Collection

REVENUE.

To

Dated March, 18..

Recd.

G. O., 3rd March, 1869, No. 587.

MADRAS.

Nos. 143-149.

Land Revenue.—Proceedings Government of India on the subject of its enhancement, consequent on the introduction of Canal Irrigation, recorded.

No. 592. Read the following Proceedings of the Government India, in the Public Works Department, (Irrigation), dated Fort William, 7th January 1869, No. 9-16 I.

Enhancement of Land Revenue consequent on the introdaction of Canal Irrigation.

Read the following papers :—

Dated 10th May 1865.

Note by Hon'ble W. Muir, *on a collection of papers now before the Government,' North-Western Provinces, regarding the Assessment of rental arising out of Canal Ir-rigation.*

The conference held at Agra in the beginning of the year, and some of the papers subsequently written upon its proceedings, call in question the policy and equity of the present system of Canal Assessment.

Present system.

The present system is to assess at half of the average assets, however created, whether through canal irrigation or otherwise ;—we take one-half of the entire rental received by the landlord as the Government share.

Land Revenue, *Ordinary* and *Extraordinary*.

But we provide that a careful estimate is made of that portion of the revenue directly attributable to the canal and dependent upon it ; this is styled "Extraordinary Land Revenue ;" the remainder being "Ordinary Land Revenue," namely, the assessment at which an estate would probably have been rated had there been no canal.

The object of this division is two-fold. It enables the Government to credit the canals, in account, with the Extraordinary Land Revenue, that is, with the increased revenue created by them ; and this also forms an index to the sacrifice which would be caused by the stoppage of any canal or branch of one.

Failure of canal, prima *facie* ground for remission of Revenue Extraordinary.

In case of failure of irrigation from a canal, the amount to be remitted might exceed the Extraordinary Land Revenue, or it might fall short of it. That revenue may have been underestimated by the Settlement Officer, and may be found on the calamity actually taking place to be insufficient. It is not to be supposed that a village, long dependent on canal irrigation, could revert on the moment to wells, or that the dense population nourished by the canal could suddenly be deprived of its subsistence without wide-spread distress, unsettling the country, and imperilling for a time even the Ordinary Land Revenue. On the other hand, the failure of a canal might be ameliorated by certain circumstances. The rains might be so abundant and well-timed as, for that season, in a great measure to supersede artificial irrigation : or the spring-level of the country, which takes long to subside, might still be so near the surface as to afford ready means of irrigation, even if the canal bed lay during the year empty.

The amount of Extraordinary Revenue would not, therefore, be a *necessary* index of the precise amount to be remitted. To give a legal right to the Zemindar to claim that as a remission, would also open the door to frivolous and unfounded demands on any fancied insufficiency of water. But still the estimate of Extraordinary Revenue would form a most valuable standard for the Collector's guidance ; and, under ordinary circumstances, would be adopted in the majority of cases as the standard of actual remission.*

But the whole revenue is engaged for absolutely.

On those grounds, the Zemindar is required to engage for the entire Land Revenue, without distinction of Ordinary and Extraordinary ; but it has been stated in a public Circular that this will not excuse the Government, on any failure of the canal affecting the assets of the Extraordinary Revenue, from "granting a suitable relaxation of the demand."

* "If the assessment of Extraordinary Revenue be framed upon a full understanding of the natural capabilities of the estate independent of the canal, (it may be found (in case of failure of the canal) to supersede, in many instances, any further proceedings for determining the amount of relief to be temporarily granted."—Circular Order, Saddar Board of Revenue, 1864.

estimated and assessed as to frustrate any claim of the Zemindar to share in the same. Even if the attempt were made, it would succeed, if at all, but very imperfectly; for, as I will show below, from the very nature of tenures in this part of India, the Zemindar *cannot* be ousted from his prerogative as the levier of rent. Moreover, no such bargain would tend to lower the *existing rents on which our present jummas* are assessed, for the landlord could maintain his right to these; unless, indeed, the bargain were driven so hard by the Canal Department as to force the cultivator to revert to dry cultivation, or to throw up his holding altogether.

But any such scheme may be left out of view, since it has been definitively settled that the water-rate, or direct Canal Revenue, whether on Government or private canals, is to be realized by uniform rates—rates at least which shall be uniform over considerable tracts of country—not by separate bargain with individuals.*

Assuming, then, that the present system of uniform water-rates will be maintained, it appears to me that no rise of water-rate within the limits prescribed by the interests of the canal itself will sensibly affect the rents of the landlord.

Rents will rise notwithstanding water-rate.

Enquiries made by the Allahabad Board last year (consequent on Colonel Strachey's Despatch directing the water-rate to be raised) showed, that there was no material difference in the scale of rents paid by cultivators, on the Eastern Jumna Canal, although its water-rates were pitched at a much lower standard than those of the Ganges Canal. The present collection of papers also shows conclusively that the rent for canal-irrigated fields has found its level at very nearly the same rates as for land irrigated from wells.†

Section 17, Act X, 1859.

That the Zemindar's rent *must* rise in some proportion to the produce (where the increase is not exclusively due to the labour or capital of the cultivator), will be evident, from a consideration of the very nature of the relative rights of landlord and cultivator.‡ For, in the first place,

New lands broken up.

no new lands can be brought under cultivation without the Zemindar's permission, which, of course, would only be conceded on the promise of a fair and customary rent. It is by affording the means for bringing waste lands under profitable tillage, and extending the breadth of cultivation, that the largest accessions of income are derived from canal irrigation. Here, then, we see that, whether taken in money or in kind, the Zemindar will have his full rent, although it arise from assets wholly created by, and dependent on, the canal; and no arrangements as to water-rate can, in any way, interfere with the landlord's successful enforcement of his claim.

But apart from the breaking up of waste lands, the landlord will always be able to assert his title to share in the profits. He will do so immediately and directly wherever (as is the very general custom of the Upper Doab) he takes his rent in kind; here, just as the produce is increased, by dry or imperfectly irrigated land being brought under canal water, so exactly is his share in that

Rents in kind.

* This was ruled by Lord Elgin in a Minute, dated 12th September 1863, respecting private Companies, where it is stated that "the principle that the charge for water supplied from canals should be made uniform over certain areas" had been repeatedly laid down by Her Majesty's Secretary of State.

† Mr. Commissioner Williams says—"In the Roulandshuhur District, the people, i. e., the landlords and tenants, have fixed the landlord's rent a little lower where canal irrigation is used than the rate of rent which is paid when the irrigation is from wells.

"The circumstances under which the 'mutual agreement arrangement' took place in Roulandshuhur are not clear; some say the amount of produce from *well* water is greater than that from land irrigated from the canal; but others will deny this, and assert the contrary."

Of the Eastern Jumna Canal, in the Saharunpoor District, Mr. Wynne writes—"If the Zemindar's share is half the produce on dry lands, it will be some two-fifths on *well*-irrigated and some one-third on canal-irrigated land, i. e., a difference of one-fifteenth; still the actual produce being greater, (a) the Zemindar's actual rent will be at least equal on well and canal-irrigated land; indeed, I generally find more in the latter."

‡ The Government, North Western Provinces, in their letter, dated 7th March last, consider it proved "by the admissions and experience of all the Officers present at the Conference, that, whatever may hereafter occur, "landlords' rents have not yet, as a rule, been enhanced in consequence of canal irrigation." I can find no ground for this view in the recorded opinions of those Officers. The Government probably mean that the substitution of the canal for well-irrigation does not raise rent—a position which has always been admitted.

(a) "Greater in the particular tract of country of which I am speaking, because the canal enables a double crop to be grown on many lands; and in many more, enables that most paying crop, rice, to be grown; the Zemindar's actual rent will be at least equal on well and canal-irrigated land; indeed, I generally find more in the latter."

produce. The same direct enhancement will take place wherever money rents (*Zubtee*) are paid according to a scale rising with the superior nature of the crop, also a popular practice in the Upper Doab. The introduction of canal water followed, as it generally is, by the cultivation of superior staples, will thus immediately raise the landlord's rent. In both these cases, the rise is direct and certain.

The same will be the case with ordinary money rents, though not quite so directly and immediately. Where the cultivator is a tenant-at will, the Zemindar makes his own bargain year by year, and will not fail to assert his absolute right to share in any increase of profits. Where, there is an hereditary title to hold at an equitable rent, the Zemindar can claim to raise his rent to the prevailing standard, and by law can assert his right to enhancement where the profits are increased otherwise than by the labour or capital of the ryot. Under any system of uniform water-rates, there must remain with the cultivator a considerable balance of profit from the use of canal water. It will vary according to soil and circumstances, but must always exist in a sensible degree to induce the cultivator to resort to the canal; and I think, it is unquestionable, that the landlord will invariably be found sharing in the profits by a corresponding rise of rent, either immediate, or following, as an early and certain consequence, upon the use of canal water.*

Money rents.

Now, this increase of rent, being levied by the landlord, cannot be reached by any enhancement of the water-rate which is taken from the cultivator. The considerable amount of Land Revenue, therefore, which it is proposed to relinquish, would not be recoverable from the Zemindars in any form†; it would be a simple gift to them of so much yearly revenue, and moreover tend to make the settlement most unequal and unfair.

Increase in rent cannot be reached by water-rate.

I will now proceed to show that the water-rate may be raised, without injustice to any one, equally under the present as under the proposed system; and that no special credit can, therefore, be claimed by the latter as a set-off for the loss of revenue with which it sets out. By increase in the water-rate, I must be understood as meaning an increase within the reasonable and practical limits which, on independent considerations, must always be observed by the Irrigation Department.

Water-rates may be raised under existing system.

And, first, in respect of rents already raised by canal irrigation previously to the settlement. If it can be shown that an increase of water-rate will not affect these, the assessment of an Extraordinary Land Revenue upon them, cannot be inconsistent with the imposition at any further period of such increased rate.

In reference to rents already enhanced.

I believe, I may assume that it will never be the object of Government to enhance the water-rate to such a pitch, as to drive the cultivators generally in any tract to give up irrigation altogether, and either leave their fields waste, or cultivate them with dry crops.‡ It might indeed justly be an object, where there is competition for the water, to raise the rate so as to induce the people to *resort to irrigation from wells instead of from the canal*, and thus economize the water for use in localities where it is more urgently needed.* But the case appears inconceivable in which it should be, for the interests

Such rents would not be reduced unless ryots are forced to fall back on dry cultivation.

* Law as well as custom is opposed to the new proposals. The Zemindar is entitled to increased rent where the produce and profits reaped by the cultivator are increased otherwise, than at the expense and by the agency of the cultivator: clearly the introduction of canal water does not fall within this exception, and to prevent the Zemindar's legal title, an enactment would be needed, such as that now proposed for Madras, barring the Zemindar's claim to enhance his rent on account of canal irrigation, unless he is also called upon to pay revenue to Government for such increased profit. But even with such a law, we should not be clear of our difficulties: for (1), such a law would not reach rents already enhanced and assessed; and (2), it might check the Zemindar's claims in a few contested cases of hereditary cultivators, but would not generally prevent his obtaining an increased rent: and (3), it is difficult to see how such a law could be enacted without touching upon the rights of the landlord.

† Mr. Crosthwaite very acutely demonstrates "the impossibility of reaching the landlord's profits through the water-rate." He says—"I do not think it possible to get their share of the increased assets indirectly by raising the water-rate paid by the cultivator; at a certain limit, long before the landlord's profits are reached, the canal-owner must, for his own sake, stop raising the rate."

‡ I say "generally," because there *might* be exceptional cases in which very poor lands, cultivated only by canal water cheaply obtained, would, by a rise in the water-rate, otherwise expedient on larger grounds, be thrown out of cultivation. But such cases would be very exceptional, and would not sensibly affect general results.

of the Government, to increase the water-rate anywhere near to the point at which, by such prohibitory rate, land would either be thrown out of cultivation, or reduced to dry cultivation.* I assume, therefore, the danger of stopping irrigation (both well and canal) as one of the obligatory limits to the enhancement of canal rates.

But it is very evident that no rise in the water-rate, short of a rise that would throw the cultivator's fields altogether out of irrigation, would affect the rent. If the cultivator were induced by the greater expense of canal water to fall back on water from wells, he would still pay the same rent, that is, the rate of rent for wet cultivation; for, as before shown, the rates of rent for fields irrigated by the canal do not materially differ from those irrigated by wells. I conclude, therefore, that no increase of water-rate at all approaching the limit necessarily observed by Government will ever reduce the landlord's rental; and that such increase may at any time be imposed without injustice to the landlord, who will continue to draw unimpaired the rental upon which the Extraordinary Revenue was assessed.

I may here advert to some of the considerations which must always in practice tend to keep the canal rates within reasonable bounds. First, as before observed, they must be uniform, if not over the whole extent of each canal, at least over considerable tracts of country; they cannot be differential in reference to the special advantages or each field. And uniform rates, applicable to extensive tracts, must necessarily be average rates of moderate pressure.

Reasons why canal rates can never be pushed beyond moderate limits.

1. They must be uniform

Next, in a country like the Doab, where wells may very generally be sunk, the water-rate must bear some reference to the expense of providing irrigation from wells. The rate may be raised beyond the value of well water wherever there are great facilities for procuring it, and the spring-level is high. But if it be raised above the average value throughout the Doab, or even up to that value, the demand would probably lessen so as seriously to affect the income of the canal. The rates must be kept moderate to ensure the whole supply being taken up. Whatever water runs off unnecessarily by the escapes, is a loss not only of canal revenue, but of increased produce and revenue to the country.

2. They must have some reference to the expense of irrigation from wells.

There are, indeed, tracts where the sinking of wells is, either from the great depth of the water, or some defect of the soil, impossible, or so expensive that they would not come practically into competition with the canal. Here, of course, the water-rate could be raised without any reference to the value of well water. If a specially high rate were introduced in such tracts, water might be taken nevertheless; and the enhancement might be pressed so far that, before it actually reached the limit of throwing fields generally out of irrigation, the landlord's rent might be encroached upon and lowered. But it seems far from probable that differential rates will be applied to such tracts. If they ever should be so applied, and in point of fact reduce rent upon which Extraordinary Revenue was based, no doubt the landlord would have a claim to a corresponding reduction. But it would be a very great and extremely improbable increase that would produce this result.

Exceptional tracts where well irrigation is unknown.

Again, the canal once introduced, gradually supersedes other kinds of irrigation; as Mr. Wynne remarks—"the choice lies between canal water and none at all." The cattle and gear required for the working of wells are superseded; wells disappear; and if a canal, which like the Eastern Jumna Canal, has been long in use, were suddenly denied to the cultivator, he could not resume irrigation from wells at least for some considerable time. The cultivator so placed must thus take the canal water at any price, or leave his fields unirrigated.

3. Canal supersedes well irrigation.

He is frequently even more helplessly the slave of the canal. For the percolation from its bed and channels not seldom softens the soil, makes masonry wells decay and totter, and renders the sinking of *kutcha* wells impracticable. Here estates, however easily irrigable from wells before the

4. In some quarters, canal destroys wells.

* There may possibly be some localities so naturally moist, that they produce crops nearly as good without as with canal water. It would be no great injury by a rise in the water-rate to throw these out of irrigation, and (which is the point at present to be looked to) the rent would not be much affected thereby.

canal, are now from its effects incapable of well irrigation, and entirely dependent on the canal. In this instance, it would evidently be unjust, a profiting by its own wrong, for the Department to enhance its rates above the natural expense of water as originally derived from wells. In either of the cases supposed in this and the preceding paragraphs, the matter would not be one of mere bargain between the Canal Officers and the cultivator, but one in which, the cultivator being at the mercy of the canal, it is the bounden duty of the Government to see that the demand is fair and moderate. To limit the water-rate only by the willingness of the cultivator to pay, would be a course both unjust and dangerous.

It is hardly necessary also to add that, in a great undertaking like that of a canal, there are certain other objects to be aimed at beyond direct income. If it were possible to devote the whole of the water to the production of sugar, indigo, cotton, &c., the increased income so obtained would not compensate for the abandonment of cereals, and the grand advantages expected from the canal in times of famine as a granary for the starving people, and a crop to the general revenues of the country. This may be taken as a reply to some of the theories in these papers; but really there is no conflict between the two objects of a flourishing canal revenue and the public interests; for I believe that, in practice, a moderate water-rate such as will utilize the entire supply of water in ordinary years, will secure both the highest income, and also best attain the political benefits above adverted to. There is no risk of the rate being enhanced in any degree to sacrifice these cardinal objects.

5. Political considerations.

Considering, then, all the grounds which must practically forbid the imposition of excessive water-rates, and restrict enhancement within moderate limits, it would appear that even with such enhancement, the rents of landlords will, in future, rise very much as they have hitherto risen, on the introduction of canal irrigation. Even with existing low rates the rent for canal-watered fields is not sensibly higher than for well-irrigated fields. And for reasons already given, it appears that it is not likely to fall materially below that standard.

Moderate enhancement of water-rate will not materially affect rents, even prospectively.

As a settlement on canal assets would not prevent the Government raising its water-rate, so neither would it impede the Canal Department in altering its channels for distribution. The withdrawal of water consequent on any such change, would constitute a fair and equitable reason for remitting the portion of the Land Revenue recorded at settlement as having been assessed upon profits created by the canal. But the closure of the branch of a canal must be a rare and exceptional event; and it would occasion injury and distress far beyond the loss to Government in Extraordinary Land Revenue. The extinction of property created by canal, and dependent on it, and the cessation of the means of support of the population developed by the canal, would probably for a time imperil not merely the Extraordinary, but even the Ordinary Land Revenue. This, of course, would happen only in tracts where wells could not be easily substituted for the canal; but it would be only in such tracts also that rents and the Extraordinary Revenue would be sensibly affected by the withdrawal of the canal.

Alteration of canal channels.

On a review of what has been said, I conclude that the relinquishment of Extraordinary Land Revenue would not be compensated by any special advantages, either of additional income from the water-rate, or of freedom of action in closing branches of the canal. Moreover, the proposed system involves this cardinal objection, that the Land Revenue of Government would be assessed on canal villages upon purely theoretical grounds, liable to vary with the views and fancies of each Assessor. Assessment would become a conjectural process of guessing what might have taken place without the canal. Instead of proceeding upon any such vague and recondite principle, the present system takes the safe and substantial basis of existing assets; and the assessment framed thereon becomes

Objections to proposed system.

the normal assessment; it being rarely and exceptionally that the estimate of Extraordinary Revenue [based on theory equally as in the other system] is looked to. In the one case the whole yearly demand from canal villages is founded upon guess-work; in the other, guess-work comes into play as an aid only on the possible occurrence of rare and unforeseen emergencies.* The proposed system appears to me thus not only to involve an unnecessary sacrifice of revenue, but to be itself objectionable in principle.

Looking now to the existing system, although I do not think that it is justly open to the objections above considered, I admit that exception may fairly be taken to it on two points.—

Two objections admitted against existing system.

1*st*.—It will leave the profits from increase of rental by irrigation introduced subsequent to settlement untouched; and,

2*nd*.—It has the effect of making some Settlement Officers under-estimate the profits from canals; in other words, it involves a loss in the "Extraordinary" portion of the Land Revenue.

The first of these objections was anticipated in a paper on the permanent settlement which I wrote in 1861; the second, I confess I did not anticipate.

Dated 5th December 1861, paragraph 63, *et seq.*

But it is clear from the papers now before the Government, North Western Provinces, that the present system may be liable to this objection. A Settlement Officer, with the principles asserted by Mr. Robert Currie, holds strongly in view (especially in the present condition of the Ganges Canal), the possible failure of canal irrigation,† and with the weighty feeling that he is making a settlement to hold good in perpetuity, shrinks from putting the full assessment on canal profits. It is true that, if the Canal fail, Government has declared it will consider the claim for a corresponding remission; still, as the whole assessment is imposed absolutely, he feels it to be a sort of injustice to ask the Zemindar to pledge himself in perpetuity to an assessment, "one of the elements of which is uncertain." Indeed, Mr. Williams, the Commissioner, makes it a point of common *honesty*, such as must influence every "*conscientious*" Officer:—"It must be borne in mind," he says, that a "conscientious Settlement Officer will not take half existing assets, knowing that the canal is, and ever will be, and *should* be, regarded as an uncertainty." So, likewise, Mr. Money says, that assessments on canal profits are "*in practice much less than one-half*; for the Settlement Officer, in view of the uncertainty of the canal supply, *would not venture* in making a perpetual settlement "to include the whole of those assets in his estimate." The same observation occurred in a demi-official letter from Mr. Money, stating to me his impressions upon the examination of the papers of many villages in Boolundshuhur. While according high praise to Mr. Robert Currie for the accuracy and intelligence shown in his proceedings, he alluded that, in consequence of the precarious nature of the supply of water, the full value had not been assumed for the profits arising from the canal.*

Settlement Officers under-estimate and under-assess canal profit.

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* This point has been well brought out in a Note by Mr. A. Colvin, submitted herewith.

† The uncertainty of the canal supply is, I think, pressed beyond its proper force. The supply on the East Jumna Canal has long been practically constant and steady; and so, no doubt, will that of the Ganges Canal, although the measures now in contemplation will probably for a time occasion an uninteresting interruption. It is the prospect of this interruption, I conceive, which weighs so heavily on some of the writers.

Besides, it is quite optional with the Zemindars to accept the assessment in perpetuity, or only for 30 years; and as they are said to have a lively apprehension of the canal failing, they are not likely to under-estimate the risk. If they elect for a permanent settlement, they do so with their eyes open.

‡ Such a result might be produced in two ways; (1) the ordinary jumma might be pitched too high, and the canal jumma too low, without affecting the Land Revenue. The settlement here would be faulty in principle, though the error would not be so fatal, as (2) where the aggregate demand is, by under-estimating the canal profits, pitched altogether too low. This latter is the result to which Mr. Currie's principles would tend. A deduction is first made from the existing average profits in consideration of the canal being precarious; the Land Revenue is then assessed on the remainder; the diminution of revenue thus falls upon the extraordinary portion of the jumma.

Mr. Money Writes—"as a rule, he (Mr. Currie) has not demanded the full increase that might be assessed on existing canal assets, because he has regarded the canal supply as fluctuating and uncertain. His jummas, exclusive of canal irrigation, are generally about the same as the old demand which was assessed and paid before the canal was in existence, and which was generally fair and moderate." On this it might be observed that the old jummas were calculated as a higher standard than is now observed; and that there must consequently at the present settlement have been a decrease of revenue if the resources had not, since the previous settlement, increased; and credit may fairly be taken by the canal for a portion of such increased resources.

With these papers are put a series of Notes by Mr. Currie, explanatory of his canal assessments. One cannot peruse these without perceiving upon what vague and uncertain grounds the Extraordinary Revenue has been estimated; how closely the Ordinary assets are intermingled with the Extraordinary; how the estimate of "natural capability" (*i. e.*, the latent resources which would have been developed even without the canal), must vary with the notions of each Officer; how unsubstantial and unsatisfactory the result, at the best, must be; and how dangerous and unwarrantable is the proposal to relinquish to the landholder, upon these arbitrary and conjectural data, any portion of the Government share of the existing rental.* The manner in which revenue fairly claimable by Government may be given up in consequence of mere theoretical assumption, will be abundantly evident from these Notes.

Ordinary revenue assessed on hypothetical grounds

Before considering whether any remedy can be applied to this tendency of under-estimating canal assets, I turn to the other objections above noticed, namely, that canal profits from irrigation introduced subsequent to settlement, will escape assessment—this involving two defects; (1) Government loses the revenue due from such profits; (2) estates so circumstanced will become more profitable than others, and the incidence of the Land-tax unequal.

II.—Profits from future extension of canal irrigation untaxed.

In a permanent settlement, or even one for thirty years, it is impossible by any arrangement accurately to estimate the latent resources and capacities for improvement in different estates, and to anticipate the circumstances under which these, variously developed, must produce more or less of inequality of assessment. It was very forcibly put by the late Colonel Baird Smith, that such variations could not be prevented without introducing a greater evil by continual interference, and checking the grand motive to exertion which the permanent limitation of the Government demand is expected to create. I fully admit, however, the prosperity from the influence of canals is an advantage which comes to the people with little or no exertion on their part; there is, therefore, in principle, no reason why profits from this source should not be laid under contribution, and the inequality of assessment arising from this cause reduced, so far as may be compatible with the principles of a permanent settlement.

Future profits not arising from exertion of landholders might consistently be taxed.

I do not, however, see that the projected system would obviate inequality more than the present; it would, indeed, as it seems to me, only make the inequalities more numerous. We now start with an equal settlement all over; the canal villages pay at the same rate as others; the inequality will arise only in *the future* from the extension of canal water to lands not now irrigated. But in the proposed plan, we should at once set out with an unequal settlement; the canal villages would be more highly assessed than others by the whole amount of their canal profits, while the cases of villages subsequently irrigated would be precisely as under the present system.

Proposed system more faulty in this respect than present system.

Formerly, canal profits came periodically under assessment, and thus at each re-settlement, yielded a full revenue to Government. As that will no longer be practicable in estates permanently assessed, and the increased profits arising from tracts brought under irrigation subsequent to settlement would thus escape assessment, it has been proposed, in lieu of the advantage

Differential water-rates will not suffice

* For example, I recollect the case of a village in the Moradabad District, which, many years ago, applied for a remission of revenue on account of land swamped by the East Jumna Canal. On enquiry, it turned out that the loss had been so enormously counterbalanced by canal irrigation, that the assets has increased four or five-fold. But though it was quite certain that this prosperity was mainly attributable to the canal, it would not be stated, with even any approach to exactness, what portion was due to the canal. Had there been no canal, still wells might have been dug, sugar-cane might, to some extent, have been grown; new lands might, perhaps, have been attained a rate would, undoubtedly, have increased in proportion; but what exact proportion of increase would have been attained without the canal, and what the remainder due to the canal, are points which no human sagacity could, with any precision, determine. Yet it is this which our Settlement Officers are, on the proposed plan, in every case to determine.

thus arising to the landlord, to levy a *higher water-rate* upon such tracts.* But on a consideration of the arguments advanced above, I am now doubtful whether the increased water-rate would adequately meet the object in view. No such increase of water-rate as the Canal Department would venture to impose, will prevent the Zemindar from asserting his claim to an increased rent; and rents will consequently go on in the future to rise and adjust themselves to the new state of things, very much as they have been doing already. If the rental be kept down by a high canal rate, it will be only in exceptional cases, or in a very limited degree. There always will be a surplus rental realized by the Zemindar. It is this which we wish to reach. And, as Mr. Crosthwaite has shown, it is "impossible to reach the landlord's profits through the water-rate." If Government is to share in these profits, it must be by some other arrangement, bearing not on the cultivator, but on the landlord.

I believe that a plan, something of the kind suggested by Mr. Crosthwaite, would to some extent secure this object. The following is a brief sketch of it: —

Plan suggested to meet these objections.

The assessment would be based, as at present, on the existing average assets whether attributable to the canal or not. The area of canal irrigation would then be looked to. A deduction would be made for fields formerly irrigated from wells, or otherwise than by the canal, but not irrigated by the canal; because the rental of such land is not materially altered by the change. Taking the area of canal irrigation remaining, the Settlement Officer would calculate approximately what average increase of assets is derived from it by the landholder, which would probably not have been realized had there been no canal. The assessment upon this would be estimated in the usual way, and the result recorded as "Extraordinary" (or Canal) Land Revenue. The remainder would be the "Ordinary" Land Revenue.

So far the new process would not materially differ from the present—take an example from Mr. Currie's statement.—The rental of Bhutola Hajeepoor is found to be Rupees 1,300; of this, it is estimated that Rupees 450 are due exclusively to the canal, and Rupees 850, the normal rental independent of the canal. Say that the area under canal irrigation is 200 acres; 50 acres were formerly irrigated from wells: so that 150 acres is the area, the rental of which has been enhanced by the canal. This area brings in an extra rental of Rupees 450, assessable at Rupees 225.

The entire assessment on the assets is Rupees 650, of which Rupees 225 are recorded as Extraordinary Land Revenue, and the balance Rupees 425 as Ordinary Land Revenue.

The Extraordinary Revenue, Rupees 225 (which, under Mr. Currie's system, would be remitted to the landlord), constitutes an integral part of the Land Revenue; though in the State accounts it would be shown to the credit of the canal. In case the canal failed, or for any cause the village were cut off from the canal, there would be a *prima facie* claim for remission based on the amount of Extraordinary Revenue. The remission might be more, or it might be less, according as the failure might show experimentally that the theoretical analysis of the Settlement Officer was sufficient or otherwise.

But suppose the contrary to happen, and the canal steadily to bring an increasing area under irrigation, is the landlord to benefit in the whole increase of rental without any increased payment to Government? Under present rules, he will do so, because it was thought that the reservation of a right to increase the demand on this account would create distrust, and nullify the benefits of a settlement in perpetuity.

If, however, these profits could be taxed according to a fixed rate easily applied, the objection might be obviated. The proposal now submitted is to apply the rate at which the Extraordinary Revenue falls on the area irrigated by the canal as an acreage rate according to which the area hereafter brought under canal irrigation would be

Proposal to tax future extension of canal irrigation at the acreage rate of Extraordinary Revenue.

* This proposal, called in the accompanying papers, "the system of differential rates," has been much misunderstood. It does not seem to have been contemplated to apply different sets of rates to the same villages, but to different and separate tracts. Higher rates might, e. g., have been demanded on the Furruckabad Branch of the Ganges Canal than on the Main Canal, because that branch was not constructed at the time of the settlement. The proposal was intended to catch some of the new profits and increased rental gained by the landlord. The system would have answered for a ryotwarree settlement; but as the water-rate will not in practice extinguish the Zemindar's increase of rent, and is taken from the cultivator, not from the landlord, the system would fail to attain the object in view, namely, to lay under contribution the increased rental obtained by the landlord.

Proceedings of the Madras Government, Public Works Department, 24th February 1869.

assessed with additional Extraordinary Revenue. But taking the analogous rule for enhanced profit by alluvion from rivers, no change would be made until the area under canal irrigation should exceed that at the last settlement by a large percentage, say 20 per cent. Wherever the average area, as found, say quinquennially, from the accounts of the Irrigation Department, is found to be in excess of that percentage, the Extraordinary Revenue would be adjusted accordingly. A corresponding revision and reduction would be granted in case the area were *reduced* more than 20 per cent., from causes beyond the control of the agricultural population.

Area to be the quinquennial average of Canal Returns.

To obviate frequency of change, it might be provided that no revision would be claimable on either side at shorter periods than, say, five years, (or it might be seven or ten); and that the calculation would then be on *the average* of the yearly Returns of the Canal Department for such period. Casual fluctuations would thus be left out of account, and the adjustment would be on average capability as from time to time found to be developed by the canal. The extraordinary profits of the landlord would be brought under contribution by a fixed and certain rule; while, at the same time, no alteration would be made suddenly, or upon any temporary and unimportant increase of irrigation.

Take as an illustration the case of Bhutola above referred to. The canal area is 150 acres; the Extraordinary Revenue, Rupees 225; the average rate is, therefore, one Rupee, eight annas. No alteration would be made so long as the increase of irrigation did not exceed 20 per cent., i. e., 30 acres. But supposing the average irrigation to increase from 150 to 300 acres, then the acreage rate would give an Extraordinary Revenue of Rupees 450, instead of Rupees 225; and the aggregate jumma would rise from Rupees 650 to Rupees 875, the whole, of course, being collected as Land Revenue from the landlord.

In case the water-rate were charged by measure [pymana], or by contract, the same proportion would be observed as exists between the charge as made by the Canal Department, and the estimated area represented thereby; the object being simply to realize from the landlord an additional rate corresponding with the amount of water-rate collected from the cultivator.

The same system could be adapted to new canals, or new branches of existing canals. The stipulation here would be that, in case lands were brought under irrigation from a canal, they would be liable to be assessed to the Land Revenue Extraordinary, by the application of an acreage rate not exceeding the difference between the average of the dry and of the wet rates for the village or pergunnah as assumed at settlement. Only in tracts where irrigation is unknown, (as in Bundlekhund, if a canal is ever constructed there), would it be necessary to determine a new rate for the purpose.

Zemindar's increase of rental would then be assessed approximately.

By this system, the profits of the Zemindars would be made roughly to yield a revenue to Government, and the inequality of assessment which results from leaving them wholly untaxed would be so far obviated. It is not pretended that any such assessment would be exactly proportioned to the profits in each case. These vary so greatly, that no average could bring them fully under adequate assessment. Thus, when canal water is substituted for well, there is little or no gain.* Dry cultivation changed into wet brings a large profit; but it will vary with the soil. Where waste lands are brought under the plough, and irrigated from the canal, the gains from the newly-created rental are the largest of all. But to assess the landlord in each case in exact proportion to the profit, would be, in reality, to make a new settlement of the Land Revenue—a proceeding inconsistent with the principle of a permanent settlement. We must either, therefore, relinquish the permanent settlement in all canal villages, or be content with a measure which gives only approximate results.

* Where the people are obliged, whether they will or not, to use canal water, in consequence of the destruction of their wells, and the impossibility of working new ones, a suitable consideration would be required in the adjustment of the Extraordinary Revenue on extended irrigation so caused. But in other respects, there would be nothing inequitable in obtaining the ordinary rate on this class of lands; and it would have the advantage of making the people keep as much as possible to their wells, and thus saving the canal water for other places where more urgently required.

It has been objected that the system would involve inquisition and interference, opportunities of fraud, &c. But under ordinary circumstances, no measurements or inquisition would be needed. The data would be supplied complete by the Canal Department. That Department must make a yearly survey of the area under irrigation, or in some other way, by measure, contract, &c., determine the amount of Canal assessment. If those data are sufficiently accurate for the imposition of the water-rate, they must equally supply a satisfactory basis for the new demand which is intended to be supplemental to the water-rate.

Data on which water-rate had already been collected.

Supposing this system to be sufficient to meet the claims of Government, would it, on the other hand, be in any way inconsistent with the principles of the permanent settlement, and by introducing an element of uncertainty, detract from the motives to industry and improvement anticipated from that measure? To this it may be answered that the elements of uncertainty are almost entirely eliminated. The acreage rate would be a fixed rate. The area to which it would be applied is a known quantity, already recorded by authority as the basis of the water-rate—a much larger demand of a cognate character. If the collection of canal revenue by the imposition of the water-rate is not inconsistent with the Permanent Settlement, where the landlord and tenant are often one and the same person, the imposition of another rate on the landlord, based on the same data, may be admitted as innocuous. If the assessment were in any measure levied, or could be enhanced, in reference to improvements *brought about by the capital or labor of either the landlord or tenant*, it would be open to objection: but no such result is possible. The people would reap the whole benefit of their own capital and their own exertions, and only a light tax would be imposed for benefits acquired alone through the agency of the State.

The tax would be certain, and would not be on profits produced by exertions of landlord or tenant.

Under the proposed system, the feeling which now weighs with some Settlement Officers to under-estimate the Extraordinary Revenue would no longer find any countenance. However scrupulous the Assessing Officer, he would, without hesitation, levy the full share of Government upon the canal profits, because he would know that, if the canal irrigation fell off to any material degree, the landlord would be entitled to call for a revision of his assessment.

If, notwithstanding what has been advanced in favor of this scheme, it be deemed to involve a degree of variability in the Government demand, inconsistent with a permanent settlement, I see no resource but to leave the existing system as it stands. But in this event, Settlement Officers should be warned that canal profits are not to be under-estimated from any apprehension as to their uncertainty;—the State taking upon itself the responsibility of the assurance that, wherever the supply fails, due attention will be given to a re-adjustment of the revenue, correspondent with the extent of loss and failure.

The only apparent alternative adherence to existing system.

From the Settlement Commissioner, Punjab, to the Under Secretary to Government, Punjab, in the Public Works Department, Irrigation Branch, dated 28th July 1868, No. 226.

As I have received the orders of Government in the matter of the principle upon which canal water assessments are to be made, and I am now about to give effect to the assessments previously worked out, by applying an acreage rate over and above the assessments previously fixed and announced in the unirrigated aspect, I deem it right to enquire of you officially whether, in giving out these new assessments, based on rates for canal-watered villages, it would not be advisable for your Department to take the same opportunity to announce, together with the Settlement Officer, the new rates it is proposed soon to demand for the use *of canal water for well*.

2. My reasons for urging this again, are given in detail in that second letter of mine to the address of Financial Commissioner, No. 215, dated 20th April 1867, copies of which were sent for distribution to Colonel Crofton; but in case you cannot lay your hand on it at once, doubtless Financial Commissioner will give you a perusal of the document.

Proceedings of the Madras Government, Public Works Department, 24th February 1869.

3. I am of opinion it is of the first importance, in the interests of the Canal Department, that the Settlement Officer should not act independently of the Canal Executive Officer, when announcing these new water revenue rates. The Zemindars are sure to ask if this increased water-rate, now to be taken on the Land Revenue side, for water already separately paid for, is the *whole* demand to be made on them for the entire twenty years' settlement. If asked, I shall be obliged in all fairness to tell them, that it is not; that the Canal Department contemplate raising their water use rate as well; but what the scale is, I am not able to say. It is to be apprehended that if left in uncertainty, these people, who are always more or less suspicious of our plans in connection with taxation in any form, may take all kinds of notions into their heads, simply from one in my position not being able to give them distinct information, which, whatever I may say to them, they will be sure to conclude I must have some knowledge of, or that I am not telling them all I know. The effect of all this, I am informed by intelligent men among them, might lead to an increasing fear of their being called to pay higher rates than they *feel* they can pay, and if such apprehension once seizes the public mind, I warn you that the inevitable result will be a decrease of irrigation, and falling away of canal receipts perhaps for the next year or two.

4. Such a risk should be avoided, and the simplest way is for you to announce your increased rates at the same meeting, or, if for any reason, this cannot just now be done, then at [illegible] rates. is extremely desirable that some Canal Officer should be deputed to attend when I announce my new rates, so that if questions are asked, which I do not know how to reply to, your representative can meet them.

5. When a new system like this is about to be introduced, and to take the form of additional assessment fixed on water by a constant rate to hold good for twenty years, we are bound to explain at the outset to those who engage for the same, *the terms of the engagement*, that there may be no future misunderstanding as regards Canal Ordinary water-rate, and Land Revenue *Extra* ordinary water-rate. The people all know that it is our intention to fix something above the assessment fixed on the land as simply unirrigated before. This was duly announced when the jammas were announced. I announced it myself at each sitting when the engagements were taken, so that there is not likely to be, nor will there be, any misapprehension on this head. But if it is hinted at even that a third demand, as it were, is to be made some day, no one knows when, in the form of increased water use rates, and these probably variable on a classification of produce grown, there will be a general murmur I fear. I may be wrong, but I know the people well enough to be convinced on this point, that they dislike disjointed taxation—one sum taken to-day, another at another time, and then an increase coming, but in what form no one knows.

6. Having my fears on this point, I deem it to be my duty to call your attention to it, and to say, that if there is no occasion for such apprehensions in your estimation, I am ready to accept your opinion; at the same time, if anything happens that should lead to a falling off of canal receipts, I hereby free myself of all responsibility in the matter.

7. It should be borne in mind, that His Honor the Lieutenant Governor has approved of my recommendation in his No. 366, dated 12th May last, "that this extra rate is to be levied only in the event of water being supplied from the canal;" from which I gather it is quite optional on the part of these rate-payers to take the water or not, as suits their convenience. This is a very important concession, which will tend, in my opinion, to assist you in discovering what is the true market value of the water, by the price the people are thus able of their own accord to agree to pay or not. This consideration will operate still more I think, in increasing the chances of canal receipts falling off, as well as Land Revenue taken in the form of rates, if a misapprehension gets abroad through the absence of caution just now.

8. Besides, I wish to point out, that if this new rule of Colonel Strachey's is to be carried out, limiting the proportion of water to be given to one-fourth or one-third of the area cultivated, cultivable, or irrigable, no time should be lost in letting the people know this, or the general property of the country will be thrown back. Not only is there an idea abroad that they may look forward, in good situations, to water whole areas, but old and good wells are being thrown out to

make way for canal irrigation, and as to constructing new wells, no one will consider this to be an advantage, until the existing misapprehension on this point is removed. If the new rule has been decided upon, then I am strongly of opinion that every village should be informed as soon as possible what extent, and what part or direction of the area, is to be thus allowed the canal advantage, so that it may be announced once and for all that for the remaining area they must look to wells if increased production is desired.

9. I know it may be urged against this, that Canal Officers are not in a position to say what exact part of the village can be watered,—the levels have to be looked to, the system has yet to be matured. But even allowing this, I presume the people are the best judges of what part of the village it would pay them the best to water from a canal if a limit to the area irrigated is thus to be fixed. Naturally, they will select their best lands which cannot now or hereafter be easily watered from wells, other considerations will come in, and this one in particular. They will all try and so arrange the canal area domain, that all alike may partake of this privilege. This will lead them to select such lands, lying in one or two spots, where the ancestral sub-division of the land comes best into play; and if I know the habits of the people, they will first choose those lands which admit of the growth of rice.

10. Now, in complicated arrangements of this kind, I presume that the Canal Department will always endeavour to meet this demand of voluntary selection, so as to encourage the people to apply the water to such parts as fall in best with their wishes. There will be no objection, I take it, to this important principle of letting the purchasers select the portions of the estate, and so long as they keep within the limit of area allowed, Canal Officers will set no restrictions on such arrangements.

11. All this points to the necessity of each village coming under what I term a *Canal Settlement*, and the sooner a Canal, or Settlement Officer, or both together, are appointed to go into these arrangements, make the settlement, and announce it, the better; whether the question is water-rate, extent of area to be watered, selections of the portions of area to be set aside, the emancipation of the rest of the area that resort to wells may be encouraged, position of the mogha and line of water course, the nomination of canal representation on the village, or series of villages lying in juxtaposition, arrangements for reporting alterations in the Field Map, wherever the full area has not been taken up for canal irrigation, and such like matters; all of which require a knowledge of the tenure, condition, and wants of each village, and full information regarding which can now be supplied to Canal Officers from the records of the new settlements, which I have had prepared expressly to meet this necessity, and which I know would some day be required.

12. For instance, there are the *new Field Maps* which are now considered reliable, and are being lithographed for canal purposes. Here is a record at hand, in which the *area to be watered* can be easily marked off according to the proportion to be allowed, and made known at once.

13. Then there are the new *Village Title-Deeds* which show in one glance the constitution, tenure, ancestral connection, divisions of inheritance, incidents and extent of the holdings of every proprietor and his shareholders; main division of the estate; the Government revenue paid by each; and the representative man through whom it is paid to Government. This document will prove most useful in guiding Canal Officers to arrange, with the aid of the Field Map, the *parts of village area* which shall form the *Canal irrigation domain*.

14. Then there is available *statistical information* of the position, capabilities, and *number of wells* in use, out of use, and capable of being restored; the area irrigated, and those to whom they belong; while in the Field Map will be found their names, and the limit of area colored in, as the area declared as the proportion of the estate *to be set apart in future for* [illegible] *construction* and future *development* of *irrigation* from *wells*, can at once be decided upon and announced.

15. Finally, there are the volumes of *Village Note-books* in English, in which each village has a separate statement to itself, with the Revenue Surveyor's map placed in juxtaposition, with the fullest particulars regarding area, resources, condition and circumstances; the revenue that has been paid from year to year since commencement of British rule; the amount, data, and reasons

of the new assessment; with remarks of Assessing Officers duly recorded on each. Such records will prove of the greatest use to the Canal Officer, who wishes to get a thorough insight into the circumstances and capabilities of villages which may take canal water.

16. Now, seeing that we have this information at hand, and carefully arranged, I think the time has come for a *regular canal settlement of every village*, as well as a Land Revenue settlement. I would earnestly point out the desirability of a settlement training being given to young, promising, and well selected Officers of the Canal Department, so that they may study the rural economy, the wants of the people, and the various incidents which combine to make the village system, and in what way that system is capable of being developed, so as to lead to increased production, or, in other words, enhanced rent; and a constantly increasing Land Revenue, which means further extension of irrigation leading to general improvement of the country, and protection of it against the recurrence of famines.

17. I enclose printed specimens of the valuable Settlement Records above described, that you may be the better able to judge of their extreme usefulness to your Department.

On cloth.	(1) Field Map of a village, with (2) Pedigree Title-Deed on the reverse.
In assessment portfolio Forms II, and III.	(3) Statement of wells. (4) Village Note-book of area, resources, &c.

It will be seen that the last great improvement we have hit upon is lithographing the Field Maps *on long-cloth*, which takes the impression even more clearly than paper, and is less liable to injury or fraudulent alteration. On the one side of these we show the entire local aspect; on the other is the Village Title-Deed or social aspect; thus giving, when lithographed, a most handy record of reference to any one who is ready to spend one rupee a copy for the same. This is sufficiently low to be within the means of every landed proprietor in the country to buy, not only as only as his own Title-Deed, but as containing the complete information of everyone who owns land with him in the same estate.

18. These records are available for every village that has been brought under revision of settlement in the six districts of the plains that have now been settled, comprising some 12,000 villages.

19. After consulting His Honor, the Lieutenant Governor, in regard to the proposition here put forward, I shall be glad if you will acquaint me, as soon as possible, how far you are disposed to receive these suggestions. I have addressed a letter, No. 277, dated 16th instant, in a very similar strain to Financial Commissioner, who, no doubt, will take your opinion. These two reports contain the subject matter of what I have been thinking of for four years, and now that my arrangements have been matured, I think it is right that I should submit these views to Government, and I repeat, that no time should be lost in deputing and training these Canal Officers, and effecting the Canal settlement of villages at present watered, or likely hereafter to be watered. If, indeed, Government is desirous of establishing the irrigation system on a proper and popular basis, by affording guarantees of bringing in the largest increase of receipts from Canal and Land revenue by the sale of water, on the acreage plan, and by taking up the schemes I have previously brought to notice, of affording new facilities for the extension of well-irrigation.

20. I have only two objects in view in encroaching on your time by addressing you on this important question; the one is, that the people may have a better chance given them of becoming more prosperous within the term of the new settlement; and second, that the very great anticipated increase in the revenues of the country, which are sure to be realized if the plan I advocate is fairly considered, may not be sacrificed, simply because there is no one ready to come forward and press the matter to notice.

From the Officiating Under Secretary to Government of the Punjab, in the Public Works Department, Irrigation Branch, to the Settlement Commissioner, Punjab, dated 15th August 1868, No. 834 I.

1. With reference to your No. 226, dated 28th July 1868, on the subject of the new water-rates, Barce Doab Canal, I am directed by His Honor the Lieutenant Governor to forward a

Memorandum by the Officiating Chief Engineer, Irrigation Works, and to state that the views expressed therein appear to be quite in keeping with the intentions of Government, which are, that the ordinary water-rate shall be uniform, and suited to the lands least able to pay, and that whatever special advantages may accrue to each village from local circumstances, shall be taxed in the form of an extraordinary cess to be determined by the Settlement Officer while the settlement is in progress.

2. This last cess, it is believed, that you are providing or have provided for, and all that remains is to determine the rate of the ordinary water-tax, and in this, there should be no delay. With a view to fixing this last rate as soon as possible, I am directed to request that you will be good enough to submit a schedule of the rates which you think may fairly be levied as ordinary water-tax on the Baree Doab Canal.

3. The Superintending Engineer, Western Circle, will be requested to desire the Executive Engineers to be present when the final engagements for the water advantage rates are taken from the cultivators. It will be necessary to warn them some time before, that they may make arrangements to prevent their other work being interfered with.

Dated 4th August 1868.

Memorandum by the Officiating Chief Engineer, Irrigation Works, Punjab, on Settlement Commissioner's No. 226, *dated* 28*th July* 1868.

Mr. Prinsep has sent me a proposal that the new water-rates for the Baree Doab Canal should be notified to the villagers at the same time as the rates to be levied as water advantage rate. I agree with him that to avoid, if possible, any misapprehension in the minds of the cultivators, it will be advisable to announce the two rates at the same time.

My own opinion as to the portion of the profits on which each rate is to be levied, is as follows. I consider the ordinary land revenue (barani rate) to be the tax on the capabilities of the land to produce a crop without any artificial irrigation at all.

The water advantage rate to be the tax on the *increased* capabilities of the land to produce a crop by means of irrigation from wells, but that in a tract of country where the water in the wells is brackish, the fact of sweet being supplied should be considered in fixing this rate.

The water-rate to be the tax on the *difference* in the cost of labour of irrigating by means of water on the surface and water in wells.

It has been ruled by the Supreme Government that these rates are to be uniform at least for large tracts of country. I consider that, if the same rates are not applicable to all the districts affected by the canal, these differences must be met by the water advantage rate, as otherwise we shall have two villages close to one another paying different rates for the water.

The water-rates on other canals have been fixed on four classes of crops :—

Class I.—Sugar-cane, gardens (per annum).
Class II.—Rice, tobacco, opium, vegetables, singharas (per crop).
Class III.—Indigo, cotton, wheat, and all ruboe crops (per crop).
Class IV.—All khurreef crops not mentioned above (per crop).

It will probably be necessary to adopt some such classification on the Baree Doab Canal.

Dated 3rd November 1866.

Note by C. B. Thornhill, Esq., C. S. I., *Senior Member of the Board of Revenue of the North-Western Provinces, on the subject of the connection between the water-rate and the enhancement of Land Revenue.*

I would send up these Reports to Government, and say, with reference to the letter of the Secretary, Government of India, Department of Public Works, Irrigation Branch, dated 6th July 1866, that the Board do not find any tangible grounds for supposing that the increase of land revenue in districts within canal influence can be said in any way to include any part of the charge for canal water.

Proceedings of the Madras Government, Public Works Department,
21th February 1869.

The Government Revenue is assessed upon the Settlement Officer's estimates of the rents received by the land-owner. Rents depend upon the productiveness of the soil, and among other causes which enhance the amount of produce is irrigation. Wherever the land-owner finds irrigated land, he demands and receives enhanced or irrigated rates of rent from the cultivator. Similarly, wherever the Settlement Officer finds irrigation, he assumes that enhanced or irrigated rates are paid for it, and assesses the Goverment demand accordingly.

The enhancement is the same whether the source of irrigation happens to be wells or canals, and the Board do not therefore perceive that the rent paid for irrigated land can in any sense be regarded as containing in it any share of the water-rate payable to the canal.

The cultivator provides the water, whether from wells or canals, in the same way that he provides manure; and he derives his return from the increased produce, notwithstanding the increased rent which he has to pay for the enhanced productiveness of his land.

As regards extraordinary revenue due to the canal, or "that share of the improvement in an estate from canal irrigation which is due to the Government as part landlord," the Board admit its existence theoretically, but they see no mode of ascertaining its amount with any approach to the truth.

So many considerations are involved, and so many contingencies must be taken into calculation, based not upon facts, but upon probabilities, that it seems impossible to lay down any rules upon which such investigations should be conducted.

For example :— the Collector of Saharunpoor says, that, though well irrigation is practicable throughout the greater part of his district, and is cheaper than that from canals, the latter is preferred: because it gives little or no trouble, and enables the cultivators to indulge in their fondness for sloth, so that the limit of water-rate for canals, as defined in paragraph 8 of the letter under consideration, has already been passed, and the margin of extraordinary Canal Revenue reduced to a merely imaginary amount.

The only fair approximate estimate would be the relative condition of a district into which canal irrigation has been introduced for several years, and that of another district with similar natural advantages, after an equal number of years of average prosperity. In such a comparison, the probability is, that the canal-watered district would show a marked superiority only in respect of those lands which ordinarily are dependent on the seasons, and in which well-irrigation is impracticable; and in such a case, a revision of settlement would give the Government a half of the enhanced rents of such land.

It would seem to be only fair, when estimating the items which are to be placed to the credit of the canal, to advert to the policy of the State in aiding private enterprize to construct means of irrigation.

Advances are liberally made by Government for the construction of wells or other permanent works of irrigation, without interest, re-payable at short periods, generally three years; the sole return looked for is the conversion of unirrigated into irrigated land, and the consequent improvement of the revenue at the next revision of assessment of land revenue.

Whether, then, the Government encourages the conversion of dry cultivation into irrigation by the construction of canals, or by making advances to enable individuals to sink wells, the principle upon which its proceedings are based, should be the same.

In the canal, interest for the outlay of capital is obtained in the shape of direct charge for the water. This is only fair because the water is conveyed to the consumers at a minimum expenditure of labour by them.

In addition to this interest on capital, the Government obtains half of the increase of rents due to the conversion of dry land into irrigated, whereas, in advances for wells, this is the sole return which the Government obtains.

The source, then, of the extraordinary revenue can only be the general improvement in the prosperity of the country, which may enable the Government to derive benefit either in the customs dues of an extended commerce, or by some direct tax; but though the canal may have contributed

to such increased prosperity, it seems problematical whether it can lay claim to any defined money credit on this score, and if any such be accorded, it will at best be an arbitrary amount dependent on the individual opinions of the Officers by whom the calculation may be made.

Dated 13th March 1867.

Minute by R. N. Cust, Esq., *Junior Member of the Board of Revenue of the North-Western Provinces, on the subject of the connection between the water-rate and the enhancement of Land Revenue.*

In a letter No. 501C, to the Secretary to the Government, North-Western Provinces, Public Works Department, Irrigation Branch, the Secretary to Government of India, in the Public Works Department, remarks as follows :—

"If the land revenue has been enhanced in consequence of the *lowness* of the demand for water-rates, then the canal should get credit accordingly. If it has not, there is no need to make any change.

"In the Government accounts, credit should be given to canal revenue for the *enhancement*, which, as a matter of fact, had been ascertained in each separate case to be due to the canal. Once ascertained, these amounts should be regularly entered under a distinct head in the accounts with precision; no mere approximate statement drawn up for the occasion should be trusted to. This would clear away all hazy reckonings by guess, and base the estimate of canal earnings on a system of proper accounts.

"This extra charge for water taken indirectly is not a share of the rent, and the Government, in its accounts, should treat it as water-rate, which it is: if, in point of fact, there has been no such indirect charge for water, the whole question falls to the ground.

"As regards the extraordinary revenue (assessed* under Circular No. I, of August 7th 1861), all that is to be said in this Department is, that it is most desirable to have, as early as possible, complete statements of it for each canal, as far as the calculation of it has yet gone; and that this statement should be communicated to the Chief Engineer of Irrigation, and any revision or progress in completing it, should be intimated to him from time to time, so that this part of the results of canals in increased land revenue, may find a proper place in his Annual Report."

* *Not assessed, only recorded.*

Accordingly, the Board of Revenue is requested to supply the Irrigation Branch of Department of Public Works, North-Western Provinces, with statements.

It is, indeed, most important to clear away all hazy reckonings by guess, and base the estimate of canal earnings on a system of proper accounts; and it appears therefore most advisable that the arguments upon which this claim is based, should be distinctly traversed, *and the claim itself distinctly and entirely negatived.*

It must be remembered that, though at present the canals of this part of India are Government concerns, and that the question therefore under discussion is only of transferring money from one pocket to the other, yet in the course of time these very canals may be transferred to private Companies, or, at any rate, other canals in these parts may be started by such Companies, and the same reasons will apply to such concerns as those managed by the State.

It must be remembered also, that, though the revenue of by far the greater part of the tract now irrigated by the canal belongs to the Imperial Government, yet, in process of time, it is possible that canals in these Provinces may traverse independent States; and in effect, the Western Jumna Canal in the Punjab does traverse the independent kingdom of Jheend. And in these Provinces, the revenue of the villages irrigated, or susceptible of irrigation from the canal, is assigned by ancient grants, or treaty to private individuals, who regard such revenues as private property.

We have to consider, therefore, what kind of claim the private Companies taking over the canals from Government would have against the Assignees of Government Revenue in these Provinces, or from independent sovereigns beyond those Provinces, to payments—*cash payments* (for hazy reckonings and paper credits would be of no avail at all—for improvement brought about by canal water, of which the full price has already been paid by the recipients.

It is clear that, *in law*, the canal can have no claim on the land beyond the price which is held out to the public as the price of the water.

And it must be remembered that much of the canal irrigation is merely* a substitute for well irrigation. The Board do not presume to dictate to the Canal Authorities, either the direction in which their water is to be distributed, the price which is to be paid for it, but they distinctly traverse any *legal* claim on the part of the canal to take credit for anything beyond the price of their water.

* *Vide* Settlement Report of Boolandshahur.

Nor could such a claim be sustained *in equity*. Canal water is not the only auxiliary to the productive powers of the soil. Wells are, in some respects, more useful as containing in themselves the element of certainty, which, to a canal (the whole power of which is at the mercy of a single masonry arch of an aqueduct) is wanting. A Company may be started to sink wells, construct embankments on scientific principles, or to lend money for such purposes, on the principle of Drainage Companies in England. It is intolerable to think that such a Company, acting on the example of the canal, might claim a share of the improved rental, in addition to the remuneration set out in its contract. So might the importer of guano, or other manure, the supplier of seeds, the Railway Company which conveys such articles as the above, the Company which contracted to supply immigrant, or skilled labourers, bring forward their claims, and the astonished land-owner would find the profits of his capital, his land, and enterprize, squabbled for by Canal and Railway Companies, the money-lender, the guano merchant, the seeds-man, and the contractor to supply labour. Such a claim could not be allowed for an instant in England, and I do not see how the canal interest, at this moment so dominant in India, can disconnect itself from the other interest with which I have grouped it, or can deny their claims, and yet continue in equity to urge its own.

If the canal still continues to press the remote and ulterior advantages derived from its construction, the land will be compelled to cry out and enumerate the many injuries, also of a remote and ulterior character, which have followed its introduction. Both or neither must be taken credit for. Passing over the vast sum of revenue lost annually to the State by the occupation of the area, the very insufficient compensation granted to the land-owners, there is the intersection of the country by barriers impassable except at certain points, the disturbance of the ancient system of well irrigation, the depopulation of some tracts by sickness, the injury caused in many places by noxious efflorescences on the surface, the removal of the population from their established places of industry, and their congregation in others, and, lastly, the frightful jeopardy, in the event of the head of the canal passing by overwhelming political considerations into hostile hands, or the supply being cut off by the failure of the aqueduct, on which the prosperity of millions depends. It is not asserted that the canal is not a great blessing, and that the water is not worth the price which is demanded, but it is not an *unmixed* blessing, and it is not expedient to press too far its too remote advantages or disadvantages.

It is not expedient to leave the question open, and in a vague way to credit to the canals certain paper credit: either the canal is entitled to the actual cash-payment, or it is not. I *maintain that it is not.*

If it were desirable in a general way to know what proportion of the increased rental is due to the canal, it would be difficult to ascertain: certainly a deduction of the wet rate from the dry rate of the village would not show it, for some canal lands were irrigated by wells previously, and therefore the canal has done *nothing*; and some land, without water, would have produced nothing, so here the canal has done *all*. Even after allowing for the cost-price of canal or well irrigation, the interest of capital expended in sinking wells, bringing manure, improved seeds, agricultural implements, skilled labour, imported labour, or a more expensive culture, still there

will be a residuum of excess of fertility, which will be owing to the capacity of the soil, and which must find its way to the owner of the soil, and justly so; and this excess may be described as being the difference to the effect of the same aids to productiveness (for which the full price has been paid) expended upon a comparatively bad or a good soil, and any attempt on the part of any one of the suppliers of the auxiliaries of productiveness to share this improved rental is, unless based on contract, simply spoliation.

Let the Canal Authorities raise their demand to the highest point, which considerations of the object of the enterprize will warrant, and be content with the profits realized thereby, to which, under law and equity, they are entitled, and no more.

It will be as well to consider historically how this (in my humble opinion) error first started into existence.

In the Jumna Canals, and in the Barée Doab Canal, the claim is, or was, unknown.

In 1854, the Ganges Canal was opened. In 1856, an order emanated (without consulting the Board) from Government, "that in all cases the land revenue should be fixed at such rates as would be taken were the crops dependent on the rains only, or on wells and works, the exclusive property of the Zemindars, for the water they need; and that in the case of villages irrigated from water, the property of Government, an additional charge should be made in the form of a *water-rate*, exhibited in account to the credit of the Irrigation Department."

In 1861, Settlement Officers were ordered to make the net rental the basis of assessment without reference to the absence or presence of irrigation. At this period, the water-rate appears to have been collected by the Canal Officers, but the Settlement Officer was ordered to show in a statement what part of the increased assessment was due to the increased value of the State caused by Canal Irrigation; and he was to show this in a statement for the pergunnah, noting the *increase* attributable exclusively to influence of canal, *and the decrease attributable to injurious influence of canal*. In fact, this was a settlement return merely to account for the variation of assessment, and not furnishing any data for a credit to the Canal Department.

In 1864, this was more particularly shown. The object was to have a record showing how far the revenue was dependent upon the canal, as though not in the contract, still, if water failed, the Government would be obliged to reduce its demand, *as it does when the rains fail*, and it would greatly facilitate the adjustment of such charitable reductions if trustworthy data were recorded. And in the event of the canal water-rate being raised, it would be prudent to have data upon which it could be decided whether a claim to reduction to assessment would be warranted. I find nowhere any warrant held out to the Canal Department to claim a credit on account of improvements raising in consequence of water already paid for at full rates.

I have had this matter under my consideration for three months, since my colleague recorded his Minute. I am sorry to run counter to the cherished views of the Managers of canals, though I feel that my views are more in the interest of extension of canal irrigation than theirs. It is idle to put forward a claim which is clearly unsustainable in *law*: it is suicidal to put forward a claim which is unsustainable *in equity*.

Extract from Resolution by the Government of India, Public Works Department, No. 12 I, dated 26th February 1867.

GENERAL FINANCIAL RESULTS IN 1864-65.

5. There are as yet no reliable data for fixing the exact sum for which credit should be taken by the Irrigation Department on account of enhancement of land revenue. The Board of Revenue has been called on for Returns on this subject, but these have not yet been furnished. It is understood, however, that they are in course of preparation.

6. In the absence of data for a more accurate calculation of profits, a statement has been framed on the supposition that water-rate and enhancement of land revenue together should yield Rupees 1-4 per acre irrigated, excepting only the Rohilkund Canals and the Agra Irrigation Works, where Rupees 2 would suffice.

Proceedings of the Madras Government, Public Works Department, 24th February 1869.

7. On this supposition, the Returns would be as follow:—

Series.	Capital invested end of 1863-64.	Gross Income. Direct.	Gross Income. Indirect.	Gross Income. Total.	Working expenses not including interest.	Profit or Loss. From direct income.	Profit or Loss. From total Income.	Percentage of Profit or Loss on Capital expended to end of 1863-64. From direct Income.	Percentage of Profit or Loss on Capital expended to end of 1863-64. From total Income.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.		
Ganges Canal	212,98,203	9,00,866	13,71,025	23,61,891	8,07,683	1,93,183	15,54,209	·86	7·30
Eastern Jumna Canals ...	16,78,256	3,39,458	5,79,273	9,18,731	1,28,807	2,10,651	7,94,924	12·85	47·36
Dhoon ,, ...	5,19,969	27,357	64,215	91,572	27,589	—232	63,943	—·04	12·34
Rohilkund ,, ...	3,20,190	47,537	1,47,759	1,95,496	81,903	15,834	1,63,593	4·81	49·67
Agra Irrigation Works ...	2,03,749	4,629	16,443	21,072	10,659	—6,010	10,403	2·96	5·10
Total ...	240,29,399	13,70,047	21,78,715	35,48,762	9,01,651	4,08,396	25,87,111	1·70	10·76

8. From the foregoing table it will be apparent that the whole of the North-Western Provinces Canals taken together contribute only sufficient direct income to pay 1·7 per cent. of the interest of the capital expended, so that, taking the market value of money at 5 per cent., there is a loss of 3·3 per cent. The smallness of that result is chiefly due to the present small return from the Ganges Canal, the capital expended on which is more than 88 per cent. of the whole capital expenditure in the North-Western Provinces. The Eastern Jumna Canal alone more than re-pays the interest on the capital expended.

9. The Lieutenant Governor remarks with regard to the amount assumed as the indirect income from enhanced land revenue, that the rate of Rupees 1 was assumed on the supposition that the water-rate should amount to Rupees 2-8-0 per acre on the three first, and 8 annas on the two last works, thus giving a uniform rate of Rupee 1-8-0 per acre for enhancement of land revenue. This is far from the case now, the water-rates being—

	Rs.
Ganges Canal	1·58 per acre.
Eastern Jumna Canal	1·43 ,,
Dhoon Canals	·77 ,,
Rohilkund Canals	·47 ,,
Agra Works	·43 ,,

10. Reliance cannot therefore be placed on the statement of total profits now submitted, and the Governor General in Council desires that no time may be lost in obtaining the returns of the actual enhancement of land revenue under preparation by the Board.

Dated 4th November 1868.

Note by COLONEL R. STRACHEY, R. E., *Inspector General of Irrigation Works, on the enhancement of Land Revenue from Irrigation.*

There are two distinct points requiring attention in connection with the enhancement of the land revenue consequent on the introduction of Canal irrigation.

First.—The system that may most conveniently be followed in estimating the amount of this enhancement at the present time.

Second.—The measures that may be taken to secure the due and prompt realization by the State of its fair share of the increased value of the land arising from such irrigation.

On the first point, there has been much discussion and much misconception. For the latter I am afraid that I myself am partly responsible. When the Government of India, in 1864, desired that the enhanced revenue due to canals might be ascertained and exhibited to the credit of the Canal accounts, words were incautiously used which were not correct or precise.

It was said that the enhancement of land revenue might be virtually equivalent to an increase of the direct water-rates, and so include a portion of the *charge* for canal water. Now this, it is plain, is not a correct statement. The truth is, that the enhanced land revenue which is due to the canal may properly be regarded as income due to the outlay of the capital spent on the canal works; but inasmuch as such land revenue is obtained as the Government share of the *rent* or *produce* of the irrigated land, this element of income is received by the State in its capacity of superior landlord, and not in its capacity of canal proprietor. It is thus clearly incorrect to speak of it as a *charge for water*.

From this erroneous expression arose much argument; and attempts have been made to show that the canals have no concern whatever with any increase of land revenue under any circumstances. It seems to me quite needless to enter on a discussion which is purely a verbal one. Whether what is technically called the Canal or Irrigation Department, is to receive credit in its accounts of income for the additional land revenue, is a purely administrative matter to be determined in an arbitrary way according to views of practical convenience. There is no room for an abstract argument on such a subject. Viewing the question as I now do, I consider that the special intention of revenue accounts of Irrigation Works is to place the Government in possession of the best procurable information as to the increase of revenue which has followed the investment of public money in Irrigation Works. It is in such a sense idle to discuss in what form the return comes to the State. So long as it is received, it should be treated as income in such an account, whatever be its origin, whether it be direct water-rate, or increase of land revenue, or miscellaneous receipts of other sorts.

So far as the enhancement of land revenue is concerned, the first thing to remark, is that no credit should be allowed unless *actual* increase of revenue has taken place, and can be distinctly recognized. The canal accounts have for some few years claimed credit for an increase which *should be*. Of course there is no meaning in such a claim. If the revenue has not actually been received, it is absolutely non-existent.

I have lately proposed, as a very simple, and, so far as I can judge, a quite sufficiently close approximation to the truth, to reckon the increase of land revenue on any irrigated land due to the irrigation, to be the difference between the present revenue and what the revenue was before the irrigation began. I am aware that this will of course include the increase of revenue due to the general rise of rents consequent on the improved value of land which accrues partly by mere lapse of time under a settled Government, and by reason of the increased wealth of the community, and so forth. It might be possible to estimate, with fair approximation, the ordinary growth of the revenue due to these secondary causes, and to make an allowance for it in arriving at the true increase of revenue due to the canals. My own opinion is, that it will not be worthwhile to do so. That, what is essential to the Government in relation to its capital outlay on Irrigation Works, is to know what are the aggregate results on the land revenue which follow the construction of such works. It will as likely as not happen that some of the general growth of the wealth of the community will depend on the Irrigation Works, and their proximity may quite readily increase the value of the neighbouring unirrigated lands. To attempt to estimate how each element of progress affects values, would be a task which seems to me quite out of place in relation to the object which we have in view, though its utility as a scientific investigation might not be questioned.

The proposal which I have made on this point manifestly involves no question of *principle*. All that is essential is that a reasonable plan shall be followed, and if it can be shown that a correction of the nature above spoken of can be readily applied, there can be no possible objection to such a course being adopted. What is to be avoided is any useless over refinement which may defeat the general object in view.

The immediate consequence of a clear and complete statement of the sums received as enhanced land revenue due to irrigation, will be, that we shall see on what portion of the irrigated lands this source of income is not realized. I feel assured that, if such precise knowledge had now existed, we should already have disposed of the second point to which I have above referred as calling for a few comments.

Proceedings of the Madras Government, Public Works Department, 24th February 1869.

Although I make not the smallest claim to credit in connection with the discussion of this matter, in which, indeed, I naturally only follow in the steps of the Revenue Authorities in the North-Western Provinces and the Punjab, still it is not to be denied that the origin of the proposals which have been made on the subject appears to have been the Government of India Resolution of August 1864, reviewing the Revenue Returns of the North-West Canals for 1862-63. In this paper, prominence was given to the importance of paying increased attention to the Canal revenues. The raising of the water-rates was directed, and the question of the enhancement of the land revenue was opened.

In the discussions which followed, Sir W. Muir indicated in very distinct terms the measures which might properly be taken in respect to the enhancement of the land revenue of lands improved by Canal irrigation. His specific proposals, however, were not assented to by the Lieutenant Governor of the day, who, I venture to think, failed to estimate at its proper value Sir W. Muir's suggestion. I must regret that I did not refer to the papers now before me when offering the observations I lately submitted to the Government of India on the subject of arranging for some system by which the landlord should be made to pay a fair contribution for the advantage which he receives from our Irrigation Works. On looking at the papers again, however, it is clear to me that my own opinions had in fact been in a great measure formed by the observations made by Sir W. Muir, and that I have only once more brought up suggestions originally due to him. In truth, Sir W. Muir leaves hardly anything more to be said on the subject.

Starting with the postulate that all needful legislative powers will be given for permitting the levy of a special rate on the landlord who derives benefits by irrigation after a settlement of the revenue has been made, which does not take notice of those benefits from whatever reason, I will briefly state what are the precise measures which would appear to be requisite for admitting of the levy of such a special rate in a convenient manner.

First, it seems desirable that no change whatever should be made in the system of settlement on this account. All that would appear necessary is to record distinctly what land has been considered to be irrigated at the time of settlement, and the revenue rate which may be held to have been assessed on such land, and on the unirrigated lands.

If in any year, or on an average in a series of years, as proposed by Sir W. Muir, the actual irrigated area exceeds the area recorded at the settlement, the proprietor might be held to be liable to the additional rate on the excess area. The ordinary Canal Returns will show the actual area from year to year, and the process of determining the amount of the special rate will thus be merely arithmetical, and will involve no fresh inquiries.

The amount of the rate might be fixed either at the time of settlement once for all, as has been proposed by Mr. Prinsep, or the difference between the average dry and irrigated rates recorded at the settlement might be taken to be the sum; or the special rate might be determined from time to time as occasion arose by making an estimate of the probable amount of increased rent that would be payable on irrigated land, and taking one-half of that amount as the special rate. In some cases the rate must be determined in this manner, as when land is free of revenue, or when the needful preliminary arrangements have not been made to meet the contingency in view, or when there has been a permanent settlement.

Such a special rate would best be calculated on average results and at a moderate computation of profits, so as to be generally well within the real half increase of probable rents. The proprietor of the land would be able to protect himself from unfair charges, *first*, by objecting to have irrigation at all on his land; or *second*, by proving that his rents were not increased. The first plan of objecting to allow irrigation is, however, questionable, because it seems necessary to give a tenant with rights of occupancy the power of irrigating his land without the landlord's consent. Where there are no such tenants, the objection might be permitted, probably; in fact, it is hardly possible that a landlord could object however.

As before suggested by me, the landlord might be permitted to charge a tenant with double the special rate paid on any irrigated land, in lieu of enhancing his rent. If the rent was enhanced

in regular course, the landlord would be liable to an adjustment of the special rate being made either by way of reduction if the Court decrees as the enhancement of the rent, a *less* sum than double the rate, or by way of increase if the sum fixed is *more* than double the rate.

I shall not attempt to discuss the possible advantages that might arise from any other system of realizing the Government demands in relation to Irrigation Works in Upper India, than that which actually exists. On the whole, it seems to me that the interests of the party that most requires protection—the tenant—will be best served by retaining the existing plan of making a direct charge on the occupior, determined by the actual area irrigated, and quantity of water used, and a further charge on the proprietor as an addition to his land revenue, or a special rate of like amount.

ORDER.—Ordered, that copies of these papers be forwarded to the Governments and Administrations noted in the margin, in continuation of Public Works Department No. 301—308 I, dated 16th October 1868.

Governments of Madras, Bombay, Bengal, North-Western Provinces, and the Punjab.
Chief Commissioners of Oudh and the Central Provinces.
Commissioner of Mysore.

(Signed) C. H. DICKENS, Colonel, R. A.,
Secretary to the Government of India.

No. 9 I.

To the Secretary to the Government of Fort St. George, Public Works Department.

No. 593. ORDER THEREON, 24th February 1869, No. 592.

IRRIGATION, No. 24. Ordered to be recorded.

(True Extract.)

Colonel, R. E.,
Secretary to Government.

To the Chief Engineer for Irrigation.
,, Revenue Department.
,, Board of Revenue.

Exd. E. C. Shunker.

Revenue Dept.
No. 614

Govt. of [1869] Madras.

PUBLIC WORKS.

[illegible] ENGINEER for IRRIGATION.

&c., &c., &c.

Dated February, 1869.

Recd. 26

Encl.

G. O., 24*th February* 1869, *No.* 592.

FEBRUARY.

Nos. 592-593

-Land Revenue.—Proceedings of the Government of India on the subject of the enhancement of Land Revenue consequent on the introduction of Canal Irrigation, recorded.

RECORDED