Revenue Department

No 51

Dated 12 — 1 — 1859

Mr Chevalier

No. 3. Read the following Extract from the Proceedings of the Board of Revenue, dated 10th December 1858, No. 4581.

Read letter, dated 11th September 1858, No.—, from J. W. B. Dykes, Esq., on special duty.

(In Con. 8th December 1858, No.—.)

In Consultation 15*th March* 1858. Ordered that the foregoing report be submitted for the consideration and orders of the Right Honorable the Governor in Council with reference to the Extract Minutes Consultation of the 12th March 1858, No. 329, R. D.

2. With a view to bring to a close a controversy relative to the true extent of the irrigated area in the Deltas of the Godavery and Kistna rivers in Rajahmundry and Masulipatam, the Government in the Proceedings referred to above intimated their intention of deputing specially to those Districts a Revenue Officer, "with directions to meet the District Engineers of the "Godavery and Kistna Divisions, and with their aid, to proceed to the actual measurement of "the irrigated area of four villages watered from the new Channels, two being selected by the "Collector and two by the District Engineer; the measurements so taken were to be compared "with the returns of irrigation to be sent in by the Tahsildars, and the whole submitted, through "the Board of Revenue, for the information of Government." The Officer selected and the District Engineer were also, in concert, to "cause to be reaped and measured a small portion of "the crop in each of the four villages referred to, and to calculate from the current prices of "the villages the value of the whole crop on one acre, including the straw, and to prepare a "statement to shew the net profit to the Ryot after meeting the expenses of cultivation, and "paying the Government demand."

E. M. C. 19*th in Con.* 20*th March* 1858, *No.* 359, *Revenue Department.*
E. M. C. 17*th in Con.* 24*th September* 1858, *No.* 1274, *Revenue Department.*

3. The Gentleman eventually appointed to the duty thus described was Mr. Dykes, and the report now recorded is the result of his investigations relative to eight villages irrigated from the Godavery. The four villages in the Masulipatam District watered from the Kistna have yet to be measured and reported on.

4. In reviewing this report the Board will purposely avoid entering into great detail. Fully to appreciate the value of the facts represented, it is absolutely necessary that the report itself should be perused with attention. From various difficulties attending the enquiry and abridgement of the report would be likely to mislead. In these Proceedings therefore, the Board only propose to shew briefly the mode of procedure, and the results as stated by Mr. Dykes, accompanying the statement with a few remarks, to aid the Government in forming their judgment.

5. They must also here observe, that although the report on the whole evinces much industry and intelligence, yet some passages, in which Mr. Dykes intends to explain his rules of calculation, are so obscurely worded that the Board have failed to arrive at the precise meaning. They will abstain however, from subjecting these to minute criticism, as they consider that sufficient is demonstrated to answer the object in view.

From Mr. Dykes 11*th September in Con.* 10*th December* 1858, *para.* 4.
Para. 17.

6. Mr. Dykes commenced his enquiries, with Captain Rundall, the District Engineer of the Godavery Division, on the 1st May 1858. The 2nd crop was then on the ground.

7. The Delta of the Godavery is divided by the channels which intersect it into three parts, called the Eastern, Central, and Western Deltas. Mr. Dykes' report is prefaced by a description of each of these; but is sufficient here to state, that the Eastern and Central Deltas are situated wholly in the Rajahmundry District, and the Western partly in Rajahmundry and partly in Masulipatam. Two villages were measured in the Eastern Delta; none in the centre; and six, four of which belonged to Masulipatam, in the Western Delta. Circumstances prevented the Survey being conducted with the same degree of minuteness in the Western as in the Eastern Delta. The mode of measurement pursued in each will be noticed separately hereafter. It will be convenient to give in this place the general statement, embodied in para. 72

of the report to shew the total extent of irrigated land in the eight villages as found by Survey compared with the Tahsildar's Returns :—

District and Division of the Delta.		Name of the villages.	Extent of the irrigated area according to the Tahsildars' Returns.	Extent of irrigated area according to the Survey.	Difference between Cols. 2 & 3 or extent of concealed irrigation.	Proportion of concealed irrigation to total area actually irrigated.
1		2	3	4	5	6
			Acres.	Acres.	Acres.	
Rajahmundry.	Eastern Delta....	Gundraidoo.....	728	795	67	8 per cent.
		Meddapaud.....	615	1,757	1,142	64 ,,
	Western Delta....	Seddantum...	906	1,313	406	30 ,,
		Moolapurroo.....	1,091	1,365	274	20 ,,
		Total...	3,341	5,232	1,890	36 ,,
Masulipatam.	Western Delta....	Chittapet.....	759	1,423	664	46 ,,
		Ogidy.....	108	496	388	77 ,,
		Casapad.....	675	852	177	20 ,,
		Comara.....	524	1,103	579	52 ,,
		Total...	2,066	3,876	1,810	46 ,,
		Grand Total...	5,407	9,108	3,700	40 ,,

8. Before drawing conclusions from this Table it is important to remember two things. First, that although the extent of cultivation according to the Tashildar's returns is here given in Acres, the land measure of the two Districts and that used in the village accounts is the Pooty ; and secondly, that the yearly settlement is made not on the actual cultivation, but by a Joint Rent.

See para. 96.

* *Memo. by Colonel A. Cotton, para.* 6. *Letters from Captain Rundall to Commissioner Northern Circars 25th July* 1856, *pages* 194 *and* 214 *of the printed papers.*

† *Bayley on land Measures dated 20th March* 1855.

9. The Board presume that Mr. Dykes has converted the Pooties into Acres, at the rate of 8 Acres per Pooty according to the practice recently introduced into the Rajahmundry District for convenience of account ; but Colonel A. Cotton and Captain Rundall* estimate the Pooty at 10 Acres, and Mr. Bayley† states that in some situations it contains as much as 11-52 and 12-8 Acres. If in viewing the Tashsildars' Returns, therefore, the Pooty was assumed by Mr. Dykes at 8 Acres, the whole excess found by Survey cannot be justly designated as concealed irrigation the term applied by him. If the Pooty be converted at one of the other rates mentioned, the Acreage of the Tahsildars' Returns will be increased considerably. Moreover, under a Joint Rent the demand is formed on general data, and not on accounts shewing the extent of the occupation of each individual and its assessment ; and in Rajahmundry, it appears from the Report of the Collector noted in the margin, the special water cess on the Joint Rent lands imposed under the orders of the Commissioner of the 3rd February 1854,‡ was fixed in the gross, and distributed by the Ryots among themselves on the principle regulating their joint responsibility. The inaccuracy of the District accounts of the area has always been dwelt upon by the Collectors ; but without an Establishment to make an actual measurement of the lands, the Tahsildars were necessarily in a great measure guided by these. As regards Inams also the water cess in Rajahmundry was laid on not by the Acre but by the Pooty. Thus the excess shewn in the last column of

From Collector 30*th December* 1856 *in Con.* 19*th May* 1857, *paras.* 3-18.

In M. S.

‡ *On this point see also E. M. C.* 22*nd July* 1857, *in Con.* 4*th August* 1858, *No.* 729, *Revenue Department, para.* 25.

From Collector of Rajahmundry 30*th December* 1856 *in Con.* 19*th May* 1857, *para.* 12·

the table given in para. 72 of the Report is founded on an assumption, not always correct, and the term *concealed irrigation* applied to the extent that it is by Mr. Dykes would if passed without remark be likely to mislead.

10. This circumstance however does not affect the correctness of the average rates of the so called water cess, and consolidated teerwa per Acre given by Mr. Dykes which will be noticed hereafter.

11. The Board now proceed with the review.

Para. 16.

12. Mr. Dykes did not content himself with ascertaining the area of cultivation, but concluding, very rightly in the Board's opinion, that such was the intention of Government, took into consideration also "the irrigation assessment entered in those Returns, to ascertain, if possible, whether the extent of land "thus found to be irrigated without being entered in the Government accounts has not been "brought to account in other ways ; or is really, as it is apparently, a dead loss of so much revenue."

Para. 17.

13. In the Survey of Gundraidoo and Meddapaud for the purpose of obtaining data for this enquiry, therefore, the native Subordinates placed at his disposal by the Executive Engineer "chained at his request, each "field, and recorded the extent of the land that had been cultivated with a first crop, and in "like manner the extent that had been cultivated with a second crop." He had it thus in his power, he states "not only to ascertain the total extent to which irrigation had been carried during 1857-58," but also the exact extent of Inam and Joint Rent lands that had been respectively irrigated, and to ascertain the average assessment per Acre under either tenure according "to the Survey."

Para. 40.

14. The Engineer of the Western Delta was not able to afford the means of having each field chained, owing to recent reductions in his Establishment and to six villages having to be measured in his range. Mr. Dykes states that he was therefore unable to "give for the Western Delta the total extent of irrigation as measured by crops and ascertained by Survey, or the actual extent of irrigation in the Joint Rent and Enam lands respectively." The average irrigation assessment was therefore ascertained as regards these six villages for the Joint Rent and Inam lands collectively.

15. In addition to this information in regard to area he obtained Statements of the Joint Rents for a series of years past, and of the separate water cess more recently imposed ; and adding these together, and distributing the total over the number of acres belonging to the joint rent, shewn by Survey to have been irrigated, he ascertained approximately the full average assessment paid by those lands.

16. The area as found by actual measurement, and as given "in the Tahsildars' accounts" has been shewn above in para. 7. The rates of water cess in 1857-58 calculated by distributing the sum recorded *under that Head* over the former extent is as follows :—

Villages.	Season of irrigation.	Tenure of Land.	Average irrigation assessment on extent found by Surveying.			Remarks.
			Rs.	A.	P.	
Gundraidoo.....	1 crop.....	Joint rent...	1	3	0	See paras. 20, 29, 40, 45, 51, 57, 62 and 65.
		Inám...	1	10	0	
	2 do.....	Joint rent...	...	...	...	
		Inám...	1	10	0	
Meddapaud.....	1 do.....	Joint rent...	0	4	6	
		Inám...	0	7	5	
	2 do.....					
Seddantum... ...	1 do..... ...	Joint rent and Inám.	0	8	1	
Moolapurroo. ...	1 do..... ...	Joint rent and Inám.	0	5	2	
Chettaput.....	1 do..... ...	Joint rent and Inám.	0	9	6	
Ogidy.....	1 do...	Joint rent and Inám.	0	3	9	
Casapad.....	1 do..... ...	Joint rent and Inám.	1	4	4	
Comara.....	1 do..... ...	Joint rent and Inám.	0	2	1	

17. The insufficiency of the additional water cess taken by itself as a return for the advantages derived from an abundant supply of water and Canal communication was decided by Government in the Proceedings noted in the margin;* but it remains to see whether any further compensation has been received from a rise in the Joint Rents. The following Table shews these for each village in 1845-46 and in 1855-56 or some subsequent year:—

* *E. M. C. 22nd July in Con. 4th Aug.* 1857.
E. M. C. 12th in Con. 15th March 1858.

Villages.	1845-46.	1855-56.	Difference.	Per centage.	
	Rupees.	Rupees.			
Gundraidoo	1,115	1,815	700	63	
Meddapaud	1,390	7,305	5,915	425	
Siddantum	2,796	3,118	322	11	
Moolapurroo	2,973	3,213	240	8	
Chettapet	2,621	* 3,286	665	25	
Ogidy	612	* 741	129	21	* 56-57
Casapad	1,165	* 1,754	589	50	
Comara	2,000‡	† 2,300	300	15	† 57-58

‡ Note for 1851-52 the village being till then under a Zemindar.

18. It appears from this Statement that in every instance there has been an increase in the joint rents, and in the cases of Gundraidoo and Meddapaud a very large one. But how far the rise is due to Irrigation alone, Mr. Dykes states his inability to decide with precision. Prices have risen considerably of late years, and would naturally affect a rent varying from year to year. There may also have been extension in the cultivation of land not irrigated. No attempt was made when the Hydraulic works first came into use to distinguish in the accounts the augmentation of rent attributable to an improved supply, and it is impossible now Mr. Dykes thinks to make a retrospective analysis on which full confidence can be placed. He ascribes it—the rise—chiefly however to the improved irrigation. It is plain therefore, that as far as the Government lands are concerned, the whole profit from the Hydraulic works is not represented by the so called additional water cess; though as regards *Inam lands* this forms the only return. In the case of Gundraidoo and Meddapaud Mr. Dykes makes an attempt to distinguish the portion of the increase in the joint rent to be ascribed to irrigation alone. The process he pursued is stated in paras. 25, 28, and 33; but after studying it with much attention the Board must confess that they have failed to understand it.

Para. 24.

19. It would be desirable to insert in this place a comparative statement of the revenue in a year before the annicut was built and the aggregate amount received in some recent year from the present joint rent, the water cess on joint rent lands, and the water cess on Inams; but the statements embodied in the report not containing exactly the same particulars for each village the Board are unable to do this. The following Table however meets the requirement to a certain extent, and exhibits the difference between the total revenue at the two periods:—

Villages.	Joint rent in 1845-46.	Joint rent in 1857-58.	Water cess on Ináms.	Water cess on joint rent lands and Ináms.	Total columns 3, 4 and 5.	Excess in col. 6 above col. 2.	Per centage.
1	2	3	4	5	6	7	8
Gundraidoo	1,115	2,253†	831	.....	3,084	1,969	176
Meddapaud	1,390	7,546†	14	.....	7,560	6,170	444
Siddantum	2,796	3,168	.....	669	3,837	1,041	37
Moollapurroo	2,793	3,413	.....	451	3,864	1,071	38
Chettapet	2,621	3,285	.....	1,136	4,421	1,800	69
Ogidy	612	741	.....	118	859	247	40
Casapad	1,165	1,517	.....	1,085	2,602	1,437	123
Comara	*2,000	2,300	.....	146	2,446	446	22
Total...	14,492	.....	.....	.....	28,673	14,181	89
Average...	1,811	.....	.....	.....	3,584	1,773	98

* For 1851-52 the village being previously under a Zemindar. † Include water cess on joint rent land.

20. It is thus seen that the Revenue from the eight villages surveyed has increased on an average 98 per cent. since the irrigation has been improved. In a Table appended to para. 77 of his Report, Mr. Dykes has attempted to shew the average consolidated Teerwa per Acre (composed of a proportion of the Rent with the addition of the water cess) on the Joint Rent lands, and also the portion thereof which he calls the irrigation assessment. The latter, as regards the majority of the eight villages, corresponds with the special water cess given above; but for Gundraidoo and Meddapaud he has separated a part of the increase in the Joint Rents and added it to this Water Cess, and in Siddantum a slight difference is observable which is not explained. The process adopted in Gundraidoo and Meddapaud is stated in paras. 25 and 77; which the Board in para. 5 have already confessed their inability to understand; and as the matter, though interesting, does not appear to form an essential part of the present enquiry, they will not spend time in making any further remark but give the Table as it stands. The consolidated Teerwa would appear to include a share of the village expenses, which though certainly a burden on the land, does not strictly form part of the assessment of Government.

District and Division of the Delta.		Names of the Villages.	Total Area irrigated according to the Survey.	Irrigation assessment according to the Tahsildars' Returns.			Average assessment per Acre on total Area irrigated.			Average consolidated assessment per Acre on Joint Rent lands.		
1		2	3	4			5			6		
			Acres.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
Rajahmundry.	Eastern Delta...	Gundraidoo	795	1,751	4	10	2	3	5	5	12	1
		Meddapaud	1757	2,394	0	9	1	5	8	2	9	0
	Western Delta..	Siddantum	1313	775	0	0	0	9	5	4	11	0
		Moolapurroo	1365	444	0	0	0	5	2	4	8	0
		Total...	5,232	5,364	5	7	1	0	4	0	0	0
Masulipatam.	Western Delta..	Chettapet	1423	849	2	3	0	9	6	4	2	0
		Ogidy	496	118	6	0	0	3	9	3	5	0
		Casapad	852	1,085	7	4	1	4	4	2	8	1
		Comara	1103	146	0	0	0	2	1	3	2	9
		Total...	3876	2,198	15	7	0	9	0	0	0	0
		Grand Total...	9108	7,563	5	2	0	13	3	0	0	0

21. Before quitting this part of the subject, the Board will briefly advert to another obscure part of the Report, viz. para 22. In this Mr. Dykes uses the term "*Area actually irrigated*" and "*total extent of irrigation*" in contradistinction to each other; meaning by the first, apparently, the area of wet land cultivated with one crop, and by the second the same with the addition of the extent cultivated with a second crop. If this construction be correct, the Board do not think him right in his deduction that taking 2,136 as the consolidated Irrigation assessment of the village of Gundraidoo the consolidated assessment per Acre is nearly six Rupees on the "*Area actually irrigated*" and nearly four Rupees on the "*Total extent of irrigation.*" It may be four Rupees per Acre per crop, but the *extent* of land irrigated is not increased by the same land being irrigated *twice over*; and, therefore, the average assessment obtained for each *Acre* was nearly *six Rupees* and not nearly *four Rupees.*

22. Before offering an opinion on the general result, the Board will notice the experiments made by Mr. Dykes, in concert with the District Engineer "to "ascertain the value per Acre of the crop, including the Straw at the current "prices of the village, and the net profit to the Ryots after meeting the expenses of cultivation "and paying the Government demand."

Para 91.

23. The experiment was made in two crop land in the villages of Gundraidoo and Meddapaud. As before mentioned, when Mr. Dykes commenced his enquiries the second crop was on the ground. The first crop which is by far the most valuable had been reaped long before. Consequently it was only the produce of the second crop that he could ascertain by actual measurement. To this he added the average yield per Acre for the first crop assumed at the quantity estimated by the D. P. W., viz. 1800 lbs. of Paddy per Acre. He added the value of the straw, but deducted again the value of that portion of it put back into the earth as manure. The cost of cultivation he calculated at 5 Rupees per Acre for the first crop and 4 Rupees 4 Annas for the second. The price per Pooty was taken at 13 Rupees for the first crop* and 10 Rupees for the second crop†.

Para. 91.
Para. 99.
Para. 100.
Para. 103.
Para. 96.
* *Para.* 101.
† *Para.* 95.
Para. 102.

The total demand on account of Government was obtained with regard to Inam land, by adding the Assessment on the second crop to Rupees 2 irrigation Assessment per Acre for the first crop; and with regard to other lands by adding similarly the Assessment of the second crop to the average per Acre of the consolidated joint Rent, as also a share of the village expenses.

24. The value of the probable total produce per Acre of a first and second crop Paddy, calculated in the manner described above is shewn in the subjoined Table.

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mand their proper value, and it is not to be expected or wished that the present unhealthy state of things should continue. Mr. Dykes then in the succeeding para. describes the trouble and expense to which villages at a distance from the Canals are subject and strongly recommends "that measures should be at once taken to secure land for the formation of roads, before it is all appropriated." Every year he remarks "land will become dearer." The Board would recommend that the Collector may be authorized to adopt this course, and to apply for sanction for payment of the sums at which on enquiry he may find the necessary land may be procured, when it proves to be in private occupation. In tracing the lines it is desirable that he should be assisted by the advice and co-operation of the District Engineer and his subordinates.

31. In para. 70 Mr. Dykes embodies a Statement shewing the extent of land cultivated with Paddy sown broad cast in four villages in the District of Masulipatam, This practice which he considers a low description of farming, is, he states, growing out ; but it is seen still to exist in Ogidy to the extent of 61 per cent. The village is described as miserably poor ; and to this poverty he ascribes the mode of cultivation. As a remedy he advocates (para. 71) a temporary reduction in the general irrigation rate ; but the Board feel unable to support the recommendation as the effect of a reduction of charge may be to foster instead of abolish the broad cast system, and the Government have already expressed themselves adverse to a reduction under similar circumstances. The Collector's attention is requested to the remark that the Tahsildar forces the Ryots to cultivate more land than they actually require. This practice has been forbidden* in the most decided terms, and care should be taken that the orders of Government in this respect are obeyed throughout the Masulipatam District. No system could be adopted so certain to render permanent a state of depression in any village.

* *E. M. C.* 12*th in Con.* 15*th March* 1858, *No.* 329 *para.* 15.

Para. 63.

32. In Casapad, belonging to the Masulipatam District it is noticed, that while according to the Tahsildar's own Returns the separate Irrigation assessment on the total area is Rupees 1-4-4 per Acre, some kinds of Inam lands are permanently assessed at a water tax of only eight Annas and others at four Annas per Acre. In the latter instance the land is said to be, really, no longer held as Inam, but to have been resumed and assessed under a recent enquiry ; but to be still kept separate in the accounts, assessed favorably as regards the Joint Rents, and thus to have become favorably assessed also as regards Irrigation. This treatment of these land requires to be explained, and the Collector will be pleased to make it the subject of a separate and early report.

33. Another matter of interest is the ascertainment, as far as his enquiries are concerned, that black Cotton soil can be irrigated with much profit. Of four classes of soil given in the statement embodied in para. 102, the produce of this description was the highest ; and it is shewn in para. 107 that in Gundraidoo in 1857-58 nearly twice as much black Cotton land was cultivated *with a second crop* as all the other varieties put together, and a far greater proportion of it irrigated by *lifted water* compared to the other descriptions of soil. The facts are striking, and form important evidence in regard to the value of water to black land, but the Board will await the more extensive experiments which will be made in the course of the General Survey and Assessment now in progress, before coming to a decided opinion on the point. There may perhaps be some admixture of sand or other earth in the black Cotton lands of Gundraidoo, which render them more grateful for moisture than the black Cotton soils of other tracts.

34. On this point the Board have received an important letter from the Collector of Masulipatam forwarding copy of a letter† addressed by him to the Professor of Chemistry and of that officer's reply.‡ Mr. Knox informed Mr. Mayer that "since the construction "of the annicut across the Godavery and the consequent spread of water over lands hitherto "only moistened by rain, there has appeared in very many places a salt in the soil which by the "third year renders the ground perfectly nude of all vegetation, and it is supposed in a few years "the land will recover its power of production."

In from Masulipatam, 9th February in Con. 31st March 1858. † 22*nd January* 1858. ‡ 28*th January* 1858.

35. The evil Mr. Knox stated had become extensive, and having observed that it occurred chiefly in lands were saltpetre is produced, he formed an opinion "that the great increase

"of water dissolves some constituent in the soil destructive to vegetation which was innocuous "as long as it remained in a mineral state, the rain being insufficient either to dissolve it or "perhaps to reach it."

36. Mr. Mayer had little doubt of the correctness of this opinion, but requested that some samples might be sent to him, after examination of which he promised to acquaint the Collector with the result, which the Collector also promised to report to the Board.

37. As no further communication on the subject has been received from Mr. Knox, the Board request that he will furnish copies of any correspondence which has since passed with Mr. Mayer without delay.

38. In conclusion the Board cannot but express an opinion, that the doubt which has existed in regard to the returns derived from the Godavery Annicut is a good deal owing to the incompatability of a distinct Water Cess with the Renting System. A Rent requires no account of Area, but such accounts were taken for the water cess, and this plan seems to have led to the false Estimate made of the profit to Government for the water. For it is seen, on reference to the Report noted in the margin, that the Cess was something *additional* to the Teerwa of the land cultivated ; whereas, it is evident that the every large accession to the means of irrigation must have brought a great deal of fresh land into cultivation, and that the whole revenue derived from such land, and not a part of it only represented by the Water Cess, was due to the Annicuts. This circumstance explains the apparent anomaly of the large increase in the Rent of Meddapaud simultaneously with the levy of a considerable water cess, both being occasioned by the improved irrigation. It is evident that the trifling water cess shewn in para 6 would not incapacitate the villagers from increasing their Rent year by year as their cultivation extended, and such an increase is probably as much the consequence of the Annicut as the water cess itself. The establishment of a separate Head of water cess, therefore, during the continuance of the Rents has operated to conceal the real Returns from the works of irrigation instead of distinguishing them. It would have been better, as a matter of account, that, *as regards the area of the Joint Rents*, the whole increase year by year, in each village should have been entered as an increase of Rent, and that the Revenue Officers in their Reports should have pointed out how much thereof, in their estimation might fairly be attributed to the works on the Godavery. They then in their Reports, would scarcely have omitted to credit the works with the *full tax* of a proper share of the extended Cultivation.

From Collector of Rajahmundry 30*th Dec.* 1856, *para* 3.

(A true Extract.)

(Signed) J. D. SIM, *Secretary.*

No. 4. ORDER THEREON, No. 51 ; dated 12th January 1859.

Para. 1. In these proceedings the Board of Revenue review the report furnished by Mr. Dykes on the result of his investigations relative to eight villages irrigated from the Godavery.

2. The Government concur generally in the several conclusions to which the Board have arrived, but as Mr. Dykes' investigations are yet incomplete, it would be premature to express a decided opinion as to the result, which will be better known when he submits his next report in accordance with the orders of Government 11th December 1858 instructing him to remain on the Delta a further period to continue his enquiries. It will however be the duty of Mr. Dykes meanwhile to elucidate the several points which the Board consider to have been placed before them in an obscure manner.

3. In para. 30 of their Proceedings, the Board, referring to the representation made by Mr. Dykes of the necessity for the formation of roads from the canals to the villages situated at a distance from them, and to the probable difficulty that may be experienced hereafter in obtaining land for that purpose, recommend that the Collector may be authorized at once to take measures for securing the required land, and to apply for sanction for the payment of the value when it happens to be in private occupation. The Government accede to this recommendation, and request the Board will instruct the Collector accordingly. As suggested by them the roads will be laid out with the advice and co-operation of the Engineer Department.

(Signed) J. D. BOURDILLON,
Secretary to Government.

From

J. W. B. DYKES, Esq.,
On Special Duty.

To

J. D. SIM, Esq.,
Secretary to the Board of Revenue.

Sir,

With reference to the Minutes of Consultation in the Revenue Department, under dates the 12th and 19th March last Nos. 329, and 359, I have the honor to submit for the consideration of the Board, and the information of Government, the results of the enquiries, made under the above quoted Minutes of Consultation, in the Delta of the Godavery.

2. The larger portion of this Delta is in the District of Rajahmundry; but, according to present arrangements, there is a portion also, that is included in the District of Masulipatam; and my orders were to measure the irrigated area of four villages in each District, with the assistance of the District Engineer; and compare the measurements so taken, with the returns of irrigation sent in by the Tahsildars.

3. Two of the villages in each District were to be chosen by the Collector of the District, and two by the District Engineer; in concert with whom, I was further ordered to have a small portion of the crop in each Village, reaped and measured, with a view to ascertaining the net profit to the ryot per acre on the land in question, after meeting the expense of cultivation and paying the Government demand.

4. I met Captain Rundall the District Engineer of the Godavery Division, and commenced these enquiries on the 1st of May; and I would now take the opportunity of placing on record my sincere thanks for the cordial assistance and hearty co-operation, which I have received from that day, to the close of these enquiries, not only from Captain Rundall and the other Officers of the Department of Public Works, but also from Mr. Purvis and Mr. Knox the Collectors of Rajahmundry and Masulipatam, and the Officers of the Revenue Department generally. If these enquiries tend to throw any additional light on a most important subject, most assuredly I am much, if not entirely, indebted to others for the result.

5. And now also before entering into details, it will make those details more clear and intelligible, if I first give briefly the hydrography of this Delta, of which the computed area is 3,000 square miles. It will show more clearly how each of the eight villages was situated as regards irrigation, and as regards that all important point, the means of sending the produce to the best market.

6. The vast alluvial plain, through which the Godavery finds its way to the sea, is divided by the river into three portions; the Delta proper, and the two portions lying on either side of it, but the whole plain is loosely called the Delta of the Godavery; and the three portions are known as the eastern, western, and central Deltas.

7. The dam, by which the waters of the Godavery are raised, for the irrigation, and inland navigation, of these Deltas, has been built across the two branches of the river, a few hundred yards below the point, where the parent stream is finally divided by the head of the Delta proper. The river here flows nearly north and south, and the dam rests on the east bank at Dowlaiswarum, on the west at Vigaiswarum. These villages severally name the head sluices, by which the eastern and western Deltas are respectively irrigated; and the dam itself is known by the name of the "Anicut," the tamil word for dam, which has now taken root in a teloogoo country, and will serve to show hereafter, that the idea of such hydraulic works was first fully developed, in this presidency in the tamil countries in the south.

8. The eastern Delta is irrigated and navigated by 3 canals which are drawn off from the river, through one set of head sluices at Dowlaiswarum, and continue in one channel for several miles, they then branch off at intervals, to Samulcottah, a Military Station; Cocanadah the chief port for the foreign trade; and Coringa, which has a large share of the coasting trade. They are severally 28, 32 and 38 miles in length, and the Coringa canal is in reality a branch, from the direct line to Yanam, a small French Settlement near the mouth of the eastern Godavery.

9. The Samulcottah canal is a high level channel, by which taking advantage of the rise out of the Delta, the waters of the Godavery have been carried, some height above the general level of the Delta, through a new country. The Cocanadah canal on the other hand follows the course of the Thoolia Bagha, which was an old irrigation channel, and once apparently one of the regular outlets of the Godavery. Whilst the Coringa and Yanam canal is a bank channel, which follows the present course of the eastern Godavery, and takes advantage, in its direct line to Yanam, of the peculiarity in all Delta rivers of raising their bed and banks above the general level of the country through which they flow.

10. Full advantage has been taken in the central Delta of the self raised river banks. A channel has been carried down either bank of the Delta proper towards the sea; and the western channel furnishes further a branch that is carried by an aqueduct of 750 yards in length, into the Talook of Nuggarum; which is completely divided from the central Delta by a minor branch of the western Godavery. Both the bank channels of the central Delta are navigable for 34 and 20 miles respectively; and there is a central channel as well, which is also navigable for 34 miles. This channel runs to Amlapoorum where, I am informed, cultivation has been carried to a very high pitch by a body of south country men, who are said to have emigrated from Tanjore some 200 years ago. They have several original grants, and now number many villages.

11. In the western Delta there are four main lines of irrigation and navigation, which may be briefly described as the bank, Nursapoor, Akeed and Ellore canals; and these again have branches, some of which are more or less navigable, but need not be noticed here. The Nursapoor and Akeed canals communicate direct with the sea; and by the Akeed canal, which corresponds in some respect to the Cocanadah canal, grain can be sent within 12 miles of Masulipatam by inland navigation. The Ellore canal, like the Samulcottah, is a high level channel, which completes the irrigation of the upper portion of the western Delta, and gives a direct line of water carriage right across the whole Delta of the Godavery. The total length of the four main channels in the western Delta, so far as they are navigable, in ordinary seasons, is respectively 22, 45, 46, and 36 miles.

12. The three separate systems of canals of which an outline has now been given form the main features of the Godavery Delta, which may be considered to stretch east and west from Samulcottah to the Delta of the Kistna. The Delta of the Godavery is divided from the Delta of the Kistna by the Colair lake, the Marootair, the drainage into, and the Oopootair, the drainage out of the lake, which as its name implies is a salt water creek. The Colair itself, it may be here mentioned, is in reality a back water, which has been probably formed by the gradual growth sea-ward of the two Deltas, and into which the tide would still flow, if not prevented by a small dam across the head of the Oopootair. It is fed both by the Kistna and the Godavery, and by the aid of the dam the water in the lake is kept fresh for the purposes of irrigation.

13. The eastern and central divisions of the Godavery are altogether in the District of Rajahmundry; but the western Delta, which includes all the country between the western Godavery and the Delta of the Kistna, is divided between the Districts of Rajahmundry, and Masulipatam; and the division is most aukward. The fiscal arrangements have not followed in this instance the natural division of the country, and I shall subsequently beg to refer to the consequences. I will now only add that the whole of the water for the three divisions of the Godavery Delta is drawn off from the river, in each, by one set of head sluices; and from the commencement of the rice cultivation in July, I have been informed on all sides, that there is at present a full supply over the whole Delta up to February, when the second crop of rice is planted, and the water falls in the canals so much as to limit the extent of this cultivation, and in many places stop navigation. But for the rest of the year there is a free water carriage over the whole Delta. The canals of each division for the purposes of navigation communicate by locks with the river, which completes the lines of navigation. And it is scarce possible to over estimate the immense assistance thus given to the ryots in the disposal of their produce. It is an advantage that has no parallel in any southern District, or perhaps in India.

14. Two of the four villages to be measured in the Rajahmundry District, were selected on the Cocanadah and Samulcottah canals in the eastern Delta; and at the request of the District Engineer, these villages were measured by Mr. R. Smith the Executive Engineer of the eastern Delta. His measurements show the exact area that was irrigated in each village from the Dowlaiswarum head sluices during 1857-58; and the results thus obtained are compared in the annexed table with the irrigation Returns, as sent in by the Tahsildar and passed at the annual settlement.

STATEMENT *of the results obtained on comparing the irrigated area, as shown in the Irrigation Returns sent in by the Tahsildar, with the irrigated area, as ascertained by Survey, in the two undermentioned villages in the Talook of Bickavole and District of Rajahmundry.*

Name of the Village.	Extent of irrigated area according to the Tahsildar's Returns.		Extent of irrigated area, according to the Survey.		Difference between columns 2 and 3, or extent of concealed irrigation.		Proportion of concealed irrigation to total area actually irrigated.
	Acres.	Yards.	Acres.	Yards.	Acres.	Yards.	
Gundraidoo	728	2208	795	3841	67	1632	8 per Cent.
Meddapad	615	113	1757	1996	1142	1882	64 „
Total...	1,343	2,321	2,553	997	1,209	3,514	47 „

15. From this Statement it will be seen that there was a difference between the irrigation Returns sent in by the Tahsildar, and the results obtained by actual measurement, in one village of 67 Acres, and in the other, of no less than 1,142 Acres. In both villages the difference shows the extent to which the irrigated area had been understated in the irrigation Returns; and, in the latter village of Meddapad, the entry in the Tahsildar's Returns was not much more than a third of the area actually irrigated. Taking the two villages together, it will be seen that the recorded area was not much more than half the real area. The concealed irrigation was 47 per cent, of the area actually irrigated.

16. But, in directing that the measurements obtained by Survey, should be compared with the irrigation Returns sent in by the Tahsildar, it is I presume the intention of Government, that I should also take into consideration, the irrigation assessment entered in those Returns, and ascertain, if possible, whether the extent of land thus found to be irrigated, without being entered in the Government accounts has not been brought to account in other ways; or is really, as it is apparently, a dead loss of so much revenue. And to obtain a clear view of the extent to which an irrigation assessment has been levied on the irrigated area it will be necessary to consider the irrigation Returns for each village separately.

17. The first village chosen and measured was Gundraidoo, in the Eastern Delta. It was selected by the Collector and afforded much information on the subject of irrigation, of which the Executive Engineer Mr. R. Smith, kindly enabled me to take full advantage, by placing at my disposal the services of several of his native subordinates. These men chained at my request each field, and recorded the extent of land that had been cultivated with a first crop, and in like manner the extent that had been cultivated with a second crop, which I may here mention, was the crop then on the ground. And I had it thus in my power, not only to ascertain the total extent, to which irrigation had been carried during 1857-58; but it was also in my power to ascertain in this manner the exact extent of Enam, and Joint Rent lands, that had been respectively irrigated, and so ascertain the average assessment per Acre under either tenure according to the survey. Whilst I further took advantage of these detailed measurements, which were made whilst the more scientific survey was going on, to draw up a rough table, showing how much land was irrigated by running water, and for how much land the water had to be lifted; as well as the respective extent of the various kinds of soil, to be found within the village boundaries; and the extent to which these soils had been severally cultivated with a second crop. All which particulars I shall beg leave to submit for consideration in their proper place.

18. After the Thoolia Bagha had been deserted by the Godavery as one of the ordinary outlets, it was turned to account by the ryots, as an irrigation channel, when the river was sufficiently raised by freshes to flow down its old bed. And Gundraidoo in former days, was irrigated in this way from the Thoolia Bagha. The village is now irrigated from the Dowlaiswaram head sluices by the Coconadah canal, which follows pretty closely as I have already mentioned, the course of the old Thoolia Bagha, but with the additional aid of locks and weirs conveys the water for irrigation at a very different level. And besides the immediate object of my enquiries this village afforded therefore a good opportunity of comparing the results in this instance of the past and present systems of irrigation.

19. At Captain Rundall's request, I asked Mr. Purvis, on my arrival for a copy of the settlement of the irrigated talooks of this District, for the current fusly ; to enable the Engineer Department to select with more certainty the villages that they considered to be under-entered therein. And, the irrigated area ascertained by survey, was compared with the accounts for the first crop which Mr. Purvis was kind enough to send me as soon as made out. The accounts for the second crop were not then ready ; and this being the case, I obtained an abstract of the irrigation Returns, which had been sent in for both crops, from the Tahsildar, whom Mr. Purvis had kindly directed to furnish me with any information I might require.

20. According to the Tahsildar's Returns, a small extent of land had been cultivated with a second crop only, in which case the total irrigated area as shown by survey, could not have been compared with the Tahsildar's Returns of the extent of land cultivated with a first crop. But from enquiries made on the spot, I felt convinced that a first crop had been grown on the whole of the land cultivated with a second crop. I have therefore compared in the preceding and following Tables the total irrigated area, as ascertained by survey, with the extent assessed by the Collectors as cultivated with a first crop ; and in the following Table 795 Acres the total irrigated area according to the survey, added to 284 Acres odd the similarly ascertained extent of a second crop, gives 1080 acres as the total extent of irrigation to be assessed for 1857-58, which is 135 Acres more than was shown in the Tahsildar's Returns, and elsewhere, would be a large extent of concealed cultivation. The extent to which a first and second crop had been grown on the joint rent and Enam lands, respectively, with the irrigation assessment to be levied on each, is given in the 1st, 2nd, 3rd, and 4th columns of the annexed Table. Whilst the 6th column shows the rate per acre on the actual extent of irrigation under each tenure, according to the survey ; which is given in the 5th column. And I had also better mention here, that owing to the total extent of the 1st crop being given, as ascertained by Theodolite, whilst the details have been ascertained by chaining, these details, added up, do not give the total area of irrigation exactly. There is a difference of 2 Acres in detail.

COMPARISON *in detail of the results obtained by Survey, with the Irrigation Returns sent in by the Tahsildar for* 1857-58 *for the village of Gundraidoo in the Talook of Bickavole, and District of Rajahmundry.*

Season of Irrigation.	Tenure of the land.	Area irrigated according to the Tahsildar's Returns.		Irrigation Assessment.			Area irrigated according to the Survey.		Average irrigation assessment, per Acre according to survey.		
1	2	3		4			5		5		
		Acres.	Yards.	Rupees.	A.	P.	Acres.	Yards.	Rupees	A.	P.
1st Crop	Joint Rent	369	756	450	0	0	371	4,615	1	3	0
	Enam	359	1,452	703	4	10	425	2,794	1	10	0
	Total..	728	2,208	1,119	4	10	795	3,841	1	6	6
2nd Crop	Joint Rent	138	3,509				184	2,893			
	Enam	77	4,114	162	8	0	99	3,302	1	10	0
	Total...	216	2,783	0	0	0	284	1,355	0	0	0
Total of 1st and 2nd Crops		945	151	0	0	0	1,080	356	0	0	0
Total extent of concealed irrigation							135	2 05	0	0	0

21 According to the above Statement, it will be seen, that the irrigation assessment on the actual extent of irrigation in the Enam lands averages for both crops, Rs. 1-10 per acre, whilst 450 Rs. entered as the irrigation assessment on the Joint Rent lands gives an average of only Rs. 1-3-0 per acre on 371 acres, the extent actually cultivated with a 1st crop ; and no assessment is shown by these accounts as due on the 184 acres cultivated again in the Joint Rent lands with a second crop.

22. In the accounts however, which I received from Mr. Purvis for the first crop, the irrigation assessment on the Joint Rent land has been consolidated with the Joint Rent. The consolidated irrigation assessment is Rs. 2,136, and at this rate the consolidated assessment in the Joint Rent lands is nearly 6 Rs. per Acre on the area actually irrigated, and nearly 4 Rs. on the total extent of irrigation, which it will be seen was 556 Acres. Two thirds of the concealed irrigation was in the Enam lands ; and, whilst the extent of concealed irrigation in the Enam lands has been a clear loss of so much revenue, the assessment on the Joint Rent lands has kept pace more closely with the actual extent of irrigation.

23. The plan pursued by Mr. Purvis is the only fair way of exhibiting the amount of the present irrigation assessment on the Joint Rent lands in Gundraidoo and Meddapad. But to explain clearly my reasons for saying so, it will be better that I should first describe the system, under which the Land Revenue is collected in Rajahmundry, and the mode in which an assessment was first realized on the increased value given to the land by improved means of irrigation. The Land Revenue is collected in Rajahmundry, on what is called the village system, but the system actually pursued, differs from what is usually understood by that name elsewhere, in the Joint Rent, being only fixed for one year, instead of for a term of years, and being proportioned amongst the ryots, by the Tahsildar, instead of by the ryots themselves.

24. Each year the ryots of every village are required to make an offer for the rent of their village in the coming year, and, if the offer is considered fair, with reference to the rent for the current year, and the condition of the ryots, it is accepted. Very possibly there will be no change in the amount of the village rent for several years. But if the ryots have been making progress, and the village generally is considered to be capable of raising more produce, the offer of the villagers is rejected ; and what is considered a suitable sum is proposed by the Officers of Government. This sum again is duly debated, and any deductions, that the ryots can prove themselves entitled to, are struck off. But the deductions will not be allowed to reduce the Joint Rent to its former level ; and the marginal statement will show how much the condition of the people and the productive powers of the village had been considered to be improved between 1845-46, and 1855-56, when a separate irrigation assessment was first imposed on the Joint Rent lands in Gundraidoo.

Statement received from the Tahsildar, showing the Joint Rents for Gundraidoo from 1845–46 to 1855–56.

Year.	Joint Rent.	Irrigation Assessment.
	Rs.	Rs.
1845–46	1,115	No separate Irrigation Assessment.
1846–47	1,511	
1847–48	1,347	
1848–49	1,447	
1849–50	1,566	
1850–51	1,622	
1851–52	1,673	
1852–53	1,696	
1853–54	1,729	
1854–55	1,815	
1855–56	1,815	150

25. In 1845-46 the Joint Rent was 1,115 Rupees. In 1850-51 the Joint Rent was 1,622 Rupees and the Joint Rent continued to rise, without any attempt being made to distinguish how much of this rise was due to improved irrigation, till 1855-56, when the sum of Rs. 150, was entered under the head of a separate irrigation assessment. The Joint Rent of the village had then risen 62 per cent. How far this rise is due to irrigation *alone* it is impossible to decide now with precision. But, as I am informed by the Tahsildar, that 471 Acres were formerly irrigated in a precarious manner from the Thoolia Bagha, whilst this survey shows that a constant and steady supply of water is now given from the Dowlaiswarum works to a total area of 795 Acres, it seems to me, that a large portion, if not the whole, of this rise in the Joint Rent is undoubtedly owing to improved irrigation, the effect of which was brought to account in the first instance, by thus raising the amount of the Joint Rent of the village, and was not, indeed could not well be, withdrawn from the Joint Rent, when it was determined to enter the effect of this irrigation, for the future, under a separate head. Whether possible then, or not, it would be impossible to place any confidence now on such an analysis of the Joint Rent, and a consolidated assessment gives the fairest idea of the actual assessment on the extent of irrigation in the Joint Rent lands. On the other hand the consolidated Joint Rent does not in any way show to what extent the Joint Rent has been raised for irrigation and in comparing the area actually irrigated on the Joint Rent lands, with the irrigation Returns sent in by the Tahsildar, the true extent to which a bonâfide irrigation assessment has been levied, may be approximated by comparing the present total demand against the Joint Rent lands, with the demand in former years, before the village had the advantage of a steady supply of water; and taking the same proportions of the consolidated irrigation assessment; as showing respectively what was the originalJoint Rent, and what is the actual irrigation assessment, which is the course I propose to pursue in comparing Gundraidoo and Meddapad with the other villages, where there has not been this rise in the Joint Rents. Whilst the general fiscal results obtained in each village up to this time, by improved irrigation, will be shown by a similar comparison of the total demand against the whole of the village lands.

26. In making out the following table the year 1845-46 was chosen in the first instance, so as to show more clearly the effect of the Anicut, which was not commenced till the beginning of 1847. I

however ascertained subsequently that the Samulcottah high level canal was first excavated in that year, and the channel head of the Thoolia Bagha, from which the Samulcottah canal was also to be supplied, was then enlarged. And the date which was chosen to a certain extent, accidentally, thus serves to show to what source each successive improvement in the condition of this, as well as the next village of Meddapad, is to be specially ascribed; whilst due allowance must be made for the unfavourable nature of the season of 1845.

27. With the exception of the details received through the Collector, and referred to in para 19, the information contained in the following statement was received direct from the Tahsildar. Column 2 shows the demand against the Joint Rent land on account of Government, before the irrigation of the village was improved, and the consolidated demand subsequently up to 1857-58, and column 5 shows certain collections made by the servants of Government, though not entered in this District in the Government collections. Under the head of Gramum curts, or village expenses, are included all the expenses of collecting the Government demand, as well as other charges, that refer more clearly to the villagers themselves. The amount to be so collected, rises, in some villages, yearly to 250 Rupees. No portion of these charges is collected from the enam lands. The whole of these charges, is borne entirely by the Joint Rent lands. And, this being the case, it seems to me that the village expenses are as much a direct burden on these lands, as the Joint Rent itself, and should be taken into account, in considering the total assessment on these lands. The amount of Gramum curts, as shown in Column 5 has therefore been added to the direct demand on the Joint Rent lands on account of Government, and Column 6 shows the total burden borne each year by these lands, and the extent to which the total assessment on these lands has been raised since 1845-46. Column 3 shows the total irrigation assessment on the enam land, for both crops from 1851-52; the first year, it was levied, and Column 7 shows the total demand against the village to which has been added an 8th Column showing the balance left outstanding each year.

STATEMENT *showing the Total Demand and outstanding Balances from* 1845-46 *to* 1857-58, *against the village of Gundraidoo in the Talook of Bickavole and District of Rajahmundry.*

Average Demand from 1840 *to* 1845-46 *Rupees* 1095.

Year.	Consolidated Joint Rent.	Irrigation Assessment on Enams.	Total Demand on account of Government including Rs. 2 As. 8 Quit Rent on Enams.	Gramum Curts or Village expenses.	Total Assessment on the Joint Rent lands or total of Columns 2 and 5.	Total Demand against the Village.	Outstanding balances at the close of the year.
1	2	3	4	5	6	7	8
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
1845-46	1,115 0 6	0 0 0	1,117 8 6	67 5 6	1,182 6 0	1,184 14 0	85 0 0
1846-47	1,511 0 9	0 0 0	1,513 8 9	67 5 6	1,578 6 3	1,580 14 3	6 13 6
1847-48	1,347 8 0	0 0 0	1,350 0 0	67 5 6	1,414 13 6	1,417 5 6	67 5 6
1848-49	1,447 8 0	0 0 0	1,450 0 0	67 5 6	1,514 13 6	1,517 5 6	67 5 6
1849-50	1,566 0 0	0 0 0	1,568 8 0	67 5 6	1,633 5 6	1,635 13 6	13 8 0
1851-52	1,622 8 0	0 0 0	1,625 0 0	67 5 6	1,689 13 6	1,692 5 6	67 5 6
1852-53	1,673 9 0	36 0 0	1,712 1 0	67 5 6	1,740 14 6	1,779 6 6	66 12 3
1853-54	1,696 8 0	33 7 3	1,732 7 3	67 5 6	1,763 13 6	1,799 12 9	67 5 6
1854-55	1,729 15 0	42 3 0	1,774 10 0	67 5 6	1,788 4 6	1,832 15 6	16 2 6
1855-56	1,815 6 8	142 6 0	1,960 4 8	58 5 6	1,873 12 2	2,018 10 2	302 10 6
1856-57	1,965 8 0	184 15 0	2,152 15 0	74 5 6	2,039 13 6	2,227 4 6	259 4 6
1857-58	2,253 4 0	831 15 4	3,087 11 4	74 5 6	2,327 9 6	3,161 0 10	0 0 0

28. It has been already stated that improvements were made in the Thoolia Bagha in 1845; and it will be seen that the next year the result of these improvements on the resources of the village was such, that the Joint Rents could be raised 25 per cent above what they were in 1845-46. And here the season seems to have had little effect, for the Joint Rent lands that year were above the average of the previous five years. The following year there was a slight fall. But the next year the Joint Rents began to show the effects of the Anicut; and from 1848, there has been a steady rise, till, in 1857-58, the total demand on the Joint Rent lands is nearly double what it was 13 years ago. The actual difference is 1,142 Rupees, and this gives 1,048 Rupees as the probable amount to be deducted from the consolidated demand as a separate irrigation assessment. On the whole village the demand has been nearly trebled. In 1845-46 it was 1,184 Rupees. In 1857-58 it was 3,162 Rupees. During the last three or four years however it will be seen that the outstanding balance at the close of the year has been large; and how far this is owing to neglect of duty on the part of the Talook authorities, or to the assessment being higher than the village can bear at present, must be decided after comparing the assessment with the value of the produce raised. At present I would merely observe that Gundraidoo does not enjoy the full advantage of the improved means of communication. The village is a mile and half from the Cocanadah canal, and the whole of the produce that goes to market has to be carried for this mile and half, like London milk, on men's shoulders. There is no road if there was such a thing as a cart in the Delta, and there is in addition a deep water course to be passed.

29. Meddapad was chosen by the Engineer Department. It is irrigated from the Samulcottah high level canal, and, whilst Gundraidoo shows the effects of the Dowlaiswarum Works; where river irrigation had already existed for a long time past to a certain extent, on the other hand Meddapad shows the results of such irrigation, when introduced into a perfectly new country. The village lies on the slope from the uplands down into the Delta. And according to the village accounts it had a total area of about 2,240 Acres, and was divided into two nearly even portions by the canal. But before proceeding to compare the results obtained by the survey with the Tahsildar's irrgation Returns, I would beg to refer to the marginal Statement, as showing still more clearly than in Gundraidoo, how much the Joint Rent had risen, when it was determined to fix a separate irrigation assessment; and how far that irrigation assessment is from showing the real extent to which an assessment had then been levied on account of irrigation in the Joint Rent lands. In 1845-46, the Joint Rent it will be seen was 1390 Rupees; and, when a separate irrigation assessment was entered in the accounts, in 1855-56, of 257 Rupees, the Joint Rents had risen 5,915 Rupees. This village however had only tanks to depend upon in 1845. It felt the bad season severely, it would appear from the fall that year in the Joint Rents; and further, a large portion of the village lands lie above the canal, and are not irrigated. The whole of this excess cannot therefore be attributed to irrigation alone. But assuredly 257 Rupees is very far from showing to what extent the Joint Rent had been raised that year, on account of irrigation, and the sum similarly shown for 1857-58 is equally far from the mark. The extent of concealed irrigation, it has been seen is very large in this village; and I now beg to submit the following table, in which the results obtained by actual measurement are compared in detail with the irrigation Returns sent in by the Tahsildar.

Statement received from the Tahsildar showing the Joint Rents for Meddapad from 1845-46 to 1855-56.

Years.	Joint Rent.	Irrigation Assessment.
	Rs.	Rs.
1845-46	1,390	Separate Irrigation Assessment.
1846-47	2,473	
1847-48	3,086	
1848-49	4,542	
1849-50	5,757	
1850-51	6,643	
1851-52	7,957	
1852-53	6,926	
1853-54	7,003	
1854-55	7,047	No separate Assessment.
1855-56	7,305	257

COMPARISON *in detail of the results obtained by Survey with the Irrigation Returns sent in by the Tahsildar for* 1857-58 *for the Village of Meddapad in the Talook of Bickavole, and District of Rajahmundry.*

Season of Irrigation.	Tenure of the Land.	Area irrigated according to the Tahsildar's Returns.		Irrigation assessment.			Area irrigated according to the Survey.		Average Irrigation assessment per Acre according to the Survey.		
1	2	3		4			5		6		
		Acres.	Yards.	Rs.	A.	P.	Acres.	Yards.	Rs.	A.	P.
1st Crop	Joint Rent	608	0	500	0	0	1775	603	0	4	6
	Enam	7	113	14	0	9	30	4240	0	7	5
	Total	615	113	514	0	9	1757	1996	0	4	8
2nd Crop	Joint Rent	144	1210	0	0	0	379	779			
	Enam	0	0	0	0	0	0	0			
		144	1210	0	9	0	379	779			
Total of 1st and 2d Crops		759	1323	514	0	9	2136	2776			
Total Extent of concealed irrigation							1377	1453			

30. From this Statement it will be seen that the irrigation Returns give the second crop, in much the same proportion to its real extent, as the first crop; and the 144 Acres, shown in the Tahsildar's Re-

turns as cultivated with a second crop, are found on measurement to be 379. The extent of second crop was measured by chaining, as in Gundraidoo; and it will be seen on referring to the details, similarly ascertained, for the first crop, that this process gives an excess in this village of 48 Acres over and above the true extent of first crop, as ascertained by traverse. This was probably owing to the large extent of land measured, and perhaps the irregular shape of many of the newly laid out rice fields. But, in the smaller extent covered with a second crop, the results obtained by chaining in the native fashion would be much more correct; and 2,136 Acres, which is the result obtained by adding the extent of second crop, as ascertained by chaining, to the total extent of the first crop, as ascertained by traverse, may be considered a sufficiently accurate measurement of the total extent of irrigation in Meddapad for 1857-58. According to the Tahsildar's Return, the total extent of irrigation was only 759 Acres. And this gives 1377 Acres, as the extent of concealed irrigation in this village measured by crops..

31. It will be observed that almost the whole of the irrigation in Meddapad is in the joint rent lands, indeed the enam lands are so small as to require no notice. I shall confine my remarks in this village entirely to the joint rent lands and, from the large extent of this land found by the survey to have been irrigated, though not entered in the irrigation returns, the separate irrigation assessment, which is set down by the Tahsildar for 1857-58 as 500 Rupees, gives a still more disproportioned result in this village than in Gundraidoo. Taking 500 Rupees as the irrigation assessment, the average assessment for the benefit of irrigation in the joint rent lands would be 4 Annas and 6 pice on the irrigated area, as ascertained by survey. But it has been already seen how far short this separate assessment is of showing the actual extent to which the joint rent has been raised on the irrigated land, and on comparing the results obtained by survey with the consolidated irrigation assessment shown in the Statement, which I received from Mr. Purvis, it will be seen that the extent of land found to be irrigated, without being entered in the irrigation Returns is not really a dead loss of so much Revenue. The consolidated irrigation assessment fixed on the first crop was 4,566 Rupees, and this gives an average consolidated assessment in the joint rent lands of Rupees 2-9 per Acre on the irrigated area.

32. I now beg to submit the follow table as showing very strongly, what has been the general fiscal result of supplying irrigation where it did not exist before, save in the shape of shallow tanks, and giving the ryots a free water carriage for their produce.

STATEMENT *showing the Total Demand and outstanding Balance from* 1845-46 *to* 1857-58 *against the village of Meddapad in the Talook of Bickavole, and District of Rajahmundry.*

Average Demand from 1840 *to* 1845-46. *Rupees* 3,658.

Year.	Consolidated Joint Rent.			Irrigation Assessment on Enams.			Total Demand on account of Government.			Gramum Curts or Village expences.			Total Assessment on the joint rent lands or total of Columns 2 & 5.			Total Demand against the Village.			Outstanding balance at the close of the year.			Remarks.
1	2			3			4			5			6			7			8			
	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	
1845-46	1,390	14	6	0	0	0	1,390	14	6	52	0	0	1,442	14	6	1,442	14	6	177	12	0	
1846-47	2,473	10	8	0	0	0	2,473	10	8	52	0	0	2,525	10	8	2,525	10	8	0	0	0	
1847-48	3,086	13	3	0	0	0	3,086	13	3	52	0	0	3,138	13	3	3,138	13	8	52	0	0	
1848-49	4,542	14	3	0	0	0	4,542	14	3	52	0	0	4,594	14	3	4,594	14	3	52	0	0	
1849-50	5,757	3	9	0	0	0	5,757	3	9	52	0	0	5,809	3	9	5,809	3	9	150	4	0	
1850-51	6,643	11	6	0	0	0	6,643	11	6	52	0	0	6,695	11	6	6,695	11	6	52	0	0	
1851-52	7,957	12	1	3	1	6	7,960	13	7	52	0	0	8,009	12	1	8,012	13	7	52	0	0	
1852-53	6,926	11	0	2	13	7	6,929	8	7	52	0	0	6,978	11	0	6,981	8	7	110	7	4	
1853-54	7,003	13	1	1	2	11	7,005	0	0	73	8	0	7,077	5	1	7,078	8	0	85	5	2	
1854-55	7,047	2	6	4	2	0	7,051	4	6	73	8	0	7,120	10	6	7,124	12	6	207	1	8	
1855-56	7,567	13	6	5	2	0	7,572	15	6	73	8	0	7,641	5	6	7,646	7	6	337	12	8	
1856-57	7,480	13	11	7	9	7	7,488	7	6	73	8	0	7,554	5	11	7,561	15	6	219	6	11	
1857-58	7,546	2	6	14	0	9	7,560	3	3	77	8	0	7,623	10	6	7,637	11	3	0	0	0	

33. When first dug in 1845 the Samulcottah canal, like the Thoolia Bagha from which it separated, would only depend on the freshes in the river for supplying the means of irrigation; and yet the total demand against the village of Meddapad, it will be seen, was nearly doubled in 1846, and when the Dowlaiswarum works poured a steady supply down the canal, without reference to freshes, it will be seen that the demand rose a thousand Rupees a year for five years running. In 1845-46 it was Rupees 1,442 and there was an outstanding balance at the end of the year of Rupees 177. In 1850 it was Rupees 6,695. And in 1857-58 the total demand on the joint rent lands had risen to Rupees 7,623; and when the accounts were given to me the balance uncollected was only Rupees 40. This gives a total increase of Rupees 6,181 on the joint rent lands generally. But it has been already mentioned that this village suffered severely from the badness of the season of 1845, and for several years the village assessment had been falling. The average assessment for the previous five years to 1845, I am informed by the Tahsildar was Rupees 3,648-10. Taking this average as a guide would give a net increase of Rupees 3,975, and taking the same proportions as in Gundraidoo, this would give Rupees 2,380 as the proportion of the consolidated irrigation assessment, that may be considered due to irrigation alone.

34. Till irrigation gave an impetus to the cultivation of the soil, the ryots of Meddapad struggled in like manner as in other upland villages. Water changed the whole face of affairs. The agricultural operations of the village were rapidly extended. The wide beds of shallow tanks, instead of storing a scanty supply of water, were themselves irrigated from the Godavery, and covered with rice crops. Where there was not a road before, the Samulcottah canal, which passes through the village, affords now a free water carriage for the produce raised, either to the adjacent markets, or the more distant markets on the outskirts of the Delta, or to any of the Delta ports for exportation by sea. And the result is, that the whole character of the village is changed. There has been an enormous increase in the produce raised, and a consolidated assessment of Rs. 2-9 per Acre shows that the assessment, which has been quintupled on that of 1845, and doubled on the average of the previous five years, may be still raised considerably and leave ample profits to the ryots.

35. No villages were selected in the central Delta. The remaining 2 Villages to be measured in the Rajahmundry District were selected both by the Revenue and Public Works Department in that portion of the western Delta, that belongs to the Rajahmundry District, and is under the charge of the Sub Collector. Both villages were therefore irrigated from the Vigaiswarum head sluices; and both were situated under the bank channel.

36. It would be impossible for the most casual observer to pass from the Samulcottah canal to the bank channel of the western Delta without being struck by the change in the appearance of the country and the state of agriculture. In the low lying black cotton soil round Gundraidoo, there was some diversity of crops and a fair show of timber. But the stronger lands that lie below the Samulcottah canal are almost entirely covered with rice and are singularly devoid of trees of any kind. The agriculture is based on the principle of taking as much out of the land, and putting as little into the land as possible, and a population, that must be much increased before the rice lands receive any thing like a fair share of cultivation, is wholly gathered together in villages and hamlets.

37. The bank channel of the western Delta on the other hand, has been cut through rich river deposit, that in former days was annually inundated by the Godavery and is now protected by a strong dike, that stretches in one unbroken line from the head sluices some 40 Miles down the river. The country is covered with Orchards of mangoes and plantains; the latter growing luxuriantly in this rich soil without any irrigation whatever; and the rice crops give way frequently to Chillies Turmaric and other crops, that are more profitable, and occupy a considerable portion of the irrigated area. The land is also highly manured; the ryots making regular pits of compost, which they carry to the fields on the shoulder, and finally instead of having to carry out these and other such agricultural operations at a distance, as in the eastern Delta, the work of surveying the irrigated area in Siddantum was greatly increased by the necessity of measuring, and deducting from the total area, the numerous detached sites of the cottages of the ryots, with their little stack yards, standing ground for cattle, and thrashing floors &c.

38. The villages in the western Delta, both those of which I am about to give the measurements, and those situated in the Masulipatam District of which the measurements will be given subsequently, were all surveyed at the request of the District Engineer by Captain Greenaway the Executive Engineer of the western Delta; and the annexed Statement gives the result of his survey compared with the Irrigation Returns sent in by the respective Tahsildars.

STATEMENT *of the results obtained on comparing the irrigated area as shown in the Irrigation Returns sent in by the Tahsildar, with the irrigated area as ascertained by Survey in the two undermentioned villages in the Talooks of Tanookoo and Mogultoor, and District of Rajahmundry.*

Name of the Village.	Extent of irrigated area according to the Thasildar's Returns.		Extent of irrigated area according to the Survey.		Difference between columns 2 & 3 or extent of concealed irrigation.		Proportion of concealed irrigation to total area actually irrigated.
1	2		3		4		5
	Acres	Yards	Acres	Yards	Acres	Yards	
Siddantum	906	2783	1313	589	406	2646	30 percent
Moolapurroo	1091	2783	1365	4358	274	1575	20 "
Total..	1998	726	2679	107	680	4221	25 "

39. In the western, as in the eastern Delta, the irrigated area on being surveyed was found to be understated in the irrigation returns sent in by the Tahsildar. According to these returns the total irrigated area for the two villages was 1998 Acres ; by the survey it was 2679 Acres. There was therefore a total difference between the recorded and the actual area of 680 Acres ; and it is difficult to see here, what immediate object the village authorities could have in concealing the true irrigated area. For in the sub division, when a separate irrigation assessment was fixed in 1855-56, it was fixed, not with reference to the extent of irrigation, but, in the Joint Rent lands at the rate of 10 per cent on the Joint Rent of that year, and, in the Enam or favorably assessed lands, at a similar rate on the estimated amount of what would be an ordinary assessment on these lands. This irrigation assessment of 10 per cent was made permanent, till the expected general survey and settlement should take place, and, till then, no change was to be made in its amount, whatever might be the extent of irrigation ; whether 1998 or 2679 Acres were irrigated and I can only account for the extent to which the true irrigated area was concealed, by supposing that under any circumstances the village authorities would be reluctant to give the true measurements, if they could, and were afraid into the bargain, that if they did, the Joint Rent might be raised.

40. Owing to the reductions which have been made of late in the establishment allowed for the western Delta, Captain Greenaway was unable to give me the means of having each field chained, as had been done in the eastern Delta. And, as six villages including the four in Masulipatam, had to be measured in his range, these enquiries threw as it was, a great increase of work on Captain Greenaway and his subordinates, most of which I regret to add, had to be done in weather, which very much increased the trying labour of a surveyor's duty. I am therefore unable to give for the western Delta the total extent of irrigation, as measured by crops, and ascertained by survey, or the actual extent of irrigation in the Joint Rent and Enam lands respectively-and in the following table for Siddantum the average irrigation assessment per Acre according to the survey is given for the Joint Rent and Enam lands collectively.

COMPARISON *in detail of the results obtained by Survey, with the Irrigation Returns sent in by the Tahsildar for* 1857-58 *for the village of Siddantum in the Talook of Tanookoo, and District of Rajahmundry.*

Season of Irrigation.	Tenure of the land.	Area irrigated according to the Tahsildar's Returns.		Irrigation assessment.			Area irrigated according to the Survey.		Average irrigation assessment per Acre according to the Survey.		
1	2	3		4			5		6		
		Acres.	Yards.	Rs.	A.	P.	Acres.	Yards.	Rs.	A.	P.
1st Crop.	Joint rent	432	3,872	369	0	0	0	0	0	0	0
	Enam	473	3,751	300	12	1	0	0	0	0	0
	Total...	906	2,783	669	12	1	1,313	0	0	8	1

41. From this table it will be seen that the extent irrigated in the Joint Rent and Enam lands respectively was nearly the same, according to the village accounts, and, supposing the increase to have borne the same proportions, it is clear that the Enam lands have received an abundant supply of water at almost a nominal rate. In the joint rent lands, owing perhaps to irrigation having only commenced in 1852-53, the rise in the joint rent was so small, when a separate irrigation assessment was fixed, as to require no notice ; and so far this assessment may be considered as indicating the exact extent to which a water rate had been imposed on account of Government. But the increase in the village expenses is comparatively large, and the consolidated total demand will show a some-what higher result.

42. As far as I could judge by the eye from the stubble, the extent of land that had been cultivated with a second crop of rice was very trifling. The soil is the rich river deposit that can be turned to better account ; and, in the diversity of crops raised in Siddantum, there would be some difficulty in determining which should be considered a single, and which a double crop. On much of the land rice is sown broad east in July. It is gathered in October and succeeded by a crop of chillies, which are irrigated and picked up to May. Water is taken for the first crop, if required, and invariably for the chillies ; and looking to the time, for which, and at which, water is taken for chillies, it would seem only fair that this should be considered and assessed as a double crop. But to this subject I propose to refer subsequently and now beg to give a table shewing the total demand against this village for the last thirteen years. As I have already mentioned the increase in the joint rents of this village has been very trifling ; and, as regards any increase in this way to the amount of the recorded irrigation assessment, the giving of this table would be to little purpose, either here, or, as it will be seen subsequently, in the other villages measured in the western Delta of the Godavery. But so far as these measurements go, it wil thus be possible to compare the progress made, as measured by fiscal results, in those villages that have had the benefit of irrigation, and in those villages that have only had the natural fertility of the soil to depend upon ; and for this object I beg to give for each village an abstract Statement of the total demand under each head, for the last thirteen years.

STATEMENT *showing the total Demand and outstanding Balances from* 1845-46 *to* 1857-58 *against the village of Siddantum in the Tulook of Tanookoo, and District of Rajahmundry.*

Year.	Joint Rent on the main land.			Total Irrigation assesment on Joint Rent and Enam lands collectively.			Total demand on account of Government including certain Quit Rents.			Gramum Curts or village expenses.			Total assessment on the Joint Rent lands including column 5 and specific irrigation assessment.			Total demand against the village.			Outstanding balance at the close of the year.		
1	2			3			4			5			6			7			8		
	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
1845–46...	2,796	14	9	0	0	0	3,443	3	0	200	0	0	2,996	14	9	3,643	3	0	0	0	0
Average from 1845 to 1850...	2,820	5	9	0	0	0	3,466	0	1	220	8	0	3,040	5	9	3,686	8	1	0	0	0
1850–51.....	2,721	6	9	0	0	0	3,366	14	5	237	8	0	2,958	14	9	3,604	6	5	0	0	0
Average from 1850 to 55.....	2,947	6	7	0	0	0	3,581	2	3	243	8	0	3,190	14	9	3,824	10	3	8	3	0
1855–56...	3,118	8	8	667	8	0	4,402	2	3	343	8	0	3,831	1	8	4,745	10	3	0	0	0
1856–57	3,121	2	3	668	12	0	4,405	15	10	343	8	0	3,833	10	3	4,745	10	3	0	0	0
1857-58	3,168	0	6	669	12	1	4,453	14	1	343	8	0	3,880	8	6	4,797	6	2	0	0	0

43. In this village there is an assessment of Rupees 2,315 on a Lunka, or Island, in the Godavery, which is cultivated by the Siddantum people. The extent of this island varies almost each year with the action of the river ; and the assesment is supposed to vary accordingly. It rose in 1850 to Rupees 2,834, and is now 759 Rupees higher than it was 13 years ago. This latter result I was informed is partly owing to the steady increase of deposit since the Anicut was built. During floods the usual amount of Silt is still deposited ; but, when the river fills, and the water becomes comparatively clear, a large portion of the main stream is turned at the Anicut down the channels, and the fresh growth of deposit in the river bed below, is saved from the action of water that then takes away comparatively more than it brings. The cultivation

on this Lunka or Island is chiefly Tobacco. The average assessment per Acre is Rupees 8-4-10, and, for a small portion of the land the assessment rises to Rupees 36-9-7 per Acre. But these Acres are according to the village measurements. How far these rates would stand the test of an accurate survey is very doubtful; and I only mention them here, as showing pretty clearly the fertility of the soil, on which such an assessment can be paid without the aid of irrigation. As the total amount of this assessment is however affected by other causes than the agricultural prosperity of the village I have not included it in the general demand, which merely shows the Joint Rent on the main land, inclusive of quit rents on enams, the separate irrigation assessment of 10 per cent and the village expenses. Irrigation commenced in this village in 1852-53, and the following year there was a rise of 250 Rupees. But the joint rents fell again; and of the slight increase in the last five years of 200 Rupees it is not worth while to take the proportion. In the village expenses there has however been an increase of Rupees 100, odd, which may be fairly added to the separate irrigation assessment, as the whole sum was, I believe, imposed expressly with reference to the improved resources of the village, and one item is 72 Rupees for the village schools established 3 years ago. In this way the separate irrigation assessment on the Joint Rent and Enam lands collectively, may be considered as 775 Rupees, and the total consolidated irrigation assessment on the Joint Rent lands on account of Government, which is given by the Collector as 2,779 Rupees, would be 2,885 Rupees; to which may be added 100 Rupees more, as the share of the ordinary village expenses. Dividing evenly between the Joint Rent and Enam lands the excess found by survey in the total irrigated area, the probable extent actually irrigated in the Joint Rent lands was 636 Acres, and the average consolidated assessment was therefore Rupees 4-11 per Acre whilst the separate irrigation assessment of Rupees 775 on the total irrigated area according to the survey averages Rupees 0-9-5 per Acre.

44. With regard to the total demand against the whole village, it wil be observed that so far as the Enam land was concerned, it was in 1850-51, a few Rupees less than it was in 1845-46; and the total increase of Rupees 1,154 in 1857-58 has been wholly since irrigation commenced.

45. The second village measured in the Sub Division was selected by the Revenue Department, and is also irrigated from the bank channel; but Moolapurroo like Gundraidoo is situated some distance from the channel, and equally feels the want of a road. The soil is of a superior quality, but inferior to Siddantum and the quantily of land held as Enam, it will be observed in the following account is comparatively small.

COMPARISON *in detail of the results obtained by Survey with the Irrigation Returns sent in by the Tahsildar for* 1857-58, *for the village of Moolapurroo in the Talook of Mogultooroo, and District of Rajahmundry.*

Tenure of the Land.	Area irrigated according to the Tahsildar's Returns.		Irrigation assessment.			Area irrigated according to the Survey.		Average Irrigation assessment per Acre according to Survey.		
	Acres.	Yards.	Rs.	A.	P.	Acres.	Yards.	Rs.	A.	P.
Joint Rent	708	3388	344	0	0	0	0	0	0	0
Enams	382	4235	100	0	0	0	0	0	0	0
Total...	1091	2783	444	0	0	1365	4358	0	5	2

46. In this village the Enam lands have been rated apparently much lower than in Siddantum and the average irrigation assessment is affected accordingly. Irrigation only commenced in this village in 1853-54, and, when the irrigation assessment was first fixed the Joint Rent was only Rupees 174 above what it was five years before. The separate irrigation assessment therefore showed sufficiently accurate all realized under that head at that time on account of Government, but as this amount is stationary and the Joint Rent both here and in Siddantum is slowly rising, it will in a year or two cease to indicate the total assessment levied on irrigation; and here also there has been a considerable increase in the village expenses, which should be taken into consideration.

STATEMENT *showing the Total Demand and outstanding Balances from* 1845-46 *to* 1857-58 *against the Village of Moolapurroo in the Talook of Magultooroo, and District of Rajahmundry*

Year.	Joint Rent.			Total irrigation assessment on Joint Rent and Enam lands collectively.			Total demand on account of Government, including certain Quit Rents.			Grammum Curis or Village expenses.			Total assessment on the Joint Rent lands, including Column 5 and specific irrigation assessment.			Total demand against the village.			Outstanding balance at the close of the year.		
1	2			3			4			5			6			7			8		
	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
1845-46	2,973	14	0	0	0	0	3,254	13	0	82	8	0	3,056	6	6	3,337	5	0	No outstanding Balance.		
Average from 1845 to 1850	2,999	10	0	0	0	0	3,280	9	0	85	11	2	3,085	5	2	3,366	4	2			
1850-1851	3,039	1	0	0	0	0	3,320	0	0	92	8	0	3,131	9	0	3,412	8	0			
Average from 1850 to 1855	3,155	8	2	0	0	0	3,436	7	2	92	8	0	3,248	0	2	3,528	15	3			
1855-56	3,213	14	3	426	10	0	3,921	7	3	170	0	0	3,707	14	3	4,091	7	3			
1856-57	3,213	14	3	426	10	0	3,921	7	3	170	0	0	3,707	14	3	4,091	7	3			
1857-58	3,413	14	3	451	8	6	4,146	5	9	182	0	0	3,939	14	3	4,328	5	9			

47. Almost the whole of the Moollapurroo lands are irrigated, and the consolidated irrigation assessment, shown in the Collector's statement, is a few Rupees in excess of the total Joint Rent and separate irrigation assessment shown in the table given above, which here, as elsewhere, was received from the Tahsildar. The whole of the cultivation therefore was irrigated according to the Returns; and the total village expenses must be added to the consolidated irrigaton assessment, to show the total dmand on the irrigated Joint Rent lands. The consolidated irrigation assessment, was 3,819 Rupees; the village expenses were 182 Rupees; and the total demand on the Joint Rent lands was 4,001 Rupees, which, taking two-thirds of the excess ascertained by survey as in the Joint Rent lands, would give Rupees 4-8 as the average consolidated demand on the irrigated Joint Rent lands per Acre. It will be observed that there was little change in the fiscal Returns from this village till irrigation commenced. The total demand was 3,337 Rs. in 1845-46 it was 3,412 Rupees in 1850-51. In 1853-54 irrigation came into play and the total increase at the present day is Rupees 991 which is much the same result as in Siddantum.

48. The Masulipatam District stretches right across the upper portion of the western Delta to the head sluices at Vigaiswarum; and for many miles the supply of water for the whole Delta flows through Masulipatam Villages, but, for some distance, too much below the general level of the country, to be made much use of for irrigation. At Chittapet however, which is about six miles below Vigaiswaram, the level of the canal crosses the slope of the Delta towards the sea, and irrigation commences. The main canal separates here, into the Akeed and Ellore canals to the westward, and the Nursapoor and Bank canals to to the southward; and the village of Chittapet, where the separation takes place, was one of the villages selected by the Collector. Following the line of the Nursapoor canal the country on either side for some ten miles more, belongs wholly to Masulipatam, but, after that, the Villages of the two Districts are mixed, and Ogidy, which was one of the Masulipatam villages, selected by the Public Works Department, is situated on the Nursapoor canal about twenty miles below Chittapet. Both villages belong to the Ralunghy Talook; and in the following statement I beg to give the results obtained, on comparing the irrigated Area, as ascertained by Survey, with the irrigated Area as shown by the irrigation Returns sent in by the Tahsildar.

STATEMENT *of the results obtained on comparing the irrigated Area as shown in the Irrigation Returns sent in by the Tahsildar, with the irrigated Area as ascertained by Survey in the undermentioned villages in the Talook of Ralunghy, and District of Masulipatam.*

Name of the Villages.	Extent of irrigated area according to, the Tahsildar's Returns.		Extent of irrigated area according to the Survey.		Difference between columns 2 and 3, or extent of concealed irrigation.		Proportion of concealed irrigation to total area actually irrigated.
1	2		3		4		5
	Acres.	Yards.	Acres.	Yards.	Acres.	Yards.	
Chittapet	759	0	1423	4366	664	4366	46 per cent
Ogidy	108	0	496	4145	388	4145	77 do.
Total...	867	0	1920	3671	1053	3671	54 0

49. From this statement it will be seen, that in one village, there is about twice as much land irrigated, as shown in the Tahsildar's Returns, and in the other village, more than four times as much. In the latter village the concealed irrigation is 77 per cent of the total Area irrigated according to the Survey; and for the two villages the proportions is 54 per cent. In the statement, which I received from the Collector, the irrigated area is divided according as the land was cultivated with transplanted paddy, or sown broad east; and the land sown broad east, is further divided according to the grain used. Comparing the extent of land irrigated for transplanted paddy only, the difference between the Tahsildar's Returns and the Survey would not be near so great in any of these villages. The great difference is in the extent to which the land sown broad east had been irrigated; and a statement will be given subsequently for the whole four villages, showing what is the proportion of the total irrigated Area in each, that has been cultivated in this manner.

50. The Masulipatam portion of the western Delta is divided into three talooks, of which Ralunghy lies nearest to the river, and compared to the other two talooks, may be said to resemble the country on the bank canal, in the Rajahmundry District, in its well wooded appearance, and general goodness of soil. But in the appearance of the villages the difference between the two Districts, is very striking. The state in which irrigation found the people of the Masulipatam talooks is still painfully marked, and it is easy to understand, why the Zamindary of which these three talooks formed a part, was seven years ago allowed to pass into the hands of Government for, I am informed, the nominal sum of 10,000 Rupees.

51. In the preceding statement the Survey of Chittapet has been compared with the irrigation Returns, which I received through Collector, for the same purpose as in Rajahmundry. In the following Statement I beg to submit the results obtained on comparing the Survey with the details of the irrigation Returns, which I received from the Tahsildar direct. According to these Returns, it appears that the irrigated land was not all cultivated with a first crop. A portion was cultivated with a second crop only, which must be subtracted from the rest of the second crop, and added to the extent of land cultivated with a first crop to obtain the total irrigated area according to the Tahsildar's Returns. This has been done in the following Statement. But, how far this portion of the statement is founded in fact, I was unable to ascertain in this instance; and I will only add that in addition to the extent of land thus irrigated for a second crop of rice only, the Returns show some 3 Acres said to have been similarly irrigated for Oil seeds, which must also be taken into account.

Comparison in detail of the results obtained by Survey with the Irrigation Returns sent in by the Tahsildar for 1857-58 *for the village of Chittapet in the Talook of Ralunghy, and district of Masulipatam.*

Season of irrigation.	Tenure of the land.	Area irrigated according to the Tahsildar's Returns.		Irrigation assessment.			Area irrigated according to the Survey.		Average irrigation assessment per acre according to the survey.		
		Acres.	Yards.	Rs.	A.	P.	Acres.	Yards,	Rs,	A.	P.
1st Crop	Joint Rent	451	423	519	12	3					
	Enam	202	2987	157	14	0					
	Total	653	3410	677	10	3					
2nd Crop of Rice on fresh land	Joint Rent	37	2533	37	7	3					
	Enam	63	703	126	9	3					
	Total	100	3236	164	0	6					
2nd Crop of Oil seeds on fresh land	Joint Rent	1	930	2	6	0					
	Enam	2	2662	5	1	6					
	Total	3	3592	7	7	6					
Total extent irrigated during the year	Joint Rent	489	3886	559	9	6					
	Enam	268	1512	289	8	9					
	Grand Total	758	1558	849	2	3	1423	4366	0	9	6

52. In the irrigation Returns, the total irrigation assessment on the rirrigated area in the Joint Rent lands, as shown in this statement, has been given as the irrigation assessment on the first crop only. And in the extent of the total area as previously given, and now shewn in detail in the above statement, there is a slight difference. It is however under an Acre, and probably arises from some small fraction of an Acre, having been carried, when the former statement was made out, to the account of land cultivated with a second crop only, which does not appear in the above details. But this error in no way affects the average per Acre according to the Survey, which is given in the 6th column. The total amount levied under the head of a separate irrigation assessment on the total area irrigated, including both the Joint Rent and Enam lands was Rupees 849-2-3; and this sum divided by the total irrigated area in the Joint Rent and Enam lands collectively, as ascertained by Survey, gives the average irrigation assessment at Rupees 0-9-6 per Acre.

53. The revenue is collected in Masulipatam under the same system of Joint Rent as in Rajahmundry. The Joint Rent is liable to be raised annually, and there is the same difficulty of deciding how far the increase in the Joint Rents is due to the additional extent of land brought under cultivation, or to the increased value given to the land by irrigation. In the Masulipatam district however no collections are made for village expenses. The village servants employed for collecting the Revenue are paid direct from the Treasury, and the total demand on account of Government, shows the total authorized burden borne by the Joint Rent land.

STATEMENT *showing the Total Demand and outstanding Balances from* 1845-46 *to* 1857-58 *against the village of Chittapet in the Talook of Ralunghy, and District of Masulipatam.*

Year.	Joint Rent.			Total irrigation assessment on joint rent and enam lands collectively.			Total demand on account of Government including certain Quit Rents.			Outstanding balance at the close of the year.		
1	2			3			4			5		
	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
1845-46	2,621	12	0	0	0	0	2,713	5	0	521	1	9
Average from 1845 to 1851	3,507	12	0	0	0	0	3,599	5	0	1,437	6	7
1851-52	2,808	7	0	0	0	0	2,970	1	0	0	0	0
Average from 1851 to 1855	3,116	0	4	0	0	0	3,277	12	0	2	0	0
1856-57	3,286	7	0	545	10	6	3,984	9	6	0	0	0
1857-58	3,285	0	0	1,136	4	0	4,589	6	0	0	0	0

54. From the above Statement it will be seen that the present demand on the Joint Rent lands in Chittapet is below the average demand during the last five years, that the village was under Zemindary management. But the average collections for those five years from 1845 to 1850 were very different. The village, now in the hands of the Zemindar, now in the hands of Government, had been going down hill apparently from 1821, when the assessment was Rs 4,057 and the collections Rs. 3,911, to 1850-51, when the demand was still Rs. 3,806, but the collections were only Rs. 1,926; and the average collections for the previous five years already referred to were only Rs. 2,070. Latterly however the fall was probably owing also to bad management, for this village had then benefited by the construction of the Anicut, so far as the level of an old channel would permit, and the collections rose at once on the village passing for good into the hands of Government. In 1851-52 two years before the time when it is said that irrigation was fairly given to the village from the level of the new canal, the collections were Rs. 2,808 on the Joint Rent lands alone; and there has been since thus a further rise in the Joint Rents of 400 Rupees odd.

55. In the Statement which I received from the Collector of Masulipatam, the assessment on the land has not been given, either consolidated or otherwise, and as regards a consolidated assessment if given, it would not have been fair to have entered it in three of the Masulipatam villages, as the total assessment on the irrigated area, because the irrigated area, as shown by survey, includes here some hundred Acres, that, sown broad east, has been excluded, apparently from the Tahsildar's Returns. But the irrigated area according to the survey is nearly seven eighths of the total arable area and it will be sufficiently near for the purpose, if the portion of the remaining eighth, that may be under dry cultivation, is thrown into bargain, and the total Joint Rent taken as the Joint Rent on the irrigated land only. The total Joint Rent is Rupees 3,285. It has been shown that the separate irrigation assessment on the Joint Rent lands was Rupees 559, and the consolidated assessment would therefore be 3,844 Rupees. According to the

village accounts nearly two thirds of the irrigated area was in the Joint Rent lands; and, taking the same proportion of the concealed irrigation as in Joint Rent lands, the probable area irrigated in the Joint Rent lands would be 931 Acres which gives a consolidated irrigation assessment of Rupees 4-2 per Acre.

56. With regard to the total demand against the village it will be seen that it now amounts to Rupees 4,589, the whole of which has been collected. There was an old channel to this village from the river, which was benefited like the Thoolia Bagha, as soon as the Anicut was built; but compared to Gundraidoo this village lies high, and could not therefore derive the same benefit from the increased supply, till the new channels came into play, and the levels were altered; whilst the crippled means of the people, under any circumstances, would have prevented a rapid improvement. Now however a change has fairly taken place in the circumstances of the ryots, and nine Annas per Acre must be considered a light water rate.

57. Ogidy is a small village, where there was no irrigation till three years ago. It is just above the Itempoody lock, which was not completed till last year; and it will be some years yet, before the marks of the past, disappear in this village. It has been poverty stricken, and all about it wears the look of poverty. The whole village in fact is in the hands of a neighbouring money lender; and strangers cultivate the greater part of the village lands. There was no second crop; and in the following table, the area ascertained by survey is compared with the irrigation Returns sent in by the Tahsildar for the first crop.

COMPARISON *in detail of the results obtained by Survey with the Irrigation Returns sent in by the Tahsildar for* 1857-58 *for the Village of Ogidy in the Talook of Rulunghy, and District of Masulipatam.*

Season of Irrigation.	Tenure of the land.	Area irrigated according to the Tahsildar's Returns.		Irrigation Assessment.			Area irrigated according to the survey.		Average irrigation assessment per Acre according to the Survey.		
1	2	3		4			5		6		
		Acres.	Yards.	Rs.	A.	P.	Acres.	Yards.	Rs.	A.	P.
1st Crop.....	Joint rent.....	53	0	83	4	11	0	0	0	0	0
	Enam.....	55	1560	35	1	1	0	0	0	0	0
		108	1560	118	6	0	496	4145	0	3	9

58. According to this Statement it will be seen that the total amount entered in this village under the head of a separate irrigation assessment for 1857-58 was Rs. 118-6; and this sum divided by the actual area irrigated as ascertained by survey gives three Annas and nine pice as the average irrigation assessment per Acre. It is scarcely necessary to add that there has been no rise here in the Joint Rent; and, if it were not for the sake of the comparison it would be but little use to submit the following table showing the total demand and outstanding balances against the village since 1845-46.

STATEMENT *showing the Total Demand and outstanding Balances from* 1845-46 *to* 1857-58 *against the village of Ogidy in the Talook of Ralunghy, and District of Masulipatam.*

Year.	Joint Rent.			Total Irrigation Assessment on Joint Rent and Enam lands collectively.			Total Demand on account of Government including certain Quit Rents.			Outstanding balance at the close of the year.		
1	2			3			4			5		
	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
1845-46.....	612	10	0	0	0	0	663	14	0	26	3	0
Average from 1845 to 1851.....	749	0	0	0	0	0	800	8	8	124	0	10
1851-52.....	576	9	0	0	0	0	749	10	6	0	1	0
Average from 1852 to 1856.....	674	4	9	0	0	0	777	7	9	0	3	8
1856-1857.....	741	2	0	43	4	2	903	12	3	0	0	0
1857-1858.....	741	2	0	118	6	0	995	4	0	0	0	0

59. As there are only some 36 Acres in this village of the total arable area, that were not more or less irrigated in 1857-58, the total Joint Rent may clearly be added to the separate irrigation assessment, to obtain the total consolidated assessment on the Joint Rent lands, which thus becomes Rs. 824. From the preceding Statement it will be observed that the village is pretty evenly divided according to the Tahsildar's accounts as to the tenure of the land, and supposing the extent of concealed irrigation in both to bear the same proportion, it would give 824 Rs. as the consolidated assessment on 247 Acres, and Rs. 3-5 as the average consolidated assessment per Acre. The state of this village must be taken as showing to a certain extent, how far the rise in the Joint Rents in other villages, where irrigation has been going on for several years, is due to the present rise in the price of produce, and how far to irrigation alone.

60. The remaining two villages to be measured in the Masulipatam portion of the western Delta were chosen both by the Collector and the Public Works Department on the Akeed canal, the one village being just above, and the other just below the Perrimilla lock. The country here is a dead flat, that stretches westward to the Colair lake, and southward to the Salt marshes, and in former days was annually inundated. It was swamped and baked by turns. It still requires draining, but the floods are no longer of annual recurrence, and the whole plain will in time be brought under rice cultivation, which now forms a wide border to the canal and its branch channels. In the following table the results obtained by survey are compared with the irrigated area in these two villages as shown by the Tahsildar's irrigation Returns for 1857-58.

STATEMENT *of the results obtained on comparing the irrigated Area as shown in the Irrigation Returns sent in by the Tahsildar, with the irrigated area as ascertained by Survey in the undermentioned villages in the Talooks of Pentapad and Kykalore, and District of Masulipatam.*

Name of the Villages.	Extent of Irrigated area according to the Tahsildar's Returns.		Extent of Irrigated Area according to the Survey.		Difference between columns 2 and 3, or extent of concealed irrigation.		Proportion of concealed irrigation to total Area actually irrigated.
	Acres.	Yards.	Acres.	Yards.	Acres.	Yards.	
Casapad.....	675	0	852	2,867	177	2,867	20 per Cent.
Comara.....	524	0	1,103	618	579	618	52 do.
	1,199	0	1,955	3.485	756	3,485	38 do.

61. In the first of these villages about three quarters of the real area irrigated has been entered in the accounts; but in the second village the accounts do not show half the area actually irrigated. Taking the two villages together the extent of concealed irrigation is 756 Acres, and it is 38 per cent of the total area irrigated.

62. Casapad, which was chosen by the Collector, lies above the Perimilla lock, and is an instance of a village where drainage is still required. Upwards of a hundred more Acres could thus be brought under cultivation, and the crop on a portion of the land now under irrigation was in danger, when I visited this village, of being lost from being swamped. The cultivation is almost entirely transplanted Paddy, and, considering that irrigation commenced in this village only 4 years ago, and till then did not exist in any shape, the Casapad people are a good example of the rapidity with which in some instances the ryots have adapted themselves to the new style of Agriculture. As might be expected where irrigation was so recent there was no second crop, and below I beg to submit the results of the Survey compared with the Tahsildar's Irrigation Returns in detail for the first crop.

COMPARISON *in detail of the Results obtained by Survey with the Irrigation Returns sent in by the Tahsildar for* 1857-58, *for the village of Casapad in the Talook of Pentapad, and District of Masulipatam.*

Season of Irrigation.	Tenure of the land.	Area irrigated according to the Tahsildar's Returns.		Irrigation Assessment.			Area irrigated according to the Survey.		Average irrigation Assessment per Acre according to the Survey.		
1	2	3		4			5		6		
		Acres.	Yards.	Rs.	A.	P.	Acres.	Yards.	Rs.	A.	P.
1st Crop.....	Joint Rent.	522	0	971	8	0	0	0	0	0	0
	Enam.	153	0	113	15	4	0	0	0	0	0
	Total...	675	0	1085	7	4	852	2867	1	4	4

63. In this village it will be seen that the separate irrigation assessment, shown in the Tahsildar's Returns, gives a comparatively high average on the total area of Rs. 1–4–4 per Acre, which is considerably higher than the sum levied on the Enam lands according to the Tahsildar's own Returns. Tested by the Survey the difference in all probability would be more striking. It arises from some kinds of Enam lands being permanently assessed at an irrigation assessment of only eight Annas, and others of four Annas per Acre. In the latter instance the land is not really any longer held under an Enam tenure. It was resumed, and assessed under a recent enquiry; but is still kept separate in the accounts, is assessed favorably as regards the Joint Rent, and has been thus favorably assessed as regards irrigation.

STATEMENT *shewing the total Demand and outstanding Balances from* 1845-46 *to* 1857-58, *against the village of Casapad in the Talook of Pentapad, and District of Masulipatam.*

Year.	Joint Rent.			Total irrigation assessment on Joint Rent and Enam lands collectively.			Total demand on account of Government including certain Quit Rent.			Outstanding Balances at the close of the year.		
1	2			3			4			5		
	Rs.	As.	P.	Rs.	As.	P.	Rs.	As.	P.	Rs.	As.	P.
1845–46	1,165	0	0	0	0	0	1,205	0	0	0	0	0
Average from 1845 to 1851	1,482	8	0	0	0	0	1,522	8	0	0	0	0
1851–52	1,644	0	0	0	0	0	1,687	8	1	0	0	0
Average from 1851 to 1856	1,568	12	1	0	0	0	1,610	14	8	0	0	0
1856–57	1,754	14	0	487	14	11	2,295	14	6	0	0	0
1857–58	1,517	3	3	1,085	7	4	2,661	8	2	0	0	0

64. In the Joint Rents of this village there has been a considerable increase above the Joint Rent in 1845. But this may have been the result of a bad season where irrigation did not exist in any shape, and the average demand and collections of the last five years, that the village was in the hands of the Zemindar, is only thirty-five rupees below the Joint Rent of the past year. As more than three quarters of the irrigation is transplanted rice, and there has been a considerable rise in the Joint Rents, I propose to give for this village the consolidated assessment on the irrigated area in the Joint Rent lands. The share of the Joint Rent fixed on these lands, I am informed by the Tahsildar was Rs. 1,167. The separate irrigation assessment was Rs. 971. The consolidated irrigation assessment was therefore Rs. 2,138, and the average consolidated assessment, taking three-fourths of the concealed irrigation to be in the Joint Rent lands was Rs. 2–10–4 per Acre. This is probably below the mark as the survey has doubtless included some land, that in the Tahsildar's Returns was entered and assessed in dry cultivation. As regards the total demand against the whole village it will be seen that there has been an increase of a thousand Rupees above what it was in 1851–52, and the average of the subsequent five years, and rather more, above the average of the previous five years, when the village was in the hands of the Zemindar.

65. Comara was the village below the lock, it was the selection of the Public Works Department, and is a good instance of a large sheet of irrigation, that has as yet, it may be said, wholly escaped assessment. It has been seen already, the recorded area was not quite half of the real area irrigated in this village, and in the following table, it will be seen further, that of this half, it was only in the Enam lands, that an irrigation assessment has been levied at all.

COMPARISON *in detail of the results obtained by Survey with the irrigation Returns sent in by the Tahsildar for* 1857-58 *for the village of Comara in the Tulook of Kykalore, and District of Masulipatam.*

Season of Irrigation.	Tenure of the Land.	Area irrigated according to the Tahsildar's Returns.		Irrigation Assessment.			Area Irrigated according to the Survey.		Average irrigation Assessment per Acre according to the Survey.		
1	2	3		4			5		6		
		Acres.	Yards.	Rs.	A.	P.	Acres.	Yards.	Rs.	A.	P.
1 Crop	Joint Rent	338		0							
	Enam	186		146							
		524		146			1103	618		2	1

66. Below the Perrimilla lock the Akeed canal occupies the bed of the Vaiyairoo which was an old irrigation channel, and flows past the village but here the level of the canal is too low to admit of direct irrigation, and Comara is irrigated from the Oondy high level channel, which takes off from the Akeed canal above the lock, and taking advantage of a ridge running north and south through the plain, irrigates the country on either side of it for some fourteen miles the edge of the Salt marshes, where the villagers in former days had to travel miles for drinking water, and now are supplied with fresh water for irrigation. The Oondy channel was dug in 1854, and it is stated by the Tahsildar that irrigation from this channel, commenced in Comara in 1855-56. In this case it would appear that the ryots have had the water for three years, and this year should hav e shown a separate irrigation assessment in the Joint Rent lands. Taking the assessment on the Enam lands as the total sum levied under this head for 1857-58 gives an average irrigation assessment of Rupees 0-2-1 per Acre.

67. In the Joint Rent generally there has been little rise since 1851-52 and I have been unable to ascertain what it was before then when the village was under the management of the Zemindar. The particulars of the last seven years were however forthcoming and are given in the following table:—

STATEMENT *showing the total Demand and outstanding Balances from* 1845-46 *to* 1857-58 *against the village of Comara in the Talook of Kykalore, and District of Masulipatam.*

Year.	Joint Rent.			Total Irrigation Assessment on Joint Rent and Enam lands collectively.			Total Demand on account of Government including certain Quit Rents.			Outstanding balances at the close of the year.		
1	2			3			4			5		
	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
1851-52	2,000	0	0	0	0	0	2,045	8	0	No		
Average from 1851 to 1856	1,987	0	0	0	0	0	2,004	12	0	outstand-		
1856-57	2,243	2	0	96	5	8	2,351	7	8	ing Ba-		
1857-58	2,300	0	0	146	1	1	2,462	13	1	lance.		

68. According to this Statement it will be seen that the Joint Rent for 1857-58 is Rupees 300 above the average from 1851 to 1856; and I should also mention, that the Joint Rent has been raised 400 Rupees more for next year, the puttah for which, according to the practice in the Masulipatam District, was given this year. And this further rise might perhaps justly be put down as an assessment to be paid ultimately on the irrigated area. But not falling within the years collections, I have merely given the irrigation assessment on the Enam lands as the total assessment levied for the current year on the score of irrigation, and have put down under the head of a consolidated assessment on the irrigated area in the Joint Rent lands, the total Joint Rent divided by the probable area irrigated according to the survey under this tenure. According to the accounts the Enam irrigation was only about a third of the Joint Rent. I have therefore taken two-thirds of the difference ascertained by survey as being in the Joint Rent lands; and this would give the irrigated area in the Joint Rent lands as 724 Acres, paying an average assessment of Rupees 3-2-9 per Acre, which is considerably above the mark. In this village there are about 136 Acres not irrigated, which I may mention here could be irrigated by lifted water, and in putting the total Joint Rent on the irrigated area only, the dry cultivation on this land has been given to the ryots into the bargain.

69. As regards the total demand against this village, it will be seen that as yet there has been but little more progress made in this respect than in the Joint Rent. The soil is good and what progress may be fairly made in the next two or three years, is sufficiently indicated by the averages given above.

70. When these two last villages were surveyed last month, the coming crop was so far advanced that it was impossible to say positively, whether the area now irrigated coincided with the extent of irrigation for 1857-58. But the villagers did not assert that any additional land had been brought under cultivation this year, and the only remark made to me on the subject, was made before, in Ogidy, and had reference to some lands cultivated now with transplanted paddy, having been last year sown broad cast. The extent thus cultivated will doubtless decrease each year. The practice belongs to the past, and under the influence of Anicut irrigation the ryots will soon grow out of it. But in the following table, I beg to submit for consideration the proportions in which it still exists in the four Masulipatam villages.

STATEMENT *showing the extent of land cultivated with Paddy sown broad cast; and its proportion to the total irrigated area, in the four undermentioned villages in the District of Masulipatam.*

Name of the Villages,	Total area irrigated,	Extent cultivated with paddy sown broad cast,	Proportion of Paddy sown broad cast to total area irrigated.
	Acres	Acres	
Chittapet	1423	542	38 per cent.
Ogidy	496	307	61 ,,
Casapad	852	22	2 ,,
Comara	1103	272	24 ,,

71. From this Statement it will be seen that the extent cultivated with Paddy sown broad cast varies much. In Casapad it is only 2 per cent; whilst in that miserably poor village of Ogidy it is nearly two thirds of the total irrigated area. And it is with reference to such villages chiefly, that I have submitted this table. The ryots of Ogidy are only able to cultivate about a third of their land with transplanted paddy. Whilst, whether they wish it or not, it is impossible, from the lay of the land, to keep the water out of the fields sown broad cast, without going to the same expense in embankments, as elsewhere to keep the water in. The interference of the Tahsildar is still in full force here as regards the extent of each man's cultivation. And under this combination of circumstances the ryots frequently find themselves cultivating more land than they require, and with advantages of which they have not the means to avail themselves fully. I would not advocate for a moment a distinctive rate, for that is opening the door to unbounded fraud. But it seems only fair that in such cases a temporary reduction should be made in the general irrigation rate, and so long as the present system lasts, that such villages should not be called on to pay in the same proportion as other villages, where the greater part of the crop is transplanted paddy.

72. Having now submitted in detail the results, which have been obtained by a most careful Survey of the irrigated area in the eight villages selected in the Delta of the Godavery, it will be advisable to throw these results together, and show in two general Statements, first, the total extent of the concealed irrigation thus brought to light, and its proportion to the total area actually irrigated; and secondly, the average assessment per Acre, according to the Irrigation Returns sent in by the Tahsildars. In both statements, to facilitate comparisons, the villages are given separately according to the district to which they belong, and, in both, the fractions of an Acre have been omitted, though duly taken into account in making up the totals.

GENERAL STATEMENT *showing the total extent of concealed irrigation in the eight villages Surveyed in the Delta of the Godavery, and its proportion to the total area irrigated.*

	District and division of the Delta.	Name of the Villages,	Extent of the irrigated area according to the Tahsildars Returns.	Extent of irrigated area according to the Survey.	Difference between Columns 2 and 3, or extent of concealed irrigation.	Proportion of concealed irrigation to total area actually irrigated.
			Acres.	Acres.	Acres.	
Rajahmundry.	Eastern Delta	Gundraidoo	728	795	67	8 per cent.
		Meddapad	615	1,757	1,142	64 ,,
	Western Delta	Siddantum	906	1313	406	30 ,,
		Moolapurroo	1,091	1,365	274	20 ,,
		Total	3,341	5,232	1,890	36 ,,
Masulipatam.	Western Delta	Chittapet	759	1423	664	46 ,,
		Ogidy	108	496	388	77 ,,
		Casapad	675	852	177	20 ,,
		Comara	524	1103	579	52 ,,
		Total	2,066	3,876	1,810	46 ,,
		Grand Total	5,407	9,108	3,700	40 ,,

District and Division of the Delta.		Names of the Villages.	Total area irrigated according to the Survey.	Irrigation assessment according to the Tahsildar's Returns.			Average assessment per Acre on total area irrigated.			Average consolidated assessment per Acre, on Joint Rent lands.		
			Acres.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
Masulipatam.	Western Delta.	Chittapet	1,423	849	2	3	0	9	6	4	2	0
		Ogidy	496	118	6	0	0	3	9	3	5	0
		Casapad	852	1,085	7	4	1	4	4	2	8	1
		Comara	1,103	146	0	0	0	2	1	3	2	9
		Total	3,876	2,198	15	7	0	9	0	0	0	0
		Grand Total	9,108	7,563	5	2	0	13	3	0	0	0

78. It will be observed that to this general Statement of the average irrigation assessment per Acre on the total area irrigated, I have added a column showing similarly the average consolidated assessment per Acre on the Joint Rent lands. But this I must repeat is only an estimate. In some instances it is above, in others, it is below the mark, and I only give it here as showing to some extent, what, at present is the total assessment borne by the Joint Rent lands under irrigation.

79. In Gundraidoo it is probably quite correct; and there, it will be seen, the average consolidated assessment is Rs. 5-12-1 per Acre. This is the highest rate shown and contrasts strongly with some of the other villages, where with a much richer soil, as in Siddantum, the consolidated assessment is only Rs. 4-11, or in Casapad, where the soil is perhaps inferior, but the assessment is less than half. But the recent date at which irrigation commenced in the Masulipatam villages must be taken into consideration with other circumstances specially referred to in considering each village, and I would now only draw attention to the average per Acre on the total irrigated Area, including both the Joint Rent and Enam lands, of the total irrigation assessment fixed for these eight villages for 1857-58.

80. Here again it will be seen that the highest rate is in Gundraidoo where it is Rupees 2-3-5 per Acre; and the next highest rate is in Meddapad where it is Rupees 1-5-8 per Acre. In the remaining two villages in Rajahmundry the rate from reasons, to which reference has already been made is much lower, and, in Moolapurroo, on 1365 Acres is only Rupees 0-5-2 per Acre. On the four villages the average per Acre is Rupees 1-0-4.

81. In Masulipatam the highest rate is Rupees 1-4-4 per Acre; whilst in the village of Comara where irrigation commenced only lately, but has spread with marvellous rapidity, on 1,100 Acres the average of the separate irrigation assessment as fixed in the returns would be Rupees 0-2-1 per Acre. The average per Acre in the four Masulipatam villages taken as a whole is Rupees 0-9-0 per Acre.

82. So far as the Survey of the irrigated Area in eight villages can be considered a guide, it has been seen by the preceding statement, that for every six Acres entered in the accounts, there are ten Acres actually under irrigation in the Delta of the Godavery; and from this statement it will similary be seen, that the average assessment according to the Survey for the benefit of irrigation, is only Rupees 0-13-3 per Acre.

83. How far these results will be borne out by the general Survey, which has now been commenced, it is impossible to say. The extent of concealed irrigation is estimated by some at 30 per cent, by others higher and it is quite possible that the average now obtained is below the mark; for it must be kept in mind that no Survey has been made of the Delta. But whatever may prove to be its exact proportion, there can be no doubt that at present the extent of concealed irrigation is very great; and I shall perhaps be excused, if, before entering into the question of crops, I submit for consideration a method, by which it seems to me, no small portion of this concealed irrigation might be brought to account within the current year.

84. At present the irrigated Area is shown in the Irrigation Returns, village by village, solely with reference to the position, which these villages happen to occupy in the Revenue accounts. The villages still in the hands of Zemindars appear of course in a different account, from the villages in the hands of Government; and the extent of irrigation in the Enam villages must be looked for in a third account. It is

73. From this Statement it will be seen that the extremes met in the two first villages which were examined. In Gundraidoo the extent of concealed irrigation was only 67 acres. No survey has ever been made of the Delta of the Godavery. The villages have only been measured in the native fashion, and a difference of 8 per cent might easily have been the mere result of a more scientific system of measurement. But such an idea cannot be maintained with reference to the other villages ; and, in the second village of Meddapad, it will be seen that there was 1142 Acres of concealed irrigation, and the recorded area was not much more than a third of the real area irrigated. The total extent of concealed irrigation in the Rajahmundry District was 1,890 Acres and its proportion to the total area irrigated was 36 per cent.

74. In the Masulipatam District the concealed irrigation was distributed more evenly ; and its greatest proportion to the total area irrigated was in the small village of Ogidy, where it has been seen that from the poverty of the ryots, the greater proportion of the irrigated area was cultivated with rice sown broad cast. By a curious coincidence, the total extent of concealed irrigation is nearly the same here, as in Rajahmundry ; but the recorded area is considerably smaller ; and 1810 Acres, which was the total extent of concealed irrigation in the four Masulipatam villages, was no less than 46 per cent of the irrigated area shown by the Tahsildar's Returns. In Masulipatam, in round numbers, the recorded area was not much more than half the area actually irrigated.

75. The total extent of the irrigated area in the eight villages, as shown by the irrigation Returns, was 5,407 Acres—by the survey it was 9,108 Acres. In these eight villages there was therefore 3,700 Acres of concealed irrigation ; and, so far as it has been thus tested, the concealed irrigation in the Delta of the Godavery is at present 40 per cent of the area actually irrigated. For every 6 Acres entered in the Tahsildar's Returns, there are 10 Acres actually under irrigation.

76. But as regards the actual extent of concealed irrigation entered in the preceding table, I must here explain, that it by no means shows the real extent of concealed irrigation during the year, which rose it has been seen, when thus tested in the two villages noted marginally, from 1,200 to 1,500 Acres. This however was only done in these two villages ; and the general Statement simply shows the extent to which the area actually irrigated has been concealed.

Name of Villages,	Difference in irrigated area,	Difference in extent of irrigation during the year, as measured by crops.
	Acres,	Acres,
Gundraidoo	67	135
Meddapad, ...	1,142	1,377
Total...	1,209	1,512

77. In the following general Statement I have endeavoured to show the average per Acre on the total irrigated area according to the survey, of the separate irrigation assessment entered in the irrigation Returns for these eight villages. For the first two villages, however, where the Joint Rents, it has been shown, have been greatly raised, and manifestly include much that would otherwise have appeared in the Returns under a more appropriate head, a change has been made as regards those Returns ; and in this Statement, to the assessment on the Enams, I have added what would be apparently the true amount of a separate irrigation assessment on the Joint Rent lands, as shown in my remarks on those villages. For the other two villages in Rajahmundry, there has also been a slight change made with reference to the village expenses. But the change on this account has been very small ; and in the Masulipatam villages, the assessment has been given as it stands in the Returns.

GENERAL STATEMENT *showing the average per Acre on the total irrigated area, according to the Survey, of the Irrigation assessment fixed for* 1857-58 *on the irrigated area, according to the Tahsildar's Returns, in the eight villages surveyed in the Delta of the Godavery.*

District and Division of the Delta.		Name of the Villages.	Total area irrigated according to the Survey.	Irrigation assessment according to the Tahsildar's Returns.			Average assessment per Acre on total area irrigated,			Average consolidated assessment per Acre, on Joint Rent lands,		
			Acres.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
Rajahmundry.	Eastern Delta.	Gundraidoo.....	795	1,751	4	10	2	3	5	5	12	1
		Meddapad.....	1,757	2,394	0	9	1	5	8	2	9	0
	Western Delta.	Sidduntum.....	1,313	775	0	0	0	9	5	4	11	0
		Moolapurroo.....	1,365	444	0	0	0	5	2	4	8	0
		Total..	5,232	5,364	5	7	1	0	4	0	0	0

thus a matter of considerable research to form any idea of what is the total Area irrigated according to these Returns ; and it is utterly impossible to say what is the precise Area shown in the Returns as irrigated by any one particular channel. It is therefore impossible to apply any general test to the accuracy of these Returns ; and any attempt to correct them must now be made piecemeal and by hazard.

85. I would suggest that a Statement should be drawn up at once by the Revenue Department, showing, channel by channel, every irrigated village in the Delta with the extent of its irrigated area as shown by the irrigation Returns for the last year, 1857-58. The channels should be grouped according as they are supplied from the head sluices at Dowlaiswarum, the central Delta or Vigaiswarum. And this statement would thus show, at a glance, the total area irrigated under each particular channel, the total area irrigated from the three head sluices respectively, and, thirdly, the total area irrigated during the past year according to the Tahsildar's Returns, in the whole Delta of the Godavery. This Statement of the irrigated area should be furnished with two blank columns, and sent as soon as made out, to the District Engineer, to be distributed by him to the Executive Engineers in charge of the several channels. And with this document in their hands, these Officers would be able to give the most valuable assistance to the Collector in testing the accuracy of the Returns, that had been sent in by the Tahsildars, and on which this Statement would be founded.

86. There is not the means at present of measuring with any precision the quantity of water supplied for irrigation, but the total quantity passing through each of the head sluices is known with considerable accuracy, and, where not done already, it would be an easy matter for the several Executive Engineers to distribute this supply ; and show in the Revenue statement, in the blank column to be left for this purpose, the total quantity of water consumed in each channel under their charge. Founding their opinion partly on this information, and partly on personal observation, the Executive Engineer would further be able to give the Collector a very fair idea of how far the total area returned by the Tahsildar showed the total area irrigated under the channel in question. This information should be entered in the second blank column, and thus a general test would be at once obtained for ascertaining the accuracy of the Irrigation Returns.

87. But the process might be carried out much further. The distribution of the water is entirely in the hands of the several Executive Engineers and their subordinates. The supply of water taken by each village is wholly regulated by their orders. And it would be thus in the power of the Executive Engineer, to show with considerable accuracy how the total quantity of water consumed in each channel, has been distributed, and enter opposite to each village in the blank column, already referred to, the average quantity of water assigned to it. Where the discrepancy was very great between the quantity of water consumed, and the area returned as irrigated by the Tahsildars, the Executive Engineer would himself be able in many instances to call on the village authorities to point out their boundaries, and enter in the second column, for the village, as for the whole channel, what in his opinion was the real area irrigated. But this could not be carried out to any great extent, without interfering with the Engineers own specific duties ; and the Statement should be returned to the Collector as soon as the average consumption of water by the channels, and by the villages under each channel, had been duly entered, with the estimated extent of the total area irrigated for the current year under each particular channel.

88. The information as to the consumption of water should of course be given in one form, and probably so many cubic yards per hour would be the form selected ; for one cubic yard per hour is considered a fair average supply for an Acre of transplanted paddy ; and this calculation therefore measures, at the same time, the quantity of water supplied and the probable extent of land irrigated. And on the receipt of the General Statement, thus filled up, the Collector would be able at once to decide where enquiry was most required, and use thus the limited means at his disposal to the greatest advantage. There would not only be the valuable information afforded direct by the Executive Engineers as to the extent of irrigation under each channel, and in various villages ; but there would be in every case the relative consumption of water to serve the Collector as a sure guide to the true extent of the irrigated area in each village.

89. The checks thus imposed by recording the relative consumption of water would be of great service one village would check another ; one channel would check another ; and finally from this State-

ment it would be seen how far the total supply sent through each set of head sluices was turned to full account, and how far the Area irrigated in each Delta agreed with the quantity of water supplied. Such a Statement as this would be of no small service in checking fraud, even when a regular survey has been made; and I would recommend, on this account, that it should be similarly made out, and forwarded to the District Engineer each year, at the commencement of the irrigation season. Whilst it would be most valuable hereafter for other reasons also, to which I may as well briefly refer. In para 13, I have stated that there is an ample supply of water for irrigation and navigation from July to February. But how far this will continue to be the case, as irrigation extends is very doubtful, unless some measures are taken to stop the present fraudulent waste of water. In order to manure their land with the Silt with which the water is charged, the ryots endeavour to obtain, not a fair supply for the crop, but all the water that they think can be given to the land, without injury to the crop, and, when the extent of land to be irrigated in each village has been ascertained with some degree of accuracy, it is clear that the hands of the Executive Engineers will be considerably strengthened by the proposed Statement. They will then be able to decide with certainty what quantity of water shall be allowed to each village. On the other hand the villagers will have the benefit of a record to which they could refer with confidence. At present much is left to the discretion of subordinates; and it is not uncommon to hear of an Overseer being put to flight by the ryots of some village, who consider that they have been unfairly treated. The Statement now proposed would become in time a most important record of valuable rights; and, in this way, be of great service to all parties.

90. In describing how the method should be carried out, that I have ventured to propose, I have treated the subject, as if the fiscal management of the whole Delta was vested in one Office. But, under present arrangements, the Statement would have to be made out for the western Delta, partly by the Collector of Rajahmundry, and partly by the Collector of Masulipatam. In this way much of the clearness and precision would be lost; and where the channel belongs partly to one district, and partly to the other, the Executive Engineer would be obliged to calculate the total consumption in either district, by the average consumption of water in each village. However, enquiries I believe are now being made with a view to giving the two districts a straight boundary line; and, if this line were adjusted with reference to irrigation, the difficulty, so far as channels are concerned, would be got over. The boundary line might be brought to Chittapet, and the whole of the Akeed and Ellore canals with their branch irrigation channels given to Masulipatam, but whatever arrangements may be made in this way, it will never give the clearness and simplicity that would be obtained by placing the whole Delta of the Godavery under the fiscal management of one Office; and the advantages that would result, from carrying out such a comprehensive reform, would I believe fully repay the trouble, and additional changes that it would inevitably involve. I have already referred to the Marootair, the drainage into the Colair and the Oopootaur, the drainage out of the lake, as forming with the lake itself, the natural boundary of the Delta; and this clearly marked line, I would respectfully submit, should be made the boundary line of the Rajahmundry District. The total quantity of water supplied the whole extent of land irrigated, and the total amount of Revenue realized in the Delta of the Godavery could thus be shown clearly and distinctly in one set of accounts Uniformity might be secured in the revenue system over the whole Delta. And, when the supply of water, and the revenue realized, are thus brought into direct comparison, the greatest possible check will have been obtained against fraudulent practices.

91. I now beg to submit a statement, showing the result of the experiments, which were made in concert with the District Engineer, to ascertain the value per Acre of the crop including the straw, at the current prices of the village, and the net profit to the ryots after meeting the expences of cultivation and paying the Government demand. In the Delta of the Godavery the first crop is the most valuable. The consolidated assessment is fixed chiefly with reference to this crop; and I much regret, that the experiments, given below, show merely the results obtained on measuring portions of the second crop. But the first crop, which is planted in July had been reaped long before I arrived. It is all gathered, in fact by the end of January; and the value of the second crop is all, that I have been able to test personally.

STATEMENT *showing the result obtained by measuring a small portion of the second crop in the undermentioned villages.*

Name of the village in which the experiments were made and number of the experiment.		Description of the soil.	Produce of the crop per Acre. Paddy straw.		Value of the Paddy or rice in the husk.			Value of the straw.			Total value of the crop per Acre.			Cost of cultivation per Acre.			Govt. demand per Acre.			Net profit to the ryot after deducting the total of columns 7-8.		
1		2	3		4			5			6			7			8			9		
			lbs. Avoirs.	Bundles.	R.	A.	P.	R.	A.	P.	R.	A.	P.	R.	A.	P.	R.	A.	P.	R.	A.	P.
Gundraidoo....	1	Pal soutee (milk coloured)	1,060	15	8	13	5	1	4	10	10	2	3	4	4	0	1	0	0	4	14	3
Do.	2	Nulla revady (black cotton)	1,639	40	13	10	7	3	5	10	17	0	5	4	4	0	1	0	0	12	12	5
Meddapad.....	3	Gurrapa (mixed with clay)	1,642	26	13	10	7	2	2	8	15	13	5	4	4	0	2	0	0	9	9	5
Do.	4	Do.	,784	12	6	8	7	1	0	4	7	8	11	4	4	0	2	0	0	1	4	11
		Average.....	1,281	23¼	10	10	9	1	15	5	12	10	3	4	4	0	1	8	0	7	2	3

92. When the survey of Gundraidoo was commenced in May, the second crop which is planted, as soon as the first crop is off the ground, was just turning; and the first experiment aptly illustrates one of the many vicissitudes to which the ryots are exposed. The crop was not quite ripe, when the weather became threatening. A heavy shower fell; and the ryots dreading that more rain was coming, and the grain would be injured began to cut in all sides. The land also was comparatively poor; and this experiment gives a small result. The second and third experiments show the results obtained on good land, where the crop was perhaps a little over the average, and was cut at the right time. Whilst in the fourth experiment, though the land was of the same quality, as in the third experiment, and the crops had had full time to ripen, the yield was inferior.

93. From the rapid extention of cultivation, there is a scarcity of labour at the season of cultivation; and it is impossible for many of the ryots to get the whole of their transplanted rice put into the ground at the proper time. This crop had been planted too late, and gave in consequence the inferior return shown in the above table. These experiments it will be seen were all made in the two first villages measured in Rajahmundry. But this difficulty as to labour is particularly felt in the Masulipatam portion of the Godavery Delta. And at the present time (August 27th) the ryots in Pentapad are getting their first crop transplanted at a cost of 2 annas 6 pice for the men and 2 annas 3 pice for the women per diem. The crop should have been in the ground by the middle of last month. The ryots are contending for the labour; and the result is strikingly marked in the slovenly appearance of the agriculture. There is not an attempt to weed; and the Banks, which regulate the supply of water on the fields, are in wretched repair. The slovenly appearance is not the fault, but the misfortune of the ryots, and must affect the yield in those parts of the Delta; whilst the actual cost of cultivation is perhaps as high, if not higher than elsewhere.

94. The measurements were made with the local measure of a Coontsum, of which two hundred make a Mullika, or Royal, pooty.—But to facilitate comparisons with the account of produce raised elsewhere, I have given the results in pounds avoir-dupois. On weighing the Coontsum, when struck into the heap as well as heaped itself, which is the usual native way of measuring, I found the paddy weighed 233 Rupees, which would make the Coontsum 5,991 lbs, and the Pooty 11,982 lbs, but the Mullika pooty of paddy is usually taken to weigh 1,200 lbs, and the Coontsum 6 lbs; and, as the difference was less than 2lbs, in 1,200, in the above statement the Coontsum has been taken at its usual weight of 6 lbs, for convenience of calculation.

95. The average yield it will be seen in these experiments was 1278 lbs, and, in a statement of which Mr. R. Smith, was kind enough to give me a copy, and which contained the result of twenty four experiments made by him with the second crop, three years ago, I find an average yield of 1,152 lbs. From this it would appear that the results now obtained are certainly not above the average, and taking one village with another, are perhaps tolerably near the mark as to quantity. The price of the grain has been calculated at 10 Rupees the Pooty. The dealers were buying a little, as it was cut, below that figure; but the quantity bought was very small; and within the month the price stood steady at 10 Rupees,

which was accordingly taken as the standard. The straw was measured by bundles, as much as a man could carry, and calculated at one anna 4 pice a bundle. And the Total value of the crop including the straw varied, it will be seen from Rupees 7-8-11 to Rupees 17-0-5.

96. The expense of cultivation is usually calculated with reference to the first crop, and a deduction is made to give the cost under this head for the second crop. I was informed by a most respectable native in the Western Delta, who had just planted 24 Acres with a first crop, that he expected to gather it in at a cost of Rupees 4 per Acre. It was however easy worked soil otherwise he estimated that the cost would have been Rupees 5 per Acre. And I now beg to give the average results of several Memo's, which I took down on this subject at different times in different parts of the Delta, the calculation was always for the cultivation of eight Acres, which it is supposed is the extent of land, that can be sown with a Pooty of seed; and as regards the following items there was little difference. Ploughing costs Rupees 7; the young plants Rupees 4-8-0; weeding Rupees 2; reaping and stacking Rupees 7; thrashing Rupees 3-8, and sundries Rupees 2; in all Rupees 26. But the cost of transplanting varies according to the distance that the plants have to be carried, and the cost of labour from Rupees 9 to Rupees 16. Taking the average would give Rupees 12-8-0 and make the total cost Rupees 38-8-0. The cost of the second crop may be considered a seventh less; and, taking the cost of the first crop at Rupees 40 for the eight Acres, and Rupees 5 for one Acre, this would give the cost of cultivating the second crop at Rs. 4-4 per Acre.

97. The assessment on the land has been given at the additional water rate fixed on it for the second crop. After comparing the results obtained by the survey in the Eastern Delta with the irrigation returns sent in by the Tahsildar, I wrote to Mr. Purvis requesting to be informed whether any assessment was to be fixed in those two villages on the second crop, and subsequently forwarded the measurements, which had been made there, as I have already mentiond in detail. By the Statement which I received in reply, I find that in Gundraidoo the additional assessment has been fixed at one, and in Meddapad at two, Rupees per Acre, which has been entered accordingly, and I may perhaps as well mention here, that from this Statement it further appears, that the total demand against Meddapad has been raised 1,912 Rs. above the sum given in para 33; being Rs. 1,279 for certain lands cultivated in the beds of tanks with a first crop, and in dispute at the Jummabundy, and Rs. 633 for the total extent of second crop.

98. In column 9 will be found the net profit to the ryot after deducting the cost of cultivation and Government demand calculated at these rates. It rises in one instance it will be seen to Rupees 11-8-5, but, where the crop had been planted late, falls to Rs. 1-0-11; whilst on the same description of land, in the same village and only separated by a few fields, it was Rs. 9-5-5. (experiment No. 3) The average net profit is Rs. 7-2-3 per Acre.

99. But this would give a wrong impression; as the portion of the Joint Rent to be paid by each of these fields, except in the first experiment, which happened to be made in Enam land, would be fixed with reference to the power of the land to bear a second crop; and the additional irrigation assessment for a second crop, entered in the above table, does not therefore for three of the experiments, show the total demand. The actual demand against the land, and real net profits, can only be ascertained accurately, by taking the produce of the first and second crops, and deducting from this total, the consolidated assessment for the first, with the additional assessment for the second crop, the portion of village expenses borne by the land in question, and the total cost of cultivation for both crops. But for this purpose it would be necessary in this instance to take a mere estimate for the actual produce of the first crop, which is the most important item in the whole Statement and no reliance could be placed on such a calculation. It will perhaps be more to the purpose if I simply take the average yield per Acre of the first crop, and add it in each experiment to the ascertained yield of the second crop, which will give some general idea, and, as it is only superior land that is cultivated with a second crop, will show results, that are probably under the truth.

100. By the Public Works Department it is considered that the average yield per Acre for the first crop of transplanted rice is a Pooty and a half, or 1800 lbs, of paddy. How far this calculation takes into count the difficulties and chances of cultivation, to which reference has been already made, I am unable from personal experience to give any opinion; and in the present state of transition, it is scarce possible that any average would be generally applicable. But for reasons already given a Pooty and a half, or 1800 lbs. of paddy, may I believe be taken with safety as the average yield for the first crop, in the two crop lands measured in Gundraidoo, and Meddapad, where irrigation has been going on for many years; and the following table has been made out accordingly.

STATEMENT *showing the probable total produce per Acre of a first and second crop of Paddy in the undermentioned lands of which the second crop was measured, and the net profit to the ryot after deducting the cost of cultivation and the total demand on account of Government.*

Names of the villages in which the experiments were made, and No. of the experiment.		Description of Soil.	Probable value of first crop including the straw.			Ascertained value of second crop including the straw.			Total value of first and second crop.			Total cost of cultivation.			Net value of produce after deducting column 6.			Total demand on account of Government.			Net profit to the ryot after deducting the total demand from the Net value of produce.		
1.		2	3			4			5			6			7			8			9		
			R.	A.	P.	R.	A.	P.	R.	A.	P.	R.	A.	P.	R.	A.	P.	R.	A.	P.	R.	A.	P.
Gundraidoo	1	Pal Soutee (milk coloured)	22	0	0	10	2	3	32	2	3	9	4	0	22	14	3	3	0	0	19	14	3
Do.	2	Nulla Revady (black cotton)	22	0	0	17	0	5	39	0	5	9	4	0	29	12	5	10	13	4	18	15	1
Meddapad	3	Gurrapa (mixed with clay)	22	0	0	15	13	5	37	13	5	9	4	0	28	9	5	10	13	6	17	11	11
Do.	4	Do.	22	0	0	7	8	11	29	8	11	9	4	0	20	4	11	9	15	8	10	5	3
		Average	22	0	0	12	10	3	34	10	3	9	4	0	25	6	3	8	10	7	15	10	9

101. The value of the first crop per pooty of 1200 lbs has been taken at 13 Rs. It is a Rupee below the price given by the Collector as the current price of the District for January, but it is a little above the average of the last ten years; and it is what the grain dealer at Gundraidoo told me, that he had given there for the first crop. The price rose subsequently to 14 Rupees, and a great quantity of paddy is now passing through the Vigaiswarum lock, for some of which, I am told, Rs. 15-4 had been given. Some has been locked up till now in consequence of there not being water enough in the drainage channals for navigation, and some because the ryots were holding back for high prices. But these prices must be put down to the profits of capital. Taking the price per pooty at Rs. 13, and the average yield at a pooty and a half per Acre, gives Rs. 19-8 as the value of the paddy to which I have added Rs. 2-8 for the straw, making in all Rs. 22 as the total average value of the produce per Acre for the first crop.

102. The total value of the second crop, and the total cost of cultivation have been already considered. The total demand on account of Government has been ascertained, with regard to the Enam. by adding the assessment on the second crop to Rs. 2 irrigation assessment per acre for the first crop, and with regard to the other lands, by adding similarly the assessment on the second crop, to the average per acre of the consolidated Joint Rent, which was shown by the Tahsildar's accounts, to have been fixed, with share of village expenses, on each of the fields in question. Deducting the total cost of cultivation and total demand from the total value of the first and second crops the result is the net profit to the ryot, which rises to Rs. 18-15-1 per acre, and gives an average on the three experiments in the Joint Rent lands of Rs. 15-10-9. It will probably have been observed however, that in calculating the cost of cultivation, no entry has been made for manuring the land. In fact it is the exception where the land at present gets any thing like a real dressing. But the straw, to a certain extent, is everywhere turned to some account in this direction. The natives look only to the grain for a return on the outlay. The calculations are made accordingly, and the straw hitherto has been left in the hands of the cultivating ryot. In England it is a condition in well regulated farms, that so much of the straw and the green crops should be consumed on the land. Here the condition is not requisite; for over the greater part of the delta there is no market to tempt the ryot to impoverish his soil to the utmost. His neighbours wont give him more than he knows the straw is worth to himself; and consequently the greater part of the straw is put back into the hand a portion in the valuable form of animal manure, and the rest either by being ploughed in, to give the black cotton soil consistency, and eventually form a vegetable manure, or else burnt, to sweeten the soil in the shape of ashes. From a half to three quarters probably of the straw is requisite, in the absence of other manure to keep the land in good heart, and secure an average yield of one and a half pooties; and it will therefore be necessary to make a corresponding deduction from the value of the straw, shown in the total value of produce. The result is given in the annexed table; and the proportion

of straw put back into the land has been taken at three quarters, to be on the safe side as regards the ryot.

STATEMENT *showing the probable Total Produce per Acre of a first and second crop of Paddy in the undermentioned lands, of which the second crop was measured, and the net profit to the ryot after deducting the total cost of cultivation, value of the straw put back into the land, and total demand on account of Government.*

Name of the village in which the experiments were made and No. of the experiment		Description of Soil.	Total value of first and second crops, including the straw.						Total cost of Cultivation.			Value of Straw put back as manure.			Net value of Produce less columns 6 & 7			Government demand.			Net profit to the ryot after deducting column 9 from net value of produce.		
			Paddy.			Straw.			Total.															
1		2	3			4			5			6			7			8			9			10		
			R.	A.	P.	R.	A.	P.	R.	A.	P.	R.	A.	P.	R.	A.	P.	R.	A.	P.	R.	A.	P.	R.	A.	P.
Gundraidoo.	1	Pal Soutee (milk coloured.).....	28	5	5	3	12	10	32	2	3	9	4	0	2	13	7	20	0	8	3	0	0	17	0	8
Do.	2	Nulla Revady (black cotton).....	33	2	7	5	13	10	39	0	5	9	4	0	4	6	4	25	6	1	10	13	4	14	8	9
Meddapad.	3	Gurrapa (mixed with clay	33	2	7	4	10	8	37	13	3	9	4	0	3	8	0	25	1	3	10	13	6	14	3	9
Do.	4	Do.	26	0	7	3	8	4	29	8	11	9	4	0	2	10	3	17	10	8	9	15	8	7	11	2
		Average...	30	2	9	4	7	5	34	10	2	9	4	0	3	5	6	22	6	8	10	8	11	12	2	6

103. In the preceding Statement the value of the straw has been included for each crop in the value of grain. In this Statement the value of the straw has been separated; and the total value of the straw for both crops has been entered in column 4; whilst column 3 shows similarly the value of the paddy. As regards the value of the straw it is scarcely necessary to add that it is a mere estimate. In the neighbourhood of towns, straw has of course a well known value; it would be worth considerably more than the sum shown here; and though the value of the straw put back into the land would be proportionately greater, the gain on the straw, that could be safely sold, would also be larger. But these exceptional cases I have not attempted to take into consideration; and the estimate given is only put forward, as an approximation.

104. Deducting the total cost of cultivation, and the value of the straw put back as manure, gives the net value of the produce, which has been entered in column 8. In column 9 the Government demand has been given. And it will be seen that taking the average of the three experiments in the Joint Rent lands, the Government demand is somewhat less than a half of the net profits. The actual net profits to the ryot, after paying the Government demand, vary from Rs. 7-11-2 to Rs. 14-8-9, and the average is Rs. 12-2-6 per acre.

105. In examining into the prices of produce the vast advantage to the ryots of a free water carriage comes very strongly into view. Along the lines of navigation it is scarcely possible to detect any difference in price. The Cocanada or Coringa merchant sends his boat, and gives the ryot at the bank the same price, whether the grain has to be fetched 20, or 50 miles. And this is not only the case with rice; but it extends to all produce. The boat hire is by the trip, and not the distance. I found one morning six boats lying at the bank at Siddantum. Two were bound for Coringa with Bengal gram, and chillies; two for Cocanada with chillies; and two for Ellore with chillies also. In the last instance the boats were going by the Akeed canal and the Colair lake, for the Ellore high level canal was closed at the time. The distances varied from 70 to 90 miles; and the boat hire to be paid in each instance was the same,—a rupee per pooty. There was no difference in the cost of carriage with reference to the distance, and calculating the pooty at 1200 lbs. (the weight of a pooty of paddy which would have been carried at the same rate,) would give the cost of carriage at Rs. 1-14 per ton, for the whole distance, and from 4 to 5 pice per ton, per mile. Distance is ignored. The merchant pays by the trip; And the ryots at a distance are benefited accordingly. The traffic on the canals is enormous; and so long as no check is imposed on this traffic, by way of tolls, no greater help could be given towards bringing rapidly the whole delta under cultivation.

106. But leave the lines of navigation, and I have already referred to the consequences, with reference to the position of Gundraidoo. The produce must be carried every step on men's shoulders. If a village is four miles from the bank, the men can only make two trips a day; and every Rupee's worth of paddy, that the ryot puts down on the canal bank, will cost nigh on an Anna for carriage. Roads are a necessity; and, if it should not be in contemplation to make at present the same allowance here, for this purpose, as in South Arcot, and elsewhere. I would strongly recommend that measures should at once be taken, nevertheless, to mark off and secure the requisite land for the new lines of traffic, before it is all appropriated. Even now there will be some difficulty in many cases, and each year land will become more valuable, and the difficulties will increase.

107. It will be observed on referring to the description of soils given in column 2 in the preceding Statements of produce, that the best yield of an average looking crop was got on black cotton soil. And as it has been much discussed, how far the black cotton soil is capable of giving only one crop under irrigation, the following table will perhaps be deemed to have some value, as showing, not only to what extent this soil had been irrigated during the past year in Gundraidoo for both a first and second crop, but also to what extent it had been considered there, that the black cotton soil would repay the additional cost of lifting the water for irrigation by means of Pycottahs owing to the measurements having been made with reference to the large fields entered in the accounts and not the minute sub divisions for irrigation, in many instances, in the same field, some of the land was irrigated by running, and some by lifted water, such cases have been entered in the 4th and 7th columns.

STATEMENT *showing roughly the various soils in Gundraidoo; and the extent to which they were severally irrigated in* 1857-58 *by running and lifted water.*

Description of Soil.	Total Extent of each class.	Extent of each class cultivated with a first crop, and how irrigated.			Extent of each class cultivated with a second crop and how irrigated.		
		By running water.	Partly by running partly by "lifted" water.	By "lifted" water only.	By running water.	Partly by running. partly by "lifted" water.	By "lifted" water only.
1	2	3	4	5	6	7	8
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Yerra Checku.....	68	6	32	11	0	1	0
Ditto mixed with Revady	61	2	39	0	2	6	0
Gurrapa.....	66	39	7	6	26	1	0
Ditto mixed with Nulla Revady.....	72	0	58	0	0	4	0
Ditto mixed with Tella do.....	39	25	8	0	20	4	0
Paty.....	1	1	0	0	0	0	0
Pal Souty.....	29	14	4	5	9	0	1
Tella Revady.....	54	39	0	1	32	0	0
Black cotton soil	617	299	149	41	114	54	2
Total...	1,011	430	300	66	206	73	3

108. In that part of the Delta, the best description of soil is called "Yerra Checka." It is entered first in the list; but in this village it lies high; it will be observed that even for the first crop there was only a very small portion of land where it was not necessary to lift the water wholly or in part; and on this account probably the total extent cultivated with a second crop, when the level of the water is much lower was only one Acre but it would take up too much space were I to refer to this Statement in detail. I would simply call attention to the fact, that there was nearly twice as much black cotton soil cultivated with a second crop, as all the other varieties of soil put together. It forms it is true half the arable area of the village, and it might on this account be expected that a half of the second crop would be found on this class of soil. But assuredly this fact does not account for the existing proportions; and the fact that it is not a question of levels either in this case, is proved by the relative extent, to which the black cotton soil had been irrigated by lifted water for both the first and second crops, compared to the other varieties thus cultivated. When the black cotton soil is first irrigated, it undoubtedly requires some management; but with a little care, and honest working, it becomes as a general rule highly productive in three or four years; and the results indicated by this table are I believe perfectly true.

109. Gundraidoo was the only village of those examined, in which, any of the land under cultivation was irrigated by lifted water; and from the preceding Statement it will be seen that some 66 Acres of the

first crop were wholly irrigated at this additional expense. No difference is made however in the irrigation assessment on this account; and it does not seem desirable that there should be. It would only open a door to more fraud than exists at present, and the effect of an even assessment is to turn the water to other lands, where the levels will permit its employment on more advantageous circumstances. I had hoped to have entered fully into the question of irrigation; and through the kindness of the Officers of the Public Works Department, I had collected some details on the subject, which I meant to embody in this report. I also wished to submit a Statement showing the extent of Enam land in the four Rajahmundry villages, which, according to the village accounts, is held on titles granted subsequent to the settlement. But the length to which my remarks have already extended, forbids my entering now on either of these subjects, and the report may be fitly closed by a General Statement showing the extent to which the arable area in the eight villages has been irrigated, with the population, and agricultural stock.

General Statement *showing the total arable area in the eight Villages surveyed in the Delta of the Godavery, with the extent to which it has been irrigated during* 1857-58, *the population and agricultural stock.*

District and Division of the Delta.		Name of the Villages.	According to the Survey.		Proportion of arable area now irrigated.	Population.	Number of Ploughs.	Rate of population per square mile, taking the arable area at 500 Acres.
			Arable Area.	Irrigated Area.				
1		2	3	4	5	6	7	8
			Acres.	Acres.	Acres.	No.	No.	
Rajahmundry.	Eastern Delta.	Gundraidoo	1,006	795	79	1,123	79	
	Western Delta.	Meddapad	2,396	1,757	73	1,432	197	
		Siddantum	1,556	1,313	84	1,523	133	
		Moolapurroo	1,405	1,365	97	1,059	70	
		Total	6,366	5,232	82	5,137	479	403
Masulipatam.	Western Delta.	Chittapet	1,637	1,423	86	851	145	
		Ogidy	532	496	93	414	26	
		Casapad	1,049	852	81	523	86	
		Comara	1,306	1,103	84	419	113	
		Total	4,525	3,876	85	2,207	370	243
		Grand Total	10,891	9,108	83	7,344	849	337

110. From this Statement it will be seen that in the eight villages 83 per cent of the arable area was under irrigation in 1857-58, and that the proportion was higher in Masulipatam than in Rajahmundry. In Masulipatam 85 per cent of the arable area was irrigated; in Rajahmundry 82 per cent. With regard to the satisfactory results shown by the eight villages generally, no comment of mine is needed. But the relative results in the two districts are opposed to what would be expected from the population, and call for notice. It will be seen that the average population is higher in Rajahmundry, and yet the proportion of the arable area brought under irrigation is lower than in Masulipatam. This result might be owing wholly to the levels; and the difference would have been more marked had the village lands above the canal in Meddapad been taken into account; or it might be owing to inaccuracies in the census returns. Much reliance cannot in fact be placed even in the returns of population, and still less in the returns of agricultural stock which have only been given, as serving to illustrate in some degree the present state of affairs. But the result does admit of another explanation; and, as that explanation involves a point of great importance, it may as well be given as the conclusion of this report; for the length of which I beg to apologise.

111. The difference between the proportion of the arable area irrigated in the two districts, arises wholly in Gundraidoo and Meddapad. In the former village it is chiefly caused by the levels; but in the latter village it is wholly caused, I believe, by the ryots of Meddapad having more land below the cannal, than they themselves can possibly cultivate at present.

112. As far as I can learn there has been no movement into the Delta, either of labour or agricultural capital. I have already described how poorly much of the land under irrigation is cultivated; and there are thousands of Acres to be seen, still lying waste, which could be fully irrigated, as in Meddapad, and would yield great profits if brought under cultivation. That the wealth of the Delta is rapidly increasing is beyond a doubt. It is shown in the quantity of gold and silver ornaments, and it is shown in other ways more satisfactorily. It is most pleasing and interesting to mark the general change for the better, that is every where going on. On all sides the signs of being well to do meet the eye, in the furnished look of the houses, and in the well clothed appearance of the ryots. The Delta fully proves that when the ryot has the money to spend, he is by no means insensible to some of the wants of civilization. He is perfectly ready to be a consumer of manufactured goods. But of this increased wealth in the Delta itself, it is only the profits of the ryots, that are as yet brought to bear directly on the cultivation of the soil. The difficulty as to labour is no doubt one reason of this backwardness in the increase of agricultural capital; but the present tenure of the land is also a reason, and a very strong reason. Under the Joint Rent system the whole of the Delta is portioned out in villages. Hundreds of Acres are handed over to men, who have not the means of cultivating half the quantity. No stranger can take up any portion of waste without the leave of the ryots, to whose village it has been assigned, and thus the waste acres of Meddapad, and thousands of acres of waste besides, are locked up, and must wait for cultivation, till the ryots of the village, or their friends, feel themselves equal to the task. The Joint Rent system has it's uses, where no survey has been made, and land is of little value. It is out of date in the Delta. And the tenure is giving to the ryots of each village a spurious right to the land, that is directly opposed to the progress of improvement.

I have the honor to be,
Sir,
Your most obedient servant,
J. W. B. DYKES,
On Special Duty.

Masulipatam District,
Camp at Vigaiswarum,
11*th September* 1858.

24/dd—122

1858 Depart.

Enclosure in an Extract from the Proceedings of the Board of Revenue to the Sec.y Secretary to Government R. D. dated 10th December 1858 No. 4581.

Forest Report

Copy.
No 2185
From J. W. B. Dykes Esq.
dated 11th September 1858.
R 1931/58.

Reporting the results of his enquiries, made under the orders of Government of 12th and 19th March last into the measurement & amount of produce of the lands watered from the Godavery Annicut.

Revs: 18th Jany 59 — 3 — 4

Commissioners Camp
Rajavole
Rajahmundry District
3rd February 1858.

From

W. Elliot Esq.

Commissioner for the Northern Circars

To

The Collectors of

Rajahmundry
Masulipatam
Guntoor and the
Sub Coll.r of Rajahmundry

Sir,

Para 1 The rapid progress of the irrigation works and the entire change in the face of the Country produced by the general distribution of water to Crops hitherto only producing dry grain demand the immediate and assiduous consideration of the Revenue Officers to the influence thereby exerted on the existing rates of Assessment. Your attention has already been directed to the subject in the correspondence noted in the Margin but as I have not yet been put in possession of your views in reply to my last letter I will now in continuation of that communication proceed to state the result of the observations I have made during the last two months

To Coll.r 3 April 1851.
Do Do 21 Do 1857.
Do Do 10 June "
Do Do 2d July "
Do Do 31 Augt 1858
Do Do 20 Oct "
Do Coast 19 Oct "
Do Do 4th Nov "
Do Do 22 Dec "

When

2 When I passed through the District in the early part of 1852. a portion of the tract under the Sulyabhagu Channel only had received additional water since then all the Taloohs in the Delta as well as those in the Sub Division have more or less been brought under the influence of new Channels In the current Fasly the whole of the Coloh Ramchendrapooram Taloob and part of Ryelie Amlapooram and Nayaram have been saved from being entirely burnt up at the most critical period of the season by the well timed activity and energy of the Civil Engineers Department The produce of the Janaboo (woody) and Magultoor Taloohs in Rajahmundry and of Ralenshy and Hy Raloor in Masulipatam have likewise for the most part been preserved by similar exertions and although many of the cuttings from the rapidity with which they were executed are necessarily incomplete and in some cases imperfect there is no room to fear that any of the ground now gained will be lost on the contrary the distribution of the water is steadily advancing to more distant localities.

On

3 On my last visit to the District I found the Ryots to be little alive to the benefits conferred on them by the Godavery works, and even now their minds are not familiarized with the full measure of the advantages of which they have already experienced the effects The difficulty of controlling the drainage which has still to be brought under more perfect demand the frequent losses sustained from the access of too much water the occasional stoppage of water already supplied have contributed to keep their minds in a state of uncertainty as to their future prospects The force of habit and the proverbial inaptitude of the people to conform to innovations cause them to look with distaste upon the changes required either in agricultural operations to adapt them to a perfect system of irrigation The impositious character of the present season has so far had a favorable effect in that it has opened the eyes of the whole population to the blessings of a profession which renders them independent of the monsoon. Another ground of apprehension however yet remains which checks their readiness to avail themselves of

the

the improvements placed within their reach, and that is the uncertainty felt regarding the future increase of the assessment. It is under this aspect that the question demands our most careful consideration.

4. The existing mode of settlement by means of Joint village Rents which frames on or professes to frame the allotment of the Collective demand to the Ryots themselves affords little room for interference with the assessment of particular rates. That must necessarily still be left in the hands of the people. But the Collector must have some standard whereby to regulate the additions which the public interests require to be made to the demand of the improved villages which has hitherto been determined on the combined consideration of past collections and present extent of cultivation and which must now be considered under a wholly new aspect to which these elements do not apply. For this purpose I would suggest that returns should be prepared of the extent of land in each village which has been brought under improved irrigation classifying it as capable of yielding

yielding one or two crops, and again as to the degrees of productiveness under each of these classes. The existing Manual rates per Potty in different parts of the District combined with considerations of the improved means of transit provided by the different channels will afford tolerable data on which to frame such calculations. The estimate should comprise every degree of benefit conferred upon dry lands converted to wet, wet lands from simple dependance on the falling rain to a supply of water which renders them independant of it, wet lands under Tanks deriving a more certain supply from Channels or receiving water all the year round instead of for a limited period only, lands cultivated with dry or Garden produce in the summer months which before would have been left fallow and even inlands already under the influence of old irrigation the element of certainty afforded by the new works should not be overlooked much valuable assistance might be obtained from the Officers of the Civil Engineers Department who could without much difficulty point out the lands most favorably situated to profit by the new irrigation. The Collector it is trusted will thus obtain intelligible

intelligible grounds on which to propose a definite Jummabundee which shall be intelligible to the people and which will enable them to regulate their proceedings with some degree of precession In the villages first watered from the Tulyab. haga discretionary additions have been made from time to time and although the demand appears in them to be brought up as high as need be for the present the people feel no confidence that additions will not still be made to it and in the places I have visited they speculated upon this contingency as a reason for not embarking in more improved descriptions of tillage.

5 The probable limit to the demand being thus ascertained the Ryots should be made to understand that unless wilful deceit has been practised no addition will be made for the present and that the whole will not be imposed at once No increase whatever should be made for the first year in which the village receives water and a portion only of the proposed addition is to be brought to account in the ensuing years until the full amount is obtained. The mode in which this may be best effected and the degree

of indulgence to be shewn in the first instance will most fitly be determined by the Collector.

6 I desire particularly to impress on your attention the importance of moderation in determining the maximum amount. A too great enhancement of the demand will check the natural progress of improvement whilst the district is in its present transition and it will interfere with the success of the survey assessment which will correct the inequalities and oversights that may be committed in carrying out the present measure.

7 Whatever additions is imposed must be left in every instance to be distributed by the Ryots under the principles regulating their joint responsibility on which I have recorded my views in a separate communication.

8 The above refers to Jeroyat lands There remains the important question of the permanently settled and Cuom lands with reference to them I adverted to two principles by which the increase might be regulated in my letter of 21st September 1853 viz. by an addition to the Peshcush calculated on the extent of land

land receiving water, or by making a certain charge
for the water actually conveyed to the estate. I
am informed by the Civil Engineer that the latter
plan will hardly be feasible for it will not be neces
sary and it is not contemplated to observe any
great nicety in the apportionment of water Gran
only suggest therefore that the scheme proposed
for determining the extent of the demand on the
Government lands should be adopted in settling
the sum to be contributed by the General proprie
tors Having issued in communication with the
Zemindar what you consider a fair estimate
of the benefits conferred on his Estate by the
Anicut, two thirds of the increased Rent should
be considered as the demand of the Government
in conformity with the principles of the perma
nent Settlement. In the event of these terms
being agreed to a further stipulation should be
required that the arrangement is only to be bind
ing until the completion of the Survey when it
will be open to such modifications as the more
accurate information derived from the operation
may show to be necessary.

I propose to deal with the Cuan

Lands

Lands after the same fashion Having ascertained
the increase of assessment to which the land
would be rendered liable if Zeroyati according to the
revised village rates the Zemindar should be required
to pay a fixed Peishcush Sasthe of two thirds and on
his assenting he should be considered exempt
from any increase for the first year in which his
land may receive water and be required to pay only
one third in the 2nd and two third in the third
which would henceforth be the full demand under
the Survey The very large proportion of rent
free tenures in the Rajahmundry Zillah de
mand that the greatest attention should
be given to the preservation of the rights of Govern
ment in regard to the returns to which the State is
entitled to look for the large expenditure on the
Anicut Large as the ratio of Cuan to Zeroyati
is believed to be throughout the District it is still
larger in the Delta than in the other
parts of the District and the treatment
of it therefore in connection with the present sub
ject is by so much the more important.

Zeroyati Acres 501181
Government 291662
Cuan Do
Total 792843.

Annalapooram Talook acres
Zeroyati Area 1,31,06
Cuan Do 33003

10. In the foregoing observations it has
been my desire to draw your attention to a tangible

method

method of teaching a very important question the
solution of which must no longer be delayed It is
not my desire to require an implicit adoption of
the measures I have suggested but rather to place
the matter in such a light as will lead to an early
adoption of a definite principle and request to
be favored with your views regarding it at an early
period The best mode of testing the suitableness
of the above or of any proposition that occurs
to you is to apply it to some of the villages which
may be ready for the introduction of a permanent
Jeerwa Jasthee demand and the same with re-
gard to permanently settled Estates and Mauyems
and to report fully upon the consideration which
will arise in doing so

(Signed) W. Elliot
Commissioner

Comm[r]s Camp
Rajamundry
District 3[d] Feb[y] 1851

(A true Copy)

Secretary.

Comp[d] 11

44/ck 722

Enclosure in ✱ an Extract from the Board to Government dated 10th December 1858 No 1581

Copy
To the Collectors of Rajahmundry
Nuzvidpolam
Guntoor & the
Sole Coll.r of Rajahmundry
dated 3d Feby 1854,

R 1931/58

On the mode of imposing Tuzwa jistha on lands newly watered from works of irrigation constructed at the public expense.—

Pr 12th Jany 59
O No 51
B 304

Cons: 18th Jany 59 – 3 – 4

For Orders

Collr Proceedgs of Bd Revr 10th Decr 1858, reviewing Mr Dykes report dated 11th Sept.r 1858.

It would seem premature for Government to pass Orders on this Communication, for Mr Dykes investigations are not completed. In BPC 11th Decr 1858 No 1653 he was instructed to complete his enquiries, & I doubt if any certain conclusions can be come to, till this is before Govt.

As far as he has already reported, the results seem to be those which the Bd come to in para 26 of their Proceedings, & it might assist in the preparation of the draft when the final report comes up, if the Members of Govt would signify how far they concur in the several opinions expressed by the Board. To me it appears (as pencilled in the margin of the Proceedings, that this

28

views are correct. The term concealed cultivation leads to inferences which are not fair upon the Revd authorities. & the 2 points noted by the Bd in para 8 have not received proper consideration

Again the term "Irrigation assessment" is very apt to mislead. The irrigation assessment is really the increase on the total assessment. (Vide para 16)

Mr Dykes mode of coming to a conclusion as to the "area actually irrigated" is to my mind quite unsound, as remarked by the Bd in para 21.

As to the value of the crop — a point about which there is as much discussion, & difference of opinion, as about the water rate — it is evident that as the value of the 1st or principal crop is only taken on estimate, Mr Dykes valuation is worth nothing. This was not his fault & it is to remedy this that he is now instructed to remain over the next frost crop season.

Mr Dykes result that the assessment is ½ the net produce, had better not be accepted till his next Report comes in. At present his results (roughly) are as follows.

	Rs
Gross produce per Acre	34
Charges of Cultivation	12
Net produce	22

Jubbi

Govt take	12	=22
Leave to Ryot	10	

If this is correct the assessment is about what Govt would approve. But I much doubt if the general bearing of the assessment for the whole Delta can ever be fairly deduced from the results in a few villages.

The leaving the Engineer to dole out the water to each ryots holding seems impracticable. In the N.W. provinces, they cannot do it nearer than to each Village.

Mr Dykes inference water (para 30 of Bd proc) does not seem a sound one

Neither his proposal referred to in para 31 of the Proc.

The advantage of irrigating

black Cotton soil, I do not think was ever doubted but by Mr Smollett. The 2 wet Calcoots of Manargoody & Chellumbrum afforded me conclusive proof to the contrary in S Arcot 25 years ago.

It is evident that the Inundations in the Delta have evaded the Govt dues, & it is not possible to remedy this completely without a Survey.

Perhaps it wd be sufficient — as an I M C — to say that Govt concur generally in the several conclusions to which the Bd have arrived, but as Mr D's investigations are yet incomplete, it would be premature to express a decided opinion as to the result which will be better known when he submits his next Report in accordance with the Order of Govt 11th Dec 1858 instructing him to remain in the Delta a further period, to continue his enquiries.

Meanwhile Mr Dykes will elucidate the several points which the Bd in their Proceedings consider to have been placed before them in an obscure manner

For Orders

This is I think the most satisfactory course for the present.

WHB. Dec 17th

R.D.

No 51.

Extract from the Minutes of Consultation

Under date the 12th January 1859.

Read the following Extract from the Proceedings of the Board of Revenue.

/Here enter 10th December 1858 N 4581/

P.T. In these proceedings the Board of Revenue review the report furnished by Mr Dykes on the result of his investigations relative to eight Villages irrigated from the Godavery.

2 The Government concur generally in the several conclusions to which the Board have arrived, but as Mr Dykes investigations are yet incomplete, it would be premature to express a decided opinion as to the result, which will be

be better known when he submits his next report in accordance with the Orders of Government 11th December 1858 instructing him to remain on the Delta a further period to continue his enquiries. It will however be the duty of Mr Dykes meanwhile to elucidate the several points which the Board consider to have been placed before them in an obscure manner.

3 In para 30 of their proceedings, the Board, referring to the representation made by Mr Dykes of the necessity for the formation of roads from the Canals to the Villages situated at a distance from them, and to the probable difficulty that may be experienced hereafter in obtaining land for that purpose, recommend, that the Collector may be authorized at once to take measures for securing the required land and to apply for sanction for the payment of the value when it happens to be in private occupation. The Government accede to this recommendation, and request the Board will instruct the Collector accordingly. As suggested by them the roads will be laid out with the advice and cooperation of the Engineer department.

W H B

3 Copies to Bd of Rev
Dist 13
10 — to the Chief Engr
1 — to Mr Dykes

Off. to Cons. 11th Dec. 58 & 20127

Revenue 1859 Departt.
Dft. to Cons. 18th January.

No. 51.

Extract Mins of Cons.
Dof 12th January 59.
From Sr. W.S. Dykes Esqr. 4th Threav
59 & 263 in Cons. 25th 38-37.
From Bd of Revr. Dof 29th March 59
& No. 548 in Cons. 12th Apl
Extract From Do Dof 8th May 59
& No. 865 Cons.

Passing orders on the Board's
No 344- Review of the Report of Mr. Dykes
on the result of his investigations
relative to Eight Villages irrigat-
ed from the Godavery.-

C5 Jany 60 11th