M.R.O. 14—10,000—21-4-22

MADRAS RECORD OFFICE.

Government of Madras.

Revenue **DEPARTMENT.**

G.O. No. 1594 Press ~~Mis.~~

30-31

Dated 23 — 11 — 1859.

Not to be folded or roughly handled

Proceedings of the Madras Government, Revenue Department, for the month of November 1859.

No. 30. Read the following Proceedings of the Board of Revenue, dated 4th August 1859, No. 3020.

Read the following letters from the Director of Revenue Settlement ;—

No. 273, dated 25th March 1859, reporting on the organization of the Settlement Department, and the operations conducted by it from the date of its sanction to the 31st December 1858.

(In Con. 28th March 1859, No. 1314.)

No. 326, dated 9th April 1859, forwarding with observations, the Report of the Superintendent of Revenue Survey, on the operations of his department, from October 1857, to December 1858.

(In Con. 13th April 1859, No. 1656.)

No. 342, dated 11th April 1859, forwarding a map and field-books, illustrating the mode of filling up, by the agency of Curnums, the details of small fields below the minimum limits of survey fields.

(In Con. 12th April 1859, No. 1638.)

1. The first of the letters above recorded, relates mainly to the settlement operations, and the other two, to the survey operations of the past year. The Board, in treating of these subjects, have deemed it advisable to review them together, not only as being in conformity to previous practice, but because some of the most important questions connected with the survey, have been discussed by Mr. Newill, in connection with the settlement operations reported on by him.

2. Mr. Newill received his appointment as Director on the 13th August 1857, but sanction for the organization of his establishment was not granted by the Government of India, till 10th March 1858, communicated in Extract Minutes Consultation 12th March 1858, No. 328. The interval was occupied by Mr. Newill in obtaining, from Calcutta, the records of the Grand Trigonometrical Survey, and of the minor triangulations of the localities selected for the Revenue Survey ; in making temporary arrangements with the Collectors to facilitate the demarcation of boundaries ; and in inspecting the surveyed talooks in South Arcot and Trichinopoly, with the view of ascertaining how far the operations there conducted were adapted to form a satisfactory basis for a new settlement. The result of these investigations was reported by Mr. Newill in a letter, dated 6th March 1858, No. 81, which is forwarded for the information of Government as an appendix to this review.

In Con. 15*th March* 1858, *No.* 1133.

3. The appointment of two Deputy Directors, was made on 16th March 1858, Messrs. Banbury and Master having been selected for these posts. The former was deputed to South Arcot and Trichinopoly ; and the latter, to the sub-division talooks of Rajahmundry, including the intermixed talook of Ralinghy and part of Pentapaud belonging to Masulipatam. A third Deputy was appointed on the 16th November 1858, in the person of Mr. Ballard, but his operations having been confined to the extreme end of the year, will not be discussed in the present report.

4. After a few days conference with Mr. Newill, regarding the best mode of procedure to be adopted, Messrs. Master and Banbury left for their respective destinations, which they reached on the 7th and 24th April following. The duties connected with the demarcation being of the most urgent character, immediate attention was paid to them. Two of the classification parties in the north, and one in the south, were converted into demarcation parties in addition to the standard staff ; and training classes were gradually formed from such persons as could be obtained, with the view of recruiting their number.

E. M. C. 7*th May* 1858, *No.* 607 *in Con.* 19*th May* 1858, *No.* 1898.

5. Before entering into a detailed examination of the work performed by the establishments employed under the Deputy Directors, Mr. Newill notices the difficulty experienced at the outset in their organization. This difficulty was mainly caused by an impression which had widely-spread to the effect that the establishments were of a temporary character, and that the servants belonging to them would not be entitled to superannuation pensions. The doubts on these points were, however, dispelled by the orders of Government, dated 16th April 1858, extending the benefit of the pension rules to the classes of servants employed in the Survey and Settlement Departments ; and by the orders, dated 16th November 1858, No. 1531, communicating the despatch of the Honorable Court regarding the Inám Commission, from para. 31 of which, it clearly appeared that it was the intention of the Home Government, to continue both the above departments.

In Con. 28*th December* 1858, *No.* 5215.

6. From the end of June to October 1858, Mr. Newill was engaged in the Northern districts, superintending operations, and instituting enquiries on numerous subjects connected with the department. He was, also, both before, and after, that period, engaged in the preparation of rules for the guidance of his subordinate officers, and in printing and translating some of them into the vernacular languages. These rules are comprised under the following heads;—

1st.—Instructions for Deputy Directors of Revenue Settlement.

2d.—Rules for the demarcation of boundaries for the Revenue Survey.

3d.—Rules for the classification of soils.

4th.—Rules for Supervisors of Assessment and Classifiers.

5th.—Manual of Khusrah, or field measurement for Curnums, &c.

7. In preparing the above Manuals, and printing, translating and circulating them, the Board consider that Mr. Newill has rendered an important service to the department, and taken the surest means for regulating and expediting its operations.

8. The duties of Mr. Banbury in South Arcot, in the work of classification, were much retarded for some time by two difficulties; one was the very small size of the fields, requiring a longer time for their examination, a labour increased by the overflowing of the Coleroon which rendered the distinguishing of soils more difficult than the task would otherwise have been. The other, and by far the greater difficulty, consisted in the disappearance, particularly in the Chellumbrum talook, of the boundary marks which had previously been placed by the Survey Department, and the absence of which led to great confusion and perplexity when the classification was undertaken. With the aid of the Survey Department, however, and by the employment of extra hands, on moderate pay, at the cost of the Ryots themselves, whose co-operation had been wanting in the first instance, as well as by the re-measurement of a few of the worst villages, the survey numbers were retraced, and in this way it became practicable to adopt the survey generally for settlement purposes.

9. Mr. Banbury had under him three classification parties, and one demarcation party; but one of the former, as already stated, was converted into an extra-demarcation party, to enable this branch of the work to overtake the survey, which had already the start for the season. Much preliminary training was, of course, necessary. One party was completed in August, the other in September 1858. With the exception of two villages which were re-surveyed, the classification has been carried over the whole of the Chellumbrum and Manargoody talooks in South Arcot, comprizing 343 villages together with the greater part of the Woodiarpolliem talook, and some portion of Arealore in Trichinopoly. In the latter district the work was more easily performed than in South Arcot, in consequence, chiefly, of the fields not being generally irrigated and running larger in size.

Para. 4.

10. In addition to the foregoing, the demarcation of the talooks of Volcondapooram and Torriore in Trichinopoly, excepting a trifling portion since finished, has been completed. The demarcation in the former talook *followed* the survey; in the latter, it *preceded* that work, and greatly expedited it. Besides these two talooks, about 240 square miles have been demarcated in Moosery and Lalgoody, lying to the north of the Cauvery, and these are ready for the survey operations of the ensuing season.

11. It is satisfactory to observe, that, as the survey proceeds, a more ready co-operation, bearing materially on the expenditure, is obtained from the Ryots. Mr. Newill traces this to the more simple character of the people in the Trichinopoly talooks; but it is probably owing, chiefly, to the objects of the survey being better understood, and to its being carried on after communication with the Ryots themselves, whose co-operation is essential in the selection of survey fields or numbers. In the earlier operations of the survey, existing boundaries were not attended to in forming the smaller plots, but this evil has now been effectually corrected. In their Proceedings, dated 19th October 1858, No. 3941, the Board remarked, "One rule must be rigidly adhered to, and that is that, except under very peculiar circumstances, no survey field should be formed the boundaries of which do not coincide with the present well-defined boundaries of some existing registered fields. The error which vitiated part of the South Arcot survey of forming the survey fields arbitrarily, for convenience of survey, without reference to the actual boundaries of existing holdings, must be most carefully guarded against in future:" a rule, the necessity of which the present report fully establishes.

12. In addition to the duties of demarcation and classification, Mr. Banbury's attention was directed to the examination of the out-turn of crops, and the productive power of soils as far as practicable. Translations of the survey field-books have also been made for the use of the Curnums so that they may, at any time, be able to trace the details of the new survey; missing Theodolite stations have been restored; and corrections necessary to be made in the

survey maps, owing to improvements, alterations, spread of cultivation, and other causes, have been ascertained and recorded. The importance of these measures for the preservation of authentic information on the subject, is truly great.

13. The work in Rajahmundry and Masulipatam, under Mr. Master, was necessarily confined, at first, to demarcation, the localities embraced by it, being portions of the Godavery and Kistnah deltas. The demarcation which was carried on by three parties extended over the whole of the Mogultoor and Goodiwaddah talooks, has made considerable progress in those of Danuku and Ralinghy, and has also been commenced in those of Nuggerum and Pentapaud. In addition to this, the classification has been carried on, and completed, in 82 villages of Mogultoor, Danuku and Ralinghy.

Mogultoor.
Danuku.
Nuggerum.
} *In Rajahmundry.*

Goodiwaddah.
Ralinghy.
Pentapaud.
} *In Masulipatam.*

14. Mr. Master had to meet the same difficulties on first forming and training parties for the work as were experienced by Mr. Banbury in the Southern districts, with further serious impediments arising from the rains of the S. W. monsoon, and from the combination of the Ryots in Goodiwaddah to avoid the trouble of placing field marks. The progress of the work was materially retarted by these causes, but they were gradually overcome without recourse to severe measures.

15. The extent of work performed by Messrs. Banbury and Master, respectively, in each month, from the formation of the demarcation and classification parties to the close of the year under review, is exhibited in the following statement;—

Months.	Under Mr. Banbury.				Under Mr. Master.			
	Gomastahs employed.	Extent Demarcated by them.	No. of Classifiers	Extent Classified.	Gomastahs employed.	Extent Demarcated.	No. of Classifiers	Extent Classified.
		Acres.		Acres.		Acres.		Acres.
April 1858.	3	0	0	0	0	0	0	0
May	11	0	6	2,724	11	1,255	0	0
June	32	18,436	15	19,326	28	1,120	0	0
July	30	19,820	18	39,757	53	5,251	4	306
August	30	28,666	25	52,905	62	16,451	9	5,218
September	67	78,503	27	58,499	71	17,054	9	3,580
October	67	1,40,674	26	63,332	70	42,635	13	9,354
November	67	1,08,990	20	22,977	94	51,666	13	17,339
December...	67	1,28,952	4	2,520	94	58,493	13	30,587
Total.....	374	5,24,041	141	2,62,040	483	1,93,925	61	66,384
Square miles.....	...	819	...	409¼	...	303	....	104

16. The decrease in the classification in the months of November and December in the Southern districts, is owing to the recess which was employed in making up the accounts. But the disparity which the above statement shows between the work done in the north, and that done in the south, is more difficult to explain. It will be seen that each Goomastah, in Mr. Banbury's party, demarcated, on an average, 1,401 acres, or *classified* 1,858 acres per mensem; while, in Mr. Master's party, the extent demarcated is about 402 acres, and that classified 1,088 acres. This is partly accounted for, by the fact, that the work done in unfinished villages is not included in Mr. Master's calculations, and that the area is roughly estimated in *acres* from the Curnums' accounts which exhibited the contents of fields in *Pootties*, a measure varying in different villages; but making an allowance of 40 per cent. for this variation, and for other deficiencies, as proposed in para. 46 of Mr. Newill's report, the out-turn will still be below that of the southern party. The Board consider that the rapidity of the operations in South Arcot and Trichinopoly must be attributed, in some measure, to the facilities afforded by the survey notwithstanding the difficulty experienced, at first, from the obliteration of some of the boundary marks.

17. Taking 1,250 square miles, as the proper extent for demarcation in a season, and the same for classification, the actual results of the year 1858 appear small, with the exception of the demarcation in the Southern districts, which is proportionably in excess of the prescribed quantity. But the Board consider that much allowance must be made for shortcomings in this the first year of the organization of the department, when every thing had to be attempted with untrained agency, and when many unforeseen difficulties had to be encountered. The actual results accomplished lead the Board to hope that the current year's work will fully satisfy the expectations of Government; and the only remark they would make is, that the progress of the northern party should be so accelerated as to keep pace with that of the southern. In connection with this subject, they have also to notice, with regret, that the arduous duties performed by Mr. Banbury and his unspairing exertions to meet all difficulties, have rendered it imperative for him to proceed to England, on leave, to recruit his failing health.

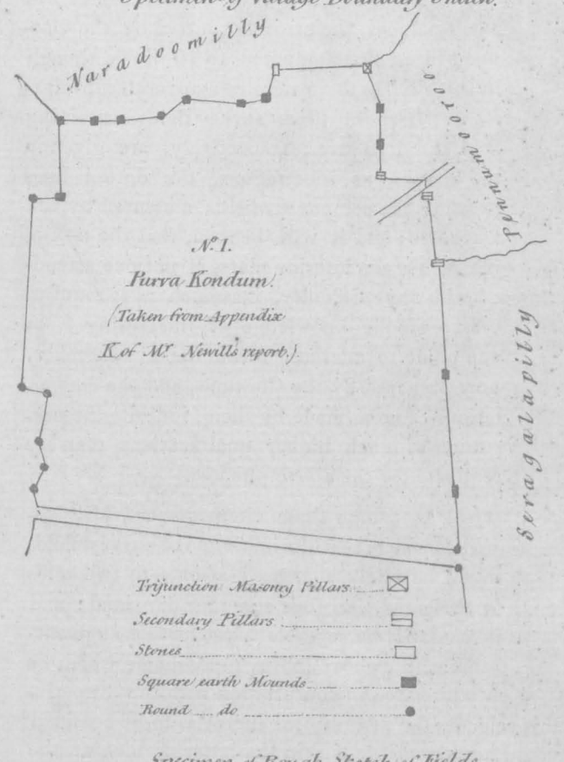
18. In para. 48 of his report, Mr. Newill proceeds to describe the mode in which the demarcation has been conducted; and the rules on which it is based are given in the printed enclosure F. of his report. These may be briefly described as follwos.—The exterior boundaries of villages are marked with masonry pillars two feet square and three feet high, including foundation at every tri-junction point of three villages. These, of course, form the main Theodolite stations. Between these, other masonry pillars 1½ feet square and three feet high, are constructed at every prominent bend of the village boundary; and intermediately to these, stones or square earthern mounds are placed on spots designed for Theodolite stations. So far as this description goes, the process appears to be based upon a correct principle; but the Board find, on referring to the rules, other injunctions that seem to them of doubtful expediency. In rule 16, a broad pathway is ordered to be formed, where practicable, round the village boundary and planted with palmyra, or other trees on each side. As such pathways can be of no use for the purposes of communication between villages, their formation appears a mere waste of time and labour; and, unless they are intended to answer some other useful end, the Board would recommend that the rule be cancelled. The distinction between *secondary* and *extra* pillars, laid down in rules 9 and 10, by which the former term is applied exclusively to the pillars placed on each side of the tri-junction pillars, is scarcely required, as, in a survey point of view, all the station pillars between the main ones, are equally important; and a multiplication of names and unnccessary distinctions only tends to complicity and confusion. The Board would also dispense, if possible, with the requisition in the latter part of para. 8, &c., by which, a hole one-foot deep is ordered to be made in every pillar. This is probably intended to be of use in adjusting the Theodolite over the centre of the pillar, or to hold the end of the observing flag, but the former object might be answered by requiring the centre to be simply marked on the surface, and the latter by having a portable stand which might be carried from station to station by the flag bearer. However insignificant the delay or expense may be in each individual case, it will certainly become considerable when multiplied by thousands, and it is desirable to obviate every hindrance, however trifling, to the rapid and unrestricted progress of the survey.

19. Large villages are sub-divided into minor circuits or portions of 150 or 200 acres each, and the boundaries of these are marked by stones or circular mounds of earth, a yard in a diameter, and a yard in height, advantage being taken, in all practicable cases, of the natural boundaries afforded by roads, tanks, water-courses, &c. This rule appears to the Board judicious and proper.

20. It is, however, in the demarcation of fields that the greatest difficulty and trouble are experienced. Stones and bushes are made use of for this purpose wherever available; but in the river deltas and some other places, the general plan is to have earthern ridges half a yard high extending two yards from the corner of the field, in the direction of each side, with intermediate ridges of two or three yards along any great distances. Considerable difficulty is experienced in preserving these boundaries from obliteration for any length of time, but it is hoped that as land acquires a value, and its occupation is extended, this difficulty will vanish by the proprietors

themselves feeling an interest in the maintenance of boundary marks. In the meanwhile it must be the duty of the Revenue authorities to attend to them.

Specimen of Village Boundary Sketch.



Specimen of Rough Sketch of Fields.



(Taken from Appendix L of Mr. Newills report)

21. The demarcation forms a part of the duties of the Settlement Department, as this arrangement was found the most convenient to guard against that overlooking of revenue objects which had occurred in the survey of South Arcot. Besides marking the boundaries and erecting the station pillars, &c., a field register, and a rough sketch of the boundaries showing the marks placed on them, are prepared by the Demarcation Department; and thus every facility is afforded to the Survey Department, for the prosecution of its work with expedition and certainty. In illustration of this remark reference may be made to para. 50 of Capt. Priestley's report, recorded at the head of these proceedings, where, it will be seen, that in August last the extent of work done by the Survey Department, *without* demarcation, was to that done after demarcation by the same agency in the ratio of 1 : 1·8, or 10 : 18. Specimens of the rough sketches of village boundaries and of fields are given in the margin for information.

22. The minimum size to be allowed for survey fields, is still an object of much solicitude, as bearing materially, not only on the progress of the demarcation and survey, but also on the size and distribution of holdings. Hitherto one acre for irrigated, and two acres for dry land have been the appointed limits, the details within these areas being left to Curnums to fill up under certain checks by the Survey Department. In their proceedings of the 19th October 1828, No. 3941, the Board were willing to extend the above limits to 10 acres, provided the Curnums were competent to the task. The Government approved of this proposition in Extract Minutes Consultation 6th November 1858, No. 1503; but in a subsequent order, No. 1530, they directed that it should not be carried out till it *could be shown* that the Curnums were equal to the enlarged task.

In Con. 15*th Nov.* 1858, *No.* 5156.

23. Mr. Newill gives prominent consideration to this point in his present report. He shows that, under proper direction and superintendence, Curnums are capable of measuring with a degree of accuracy quite sufficient for all practical purposes, and submits specimens of field measurements made by them in support of his view. In a further paper, recorded at the head of

28. The Board would wish to have submitted for their inspection, the survey and measurement of a village conducted according to the foregoing scheme, accompanied by the sketches of the demarcation department, the field-books of the Curnums, and the maps prepared by the Survey office. They would wish, also, to know the number of persons employed on the work, and the period occupied in each step of the process, together with a comparison of the areas of the minor circuits of the village with those of the component fields according to the Curnums' measurements, and an explanation of the causes of differences between them, with remarks on any peculiar disadvantages attending the system. They request that the above information may be supplied by the Director, as early as practicable.

29. In para. 66, Mr. Newill, referring to the mode of exhibiting the details of survey fields which exceed 12 acres of dry, or four acres of irrigated land, when occupied by separate holders in portions, suggests that, in such cases, Curnums should be required to make a field-book of the portions so held separately, if the Survey Department could, without inconvenience, supply a sketch of the exterior boundary of such fields. To this proposal the Board see no objection; but the arrangement is unnecessary if the general introduction of Curnum agency, to fill up the interior details of minor circuits, be resolved on. Mr. Newill's remarks as to the inutility and inexpediency of any attempt to perpetuate portions of fields, as they now exist, are deserving of serious consideration. These fields are constantly changing, and arrangements for making them permanent will only produce confusion and tend to foster petty occupancy.

30. Mr. Newill closes his remarks on demarcation, with the following epitome of the work done in the past season;—

Items.	Mr. Banbury's party.			Mr. Master's party.			Total.		
	Completed.	In progress.	Total.	Completed.	In progress.	Total.	Completed.	In progress.	Total.
Village boundaries.									
Number of villages,	290	40	330	243	68	311	533	108	641
Number of Khandams or Sub-divisions,	235	58	293	854	262	1,116	1,089	320	1,409
Pillars. Tri-junction,	610	104	714	501	37	538	1,111	141	1,252
Pillars. Secondary,	1,170	211	1,381	1,170	89	1,259	2,340	300	2,640
Other marks in village boundaries,	11,437	2,041	13,478	6,729	837	7,566	18,166	2,878	21,044
Marks on Khandams,	3,690	1,038	4,728	9,343	3,676	13,019	13,033	4,714	17,747
Field boundaries.									
Number of villages,	287	22	309	229	31	260	516	53	569
Villages divided into Khandams } No. of villages,	86	32	118	175	67	242	261	99	360
Villages divided into Khandams } No. of Khandams,	260	83	343	830	280	1,110	1,090	363	1,453
No. of fields marked,	1,85,961	36,715	2,22,676	80,401	19,655	1,00,056	2,66,362	56,370	3,22,732
Field marks,	4,71,813	91,556	5,63,369	2,30,842	56,128	2,86,970	7,02,655	1,47,684	8,50,339
No. of fields examined for checks.	26,103	2,228	28,331	13,787	878	14,665	39,890	3,106	42,996

31. The principles upon which the classification of the land is based, are described in the pamphlets containing instructions to Deputy Directors, rules for classifiers, and Notes on Soils, forming Appendixes A, B, and C, respectively, of Mr. Newill's report. The soils are divided into five great series:

1st.—*The Alluvial and exceptional series,* which provides for the rich island soils of extraordinary fertility, and for garden and other soils permanently improved, and ranking above the ordinary cultivation, as decided in Extracts Minutes Consultation, 15th February 1858, No. 191, para. 31.

In Con. 30th April 1858.

2nd.—*The Regur series,* comprising what is called the black cotton soil, with all its varieties under the head of Mussub and other native terms.

3rd.—*The red Ferruginous series,* originating from sandstone, laterite, &c., and possessing distinct characteristics in its constitution and fertility.

4th.—*The white and grey Calcareous series,* originating from underlying strata of chalk or lime, the original characters being more or less modified by atmospheric and other influences, as respects the surface soil.

5th.—*The Arenaceous series,* comprising chiefly the sandy tracts originally deposited from the sea in littoral districts.

32. The *Alluvial series* is sub-divided into two great classes, the first containing island, and the second, garden soils. The 2nd, 3rd and 4th series, are sub-divided into three classes each, *viz.*;

Clayey, containing upwards of $\frac{2}{3}$ clay;
Mixed or loamy, containing from $\frac{2}{3}$ to $\frac{1}{3}$ clay;
Sandy or gravelly, containing not more than $\frac{1}{3}$ clay;

while the 5th series is divided into mixed or loamy containing from $\frac{1}{3}$ to $\frac{2}{3}$ clay, *sandy* from $\frac{1}{3}$ to $\frac{1}{10}$ clay, and *sand* under $\frac{1}{10}$ clay. Each of these classes is again sub-divided into two *sorts*, determined chiefly by the quantity of organic matter in them, or the presence of other valuable or deleterious ingredients. Thus, there are in all, 28 varieties of soils.

33. It may be necessary to explain that the term *clay*, used in the foregoing classification is intended to signify that fine or impalpable powder of minerals and stones combined frequently with decayed vegetable deposit, from which crops derive their nourishment; so that, as a rule, the greater the proportion of it that a soil contains, the greater, *cæteris paribus*, will be the source of fertility. All that does not come under the head of clays is termed *sand*.

34. Mr. Newill states that, in practice, the classification is found to be simple and easily intelligible, and that the classifiers, with nothing more than a thin common phial to test, occasionally, the proportions of sand and clay by dissolution in water, are expert in determining the composition of the soil. Rules for this purpose are given in the second and third sections of the pamphlet C, already mentioned.

35. It will be perceived that the primary division of soils into *series* and *classes* is based on their *mechanical* composition; while their chemical and physical properties, and other circumstances affecting their fertility are taken into account in arranging them into *sorts* under each class. This is, perhaps, as good a classification as can be devised with present means, and sufficient for all practical purposes.

In the Chellumbrum and Manargoody talooks of South Arcot, a different scale of classification was adopted. Soils were there divided into alluvial, regur, mussub, red, and inferior soils, appropriate grain values being assigned to each. Mr. Newill considers this system better adapted to lands where culture has advanced beyond its primitive condition, and where numerous circumstances exist to modify the fertility of the soil as judged from its original constitution; but both the plans were subjected to rigid tests by taking the opinion of intelligent Ryots on the productive power of various kinds of soils; and although the Ryots always underrated the produce, the *relative* values assigned by them accorded generally with the relative values given by the classification tables, so as to inspire confidence in the general correctness of the latter.

36. It will be seen from the classification table, inserted on page 5 of the "Notes on Soils," that it is proposed to determine the grain values of four kinds of dry produce, *viz.* cholum, cumboo, raggy and arige or waroogoo, for each of the 28 varieties of soil, as also the grain value of paddy, the staple crop of wet land. Such a classified list will, no doubt, facilitate the operations connected with the assessment, and Mr. Newill will, probably, be able to obtain sufficient data for it, from the results of the investigation he is making into the present year's harvest of the Chellumbrum and Manargoody talooks.

37. No assessment has yet been fixed on the lands which have been classified, but Mr. Newill has begun the enquiry, and intends to make it the subject of a special report. The Board will not, therefore, dwell on it at length in the present review. The principles upon which the assessment is to be conducted, are given in the pamphlet containing instructions to Deputy Directors. It will be seen, by reference to it, that all the circumstances likely to affect the normal assessment of a field, such as advantage of situation with regard to the village site, or to markets, roads, and ports, better sources of irrigation, and means of drainage, the actual supply of water in irrigated tracts, *extra* expenses of cultivation, value of straw, &c., are taken into account in determining the grain value of each kind of soil, so that the classification may be brought as nearly as possible to the rates of the *net* profits, although owing to the ordinary charges of cultivation not being deducted, the actual standard obtained by the preceding process, will really be higher than that ratio. To make a further advance towards the standard of net profits, agreeably to the orders of the Honorable Court, dated 17th December 1856,

E. M. C. 6th April 1859, *No.* 476, *in Con. 7th April* 1859.

and those of the Secretary of State, dated 15th December 1858, it is intended to vary the proportion of gross produce from 30 per cent., the maximum on first-class lands, to about 20 or 18 per cent., or even less on the worst soils. The effect of these measures will, no doubt, be to place the assessment on a correct basis; but, it appears to the Board, that the same result might be obtained in a less arbitrary manner. Instead of one, there might be three tables, the first showing the intrinsic value of the land in grain, irrespective of other considerations; the second, the ordinary charges of cultivation, also in terms of grain; and the third, the proportion of the *net* grain value, payable as the assessment of Government, and fixed with reference to position and the other adventitious circumstances already alluded to. With such tables, prepared after careful investigation and experiment, the assessment to be fixed on any given field will become an easy operation. Thus suppose a field, the grain value of which is 60, and the ordinary expense of tillage 25, then the difference, 35, will represent its net produce, and if the factor in table No. 3, applicable to the circumstances of the above land, be (say) $\frac{3}{5}$ the assessment will be 21 in terms of grain, the commuted value of which will be its equivalent in money.

38. In the above example, the proportion of the assessment to the gross produce will be 35 per cent.; but, if owing to unfavourable circumstances, the factor in the third table is only $\frac{1}{2}$, then the proportion of the assessment to the gross produce will be reduced to 29 per cent. A similar process may be followed in other cases. The chief advantage which this method seems to possess is, that it will scarcely leave any thing to the discretion of the native assessors; and on this account, the Board would recommend it for Mr. Newill's consideration, and adoption, if deemed feasible.

39. In para. 96, Mr. Newill touches on the expediency of introducing Agricultural Chemistry, as one of the subjects of education in the Provincial schools, and mentions "Johnston's Shilling Catechism of Agricultural Chemistry," as a text book, well adapted to the purpose. The Board concur in the opinion of Mr. Newill on this point, and would suggest that the proposition be referred for the consideration of the Director of Public Instruction.

40. The Board will now proceed to review the expenditure of the Settlement Department, during the past year. Omitting the period from 13th August 1857 to 11th March 1858, during which Mr. Newill was employed in considering preliminary measures, the aggregate cost of the year amounts to Rupees 99,349 as follows:—

	Rupees.
Salaries of Director and of his office establishment, from 12th March to 31st Decr. 1858	39,428
Do. of Deputy Directors and their office establishments	35,128
Do. of Classification establishment	7,947
Do. of Demarcation do.	16,846
Total	99,349

41. Dividing the cost of the Central office equally between the two Deputy Directors' parties, and that of these officers with this addition, between the Classification and Demarcation establishments employed under them in proportion to the number of those establishments respectively, we obtain the following comparative statements of expenditure:—

SOUTHERN PARTY.

	Talook.	No of Villages.	Area in Sq. Miles	Cost.	Per Sq. Mile.		
				Rs.	Rs.	A.	P.
Classification.	Chellumbrum	144	117·30	9,706	82	11	10
	Manargoody.	197	112·19	8,900	79	5	2
	Oodiarpolliem	257	314·25	7,046	22	6	9
	Arealore	50	73·88	2,655	35	15	0
	Total	648	617·62	28,307	45	13	5
Demarcation.	Volcondapooram	131	459·81	3,885	8	7	3
	Torriore.	121	363·62	14,648	40	4	8
	Lalgoody	22	43·88	2,639	60	2	6
	Moosery.	13	56·69	1,735	30	10	0
	Total	287	924·00	22,907	24*	12	8

* The average, omitting Volcondapooram, is Rs. 40-15-3.

NORTHERN PARTY.

	Talook.	No. of Villages.	Area in Sq. Miles	Cost.	Per Sq. Mile.		
				Rs.	Rs.	A.	P.
Classification.	Mogultoor	64	158·56	7,965	50	3	9
	Tanakoo	14	17·94	348	19	6	6
	Ralinghy	4	7·33	134	18	4	10
	Total	82	183·83	8,447	45	15	4
Demarcation.	Mogultoor	75	180·38	16,828	93	0	10
	Tanakoo	57	137·37	7,478	54	7	10
	Ralinghy	32	105·81	3,970	37	8	4
	Nuggerum	2	·81	75	92	9	6
	Pentapaud	1	·63	37	58	11	8
	Goodiwaddah	62	173·56	11,390	65	1	7
	Total	229	598·56	39,688	66	4	10

42. The total area classified by the southern party, amounts to 617½ square miles, of which 412½ square miles consisted of small fields, and the remainder of blocks of waste porumboke, &c. In like manner, 184 square miles were classified by the northern party, *viz.* 144 square miles in detail, and the remainder in blocks. The cost of the classification amounted to Rupees 45-13-5 per square mile in the south, and Rupees 43-15-4 in the north, exhibiting a remarkable agreement in the charges of the two establishments.

43. The area demarcated was 924 square miles in the south, and 598½ in the north. The cost of the former was, on an average of the whole, Rupees 24-12-8 per square mile, but omitting Volcondapooram, where the demarcation had, to a great extent, been performed by the Survey Department, the cost was Rupees 40-15-3. The average cost of the demarcation in the north was Rupees 66-4-10. This disparity of cost is owing to serious impediments in the northern districts arising from the rains of the S. W. monsoon, and from the combination of the Ryots in the Goodiwaddah talook, not to put field marks. It is satisfactory, however, to observe, that, as the work proceeds, the cost decreases from the growing experience of the Demarcators, and from a more ready co-operation on the part of the Ryots, a result which is very promising as regards the future.

44. Compared with the estimates sanctioned by Government, which were Rupees 51 for the classification and assessment, and Rupees 10 for the demarcation including the settlement of disputed boundaries, it will be seen, that, while the cost of the classification has fallen 5 Rupees below the estimated amount, that of the demarcation has exceeded it by Rupees 31 in the south, and Rupees 56 in the north. In explanation of this excess, Mr. Newill observes, that in the preparation of the estimates for the Settlement Department, it was originally intended that the demarcation should be conducted with much co-operation and aid from the ordinary Revenue establishments, and the village officers, but that the experience of the past year has shown that this assistance cannot be relied on except in an inconsiderable degree.

See letter to Govt. of India, 25th Jan. 1858, *No.* 97, *page* 333, *of Printed Selections, No. LIII.*

Para. 110.

45. But, apart from this consideration, the cost of the past year's operations will not appear so high, if it be borne in mind that the expense of the Central office has been distributed over *two* instead of *four* subordinate establishments, as provided for in the estimate, and that the first few months of the year have, necessarily, been unproductive of great results, while the parties were new to their work. Making an allowance of three months for these circumstances, it is shown that the aggregate cost of demarcation and classification would be reduced to an average of Rupees 66-5-8 per square mile, on both parties; which is only a trifle above the estimate, and strongly raises the expectation that, when the principal item of expenditure, (the cost of the Central office,) is distributed over four establishments, the out-turn of the whole will be within the sum allowed in the estimate.

Para. 108.

46. Experience has, however, clearly proved that the demarcation of boundaries cannot be performed within the small sum allowed for it, and that the classification party is by far too strong to permit the former to keep pace with its own operations. Mr. Newill has, therefore proposed to unite the two establishments, so that they may work conjointly under stricter supervision; by which means, the evil arising from the classification and demarcation

going on in separate localities, will be obviated—the annoyance to which Ryots and village officers are subjected, by having to attend on three separate occasions, will be partially mitigated—and much time will be saved by the information gained in the course of the demarcation being immediately available for the purposes of the classification. The revised scale of establishment prepared by Mr. Newill to carry out the above views is given in para. 114 of his report; but as it has been already sanctioned by Government, the Board will not enter into detailed particulars. The establishment under each Deputy Director is to consist of two parties, the strength of each amounting to Rupees 1,423 per mensem; and each party is expected to demarcate and classify annually 1,170 square miles in detail, or including large patches of porumboke, &c., marked in the lump, 1,290 square miles, or in round numbers 1,250, the extent which was required from each Deputy Director under the original estimate. In a later order, No. 706, dated 25th May 1859, Government have also empowered the Director of Settlement, and Superintendent of Survey, to make such temporary changes in their establishments, as they may consider necessary, provided the sanctioned amount for each Survey or Settlement party is not exceeded.

E. M. C. 10th March 1859, *No.* 290, *in Con. 12th March* 1859.

In Con. 26th May 1859, *No.*

47. In para. 117, Mr. Newill notices the scene of operations for the current season. The southern party, after completing the tract lying between the Cauvery and Vellar rivers, will pass over the frontier into the southern talooks of Salem, as approved in Extract Minutes Consultation, 30th November 1858, No. 1600. The Rajahmundry party, after completing the talooks of the sub-division, and the intermixed lands of Masulipatam, will gradually expand over the Godavery delta, and the rest of the district. The Masulipatam party now engaged in the Goodiwaddah and Pidana talooks, will, after finishing the Kistnah delta, proceed to the upland talooks.

In Con. 11th December 1858, *No.* 5410.

48. In concluding this review of Mr. Newill's report, the Board cannot refrain from expressing the high opinion they entertain of the zeal and ability displayed by him in the organization of the Settlement Department in the first year of its operations. Not only have the principles upon which its various branches are to work, been clearly and systematically laid down, and made known to all concerned through the medium of vernacular translations, but the actual results achieved, amidst the difficulties of a new and gigantic undertaking, are highly satisfactory; and though, in point of cost, they have not yet answered the expectations of Government, there is reason to believe, that this condition, too, will be eventually attained, and that this great and noble enterprize will prove a real and substantial blessing to the people of Southern India.

49. The Board will now proceed to remark on the operations of the Survey Department during the past year, the account of which, as transmitted by Mr. Newill, forms the second paper recorded at the head of these proceedings.

50. Captain Priestley commences his narrative of the operations of the year, by detailing the progress of the Trichinopoly Survey party under the direction of Captain Hessey, the Deputy Superintendent of the Survey. A large portion of his staff having been detached for service in Rajahmundry, and a still larger portion transferred to Mr. Banbury to form the nucleus of a demarcation party, Captain Hessey had to contend against some disadvantages at the outset, but these, though tending to retard his own work, in some respects, contributed to the general advancement of the survey.

12 *persons to Rajahmundry.*
42 *do. to Demarcation party.*
3 *do. to Classification party.*
1 *do. to Masulipatam.*

51. The field work of the season did not commence till the 15th February 1858, from which date up to 12th March following, the extent surveyed was very trifling, amounting to no more than 10 square miles. Active operations, however, commenced on the latter date in the Volcondapooram talook, and in the succeeding period up to 31st August, the following extent was measured by a party consisting of 40 Ameens, but of whom no more than 31 or 32 persons are calculated to have been actually employed on field duties.

Para. 20.

	Acres.	Sq. miles.
From 12th to 31st March...	18,324	29
In April.	22,527	35
May	42,703	67
June	42,248	66
July	57,870	90
August	61,066	95
Total.....	2,44,738	382

52. During the above period, the survey was throughout in advance of the demarcation party, so that the former had to perform both functions, excepting in three villages. In this interval also Captain Hessey instructed 40 Curnums of the Volcondapooram talook in field measurements, and they are reported by Captain Priestley, as qualified for measuring "very minute details descending even to the smallest fraction of an acre."

See Enclosure B of Capt. Priestley's Report.

53. At the end of August, the survey party was transferred to the Torriore talook. Here the new arrangements, for previous demarcation by the Settlement Department, had been in force, and the survey was consequently much accelerated, the work done in September, October and November, being as follows:—

	Acres.	Sq. miles.
September	51,105	80
October	56,146	88
November	39,940	62
Total.....	1,47,191	230

Each field was marked at the corners, and a sketch map, showing the position and number of the fields, was furnished to the Survey party. Of these maps, Captain Priestley remarks, that, though they do not pretend to accuracy of outline, or proportion, they are even more accurate than could have been expected from eye-sketches, and greatly facilitate the identification of fields on the ground. In the margin of para. 21 of these proceedings, the Board have given a small specimen of one of these sketches, by way of illustration.

54. The great utility of eye-sketches and previously demarcated boundaries, is clearly proved by the rapidity with which the survey was able to proceed with their assistance. In the earlier months of the year, the area surveyed *in fields*, was 1,37,992 acres, according to the village accounts, or making an addition of 10 per cent. for differences found to exist between them and the traverse areas, the true extent was 1,51,791 acres.* Dividing this by 3,740½, the total number of days employed in field measurements by all the Ameens belonging to the party, there results 40·6 acres per diem, as the out-turn of each man's work in the period from 1st April to 31st August. In the succeeding three months, when the operations were carried on in demarcated villages, 75,825 acres were similarly accomplished, which being divided by 1,133¾, the total number of days employed thereon, gives a result of 66·88 acres per man per diem. Thus the rate of progress, previous to demarcation, was to that after demarcation as 40·6 : 66·88, or as 10 to 16½ nearly.

Para. 38.

* *Captain Priestley and Mr. Newill state this to be* 1,39,372 *acres, by an oversight.*

55. Similar inferences are deducible from the data given in Appendix G. of Captain Priestley's report. Thence it will be seen that six Ameens working ten days accomplished 1,876 cawnies, or 2,480 acres in undemarcated villages, and 3,403 cawnies, or 4,499 acres, in demarcated villages, the rate in the former case being 41·33 acres per man per diem, and that in the latter 74·98 acres; and the ratio of progress 41·33 : 74·98, or as 10 : 18 very nearly. "This improvement, Captain Priestley justly observes, warrants the expectation, that the daily rate of work, originally estimated at 60 acres, will certainly be reached, if not exceeded, when both demarcation and survey shall have gained more experience of each others requirements, and arrangements for mutual convenience shall have been more fully carried out."

56. A considerable portion of Captain Priestley's report is devoted to a minute analysis of the delays arising from sickness, leave, rain, correction of work, travelling, &c. Into these details, it is not necessary to follow him; but it may be remarked that the delay arising from sickness and leave is estimated at 2·8 days per mensem, for each Ameen, and that arising from rain and other causes, 4·3 days, making an aggregate of 7·1 days, and leaving 23·4 days as the working period for each month. Sunday is not reckoned in the above calculation as a day of rest; but the Board agree with Mr. Newill, in considering that it should be so regarded, and that all field work, on that day, should be strictly prohibited. The Board would wish to be informed how many hours daily are devoted to field work, when it generally commences, and when it is closed.

57. The Rajahmundry party, at first consisted of the men transferred from the Trichinopoly party and a few persons engaged by Captain Priestley at Madras. These with two European Assistants, Messrs. Puckle and Wright, arrived at Nursapoor in the Mogultoor talook towards the end of June. Their number was increased subsequently by men instructed and trained by Mr. Starr, who thus contributed materially towards the formation of the first survey party in that district.

58. Two great obstacles had to be encountered at the outset; one arising from the extreme youth and ignorance of those who first offered themselves for employment, and the other from the unsettled state of the weather, which frequently put a sudden stop to all operations in the

69. The total expenditure, on the Rajahmundry party, was Rupees 22,879; but as it was employed almost wholly in the organization of establishments, and training of hands to the work, its distribution, on the small area completed, is no criterion of the cost per square mile likely to be attained, when the party is in efficient working order.

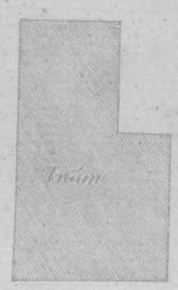
70. With regard to the connection of the Revenue survey operations with the points of the G. T. Survey, Captain Priestley reports, that Captain Hessey has connected his work with several of those points, and promises to communicate the results of his computations of the distances hereafter. In Rajahmundry, several stations have been discovered after much trouble, but they have not yet been connected with the Revenue survey. The Board would wish that the identification of these points should be made, if possible, *before* the main and village circuits are taken, so that the bearings of the former may be recorded simultaneously with those of the circuit stations. In submitting the report, (above alluded to,) of the Trichinopoly points, the Board would wish Captain Priestley to inform them if any efforts have been made to determine the true azimuth of the station lines of the main circuits, as suggested by Major Thuillier in para. 30. of his letter to the Government of India, dated 6th May 1857, No. 13; a point to which that officer evidently attached great importance, and which the Board are anxious should not be overlooked in the Revenue survey operations of this presidency.

Page 217 *of Printed Selections, No. LIII.*

71. It remains to notice the beginning that has been made in the equipment of a Lithographic press, for the Survey Department, in connection with the Central office proposed to be established at Madras. The indifferent quality of the press obtained, the want of good materials, and, above all, the difficulty of procuring men practically acquainted with lithography and its various manipulations, have hitherto prevented its being turned to profitable account. A beginning, however, has been made, and some maps have been struck off from it, which are submitted by Captain Priestley as specimens. These, the Board consider, admit of much improvement, which no doubt will be rapidly effected.

Paras. 168 *to* 170.

72. With reference to Extract Minutes Consultation, 15th February 1858, No 191, para. 7, the specimen maps are designed to show the method of exhibiting Inám lands. It will be seen that this is done by shading the fields with fine diagonal lines as shown in the margin. Mr. Newill thinks, that they should be simply coloured as irrigated or dry, and that they might afterwards be washed with a dark brown, or black, in cases of resumption; but the Board are disposed to prefer Captain Priestley's plan. The shaded fields will still be coloured as dry or irrigated, and might afterwards be washed, in cases of resumption, as suggested by Mr. Newill, while the original shading will preserve the distinction between them and other Government lands, which is an advantage.



73. In conclusion, the Board are glad to learn that all the officers of the Survey Department have performed their arduous duties during the year to the complete satisfaction of the head of the Department.

(A true Extract.)

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

No. 31. ORDER THEREON, 23d November 1859, No. 1594.

Para. 1. In this paper the Board of Revenue review the operations of the Revenue Settlement and Survey Departments up to the close of the year 1858. The report has been attentively considered in Council, but at this late period it is unnecessary to record lengthened observations upon it. Several changes alluded to by the Board as advocated by Mr. Newill, have now been already approved and sanctioned by Government on separate reports; in particular, the union of the demarcation and classification duties, referred to in para. 46, and the allowance of Sunday as a day of rest, referred to in para. 56. The Government will now confine themselves to those points in the report which seem specially to call for notice.

2. The most important of these is the question discussed by the Board in paragraphs 22 to 28, as to the best mode of making the field measurements. The fields in many parts of the country are extremely small, especially in the case of irrigated land; and not only would the measurement of all these minute plots by the regular Surveyors be very costly, and greatly delay the survey; but it would be useless, inasmuch as it is often found convenient to alter the size and form of the small fields by uniting two or more into one. For these reasons it was long ago ordered that no field of smaller area than one acre of irrigated land, or two of dry land, need be measured by the Survey Department; smaller fields being left to be measured by the Karnams. And a proposition by the Board to enlarge this minimum to ten acres, and leave all within that to the Karnams, received the conditional approval of Government,* who directed, however, that this should not be done, till the Survey officers should be satisfied that it would not impair the accuracy ofthe field maps†.

* *November 6th* 1858, *No.* 1503.

† *Nov.* 16*th* 1858, *No.* 1530, *p.* 8.

3. In the present report the Board discuss at length a further proposition made by Mr. Newill, after conference with Captain Priestley. This proposal is that the operations of the Survey Department shall not descend below the "minor circuits" as they are called, being village sub-divisions containing generally from 150 to 200 acres; and that all the interior measurements of these areas shall be made by the Karnams by "khasrah" survey, rough or sketch field maps being also prepared by the same agency. Mr. Newill appears to think that under the checks which this plan would afford the Karnams might be trusted to measure with accuracy; but he does not press the scheme, which he admits to be "much less perfect than the present system," unless it should be deemed important to push on the Survey in Rajahmundry District more rapidly than is practicable under existing arrangements.

‡ *Settlement report, para* 64.

4. The Board of Revenue advocate the change of system much more decidedly. They quote a report from Lieutenant Hessey, to prove that Karnams' measurements when properly supervised attain a high degree of accuracy; and they point out that the proposed system is precisely that followed in Bengal, (and, they might have added the North West Provinces,) except that the Karnams there used a rod, a rope, or a chain, according to the local customs, while here the Karnams would use the standard chain, and in other respects would work after a better method. Further, they notice that as wealth increases there will be a tendency to an increase in the size of fields and that it will be impossible, as it will also be undesirable, to maintain the present fields; that, however, fields measured and laid down by the Survey Department must be maintained intact, whereas if the detailed work is left to the Karnams, all changes occurring may be readily introduced into the maps and village Registers.§ The Board also dwell on the advantages of having in the village Karnams a body of trained Surveyors.

Ibid para. 63.

Para. 26.

§ *Para.* 27.

5. The Government fully appreciate the importance of this question: they have given it very careful consideration and on his recent tour, the Honorable the President took the opportunity of being at Masulipatam where the Superintendents of both the Settlement and the Survey operations in that District and Rajahmundry met him, to discuss the question at length with those officers, as well as with Mr. Newill and other Revenue officers of experience. On the whole, after careful consideration the Government are unable to approve the proposed change. They admit that in some respects the measure would be advantageous, especially as it would greatly expedite the progress of the Survey and Settlement; but they are satisfied that the agency of the Karnams could not be employed as proposed, without to some extent compromising the accuracy and trustworthiness of the Survey.

6. The Board of Revenue properly notice the importance of not trammelling the action of ryots in altering the dimensions of their fields. In order to avoid as much as possible putting any check on changes which are justly described by the Board as natural, the Government con-

sent to adopt Mr. Newill's proposal to enlarge the minimum of Survey fields to two acres of wet land and four acres of dry. They would be prepared to assent to a still further enlargement; but it is observed that Mr. Newill does not consider it expedient to adopt generally the extension to ten acres,* because such an arrangement would involve the necessity of special superintendence over the internal measurements of the Survey fields by the Karnams.

* *Report para.* 60.

In order still more to leave freedom of action in the matter of the size of fields, Surveyors should be not only permitted but enjoined not to measure fields of less than the fixed minimum size, where it can be avoided.

7. It is deserving of notice that the enlargement of holdings is not necessarily inconsistent with the maintenance of the boundaries of the survey fields. The change is ordinarily made by the consolidation of two or more holdings into one, without reference to the position or size of the fields.

8. Under this decision of Government the existing system of survey must be substantially maintained; but the Governor in Council considers it to be of great importance to accelerate the progress of the work; especially in the Kishna and Godávari Districts, where there has been a great increase of valuable cultivation, in consequence of irrigation works constructed by Government. This may be done in two ways without proportionate increase of charge; viz. first by increasing the number of subordinates under each Deputy Superintendent, and 2nd by entertaining additional survey parties. The Government resolve to refer this subject to the Director of Revenue Settlement, for his early and careful report, in communication with Captain Priestley, as to the detailed means proper for giving effect to this resolution to expedite the Survey.

Independently of new measures, the Government entertain the hope that as the several survey parties become better trained and more expert, their rate of progress will increase till they reach the standard laid down for them.

9. The remaining points requiring notice are few. The Government are fully aware of the difficulties which the new Department had to encounter in both its parts of Settlement and Survey, and are quite ready to make allowance for deficient work in consequence. But these difficulties have now, it is hoped, been overcome. The permanent character of the Departments is known; and employment in them, if not so popular as in more stationary offices, is no longer shunned as it was at first. The confidence of the agricultural classes has evidently been to a great extent acquired, as is shewn by the greater readiness to supply necessary information; and the change recently† sanctioned in the mode of obtaining subordinate agency will, the Government confidently believe, make the work of the Survey both more easy and more rapid.

Board's Pro. paras. 11 *and* 43.

†*Order Nov.* 17*th* 1859, *No.* 1564.

10. The Government will not refuse to refer Mr. Newill's suggestion for the establishment of classes for Agricultural Chemistry in the Provincial Schools, for the opinion of the Director of Public Instruction, as recommended by the Board;‡ but they must at the same time express a doubt as to utility of such a measure.

‡ *Para.* 39.

11. There are some points on which the Board have called on Mr. Newill for explanation or information; the replies should be noticed in the Board's report on the operations of the two Departments for the current year. The Government take this opportunity to express the hope that that report will be before them at a much earlier period than that now under notice. The Board will not fail to perceive that the interest and value of the present report was greatly lessened by its lateness; and that in fact several of the suggestions contained in it had been superseded by separate and independent applications. In order that the Board's report should be prompt, it is necessary that those of the Settlement and Survery Departments should be so. The Board will point this out to the heads of those departments, and will at the same time remind them that one great cause of delay is prolixity of style. It should be the object of all officers to make their reports complete, but without unnecessary minuteness of details;

and doing this they will not only be able to dispatch them much earlier than they could do otherwise, but the labour and consequently the time required in the Board's office, will also be greatly lessened.

12. In concluding these remarks the Government have much pleasure in expressing their full concurrence in the Board's acknowledgment of the zeal, judgment, and ability displayed by Mr. Newill in the performance of his important duties, an acknowledgment which they consider to be due also to Captain Priestley. They are happy also to receive their President's testimony to the zeal, activity, and intelligence of the officers in charge of the operations of both departments in the Northern Division, viz. Messrs. Ballard and Master of the Settlement Department, and Captains Crewe and Pratt of the Survey. This high standard of qualification in the officers of the two departments, and the Government fully believe that the local Superintendents in the South do not come short of it, affords the best guarantee for the success of the Survey and Settlement operations.

Para. 48.

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

6. The scene of operations for the ensuing year.

3. On 13th August 1857, I entered upon my duty in conformity with the appointment contained in the Fort Saint George Gazette of 21st July 1857, and on 18th August 1857, Captain Priestley was appointed as the head of the Survey Department, after reference to Government, instructions were communicated in Extract Minutes of Consultation, dated 11th September, 1857, as to the relation and subordination of the two new departments to one another and to the Board of Revenue, and as to the drawing up of plans of operations and Estimates of Establishments required for the Survey and Settlement.

On 17th August 1857, No. 921.

4. The scheme of operations and Estimates were accordingly drawn up in Consultation with the Superintendent of Revenue Survey. Those relating to the Survey are contained in Captain Priestley's letter of 21st September 1857, and were reviewed in my letter forwarding them on to the Board on 16th October following. Those relating to the Settlement Department followed on 28th October. These Estimates of Establishments were submitted to the Government in the Board's Proceedings, dated 18th November 1857, and after reference for further information required by Government on certain points, the Board submitted their views at length on 18th December 1857, and the whole came under the review of Government in Extract Minutes of Consultation, dated 25th January 1858, in which it was resolved to submit the Estimates for the sanction of the Government of India, which was accordingly given by Telegraph on 10th March 1858, communicated in Extract Minutes of Consultation, dated 12th March 1858, No. 328, and was afterwards received in a fuller form in Extract Minutes of Consultation of Government of India, dated 5th March 1858, communicated in Extract Minutes of Consultation of 10th April following.

No. 4044.

No. 96.

5. In the interval previous to the receipt of the sanction of the Government of India, arrangements were made after a lengthened correspondence, for obtaining from the Surveyor General's Office the records of the Grand Trigonometrical Survey, and of Minor triangulations in the localities selected for conducting the Survey, on the enlarged scale. Temporary arrangements were at the same time made with the Collectors to facilitate the demarcation of boundaries for the Survey.

6. This interval also afforded me an opportunity of visiting some of the surveyed Talooks in South Arcot and Trichinopoly, and ascertaining from the inspection of numerous Villages how far the Survey operations were adapted to form a satisfactory basis for the Superstructure of the new Settlement. The results of these personal investigations of the subject, were embodied in a report addressed to the Board of Revenue on 6th March 1858, which does not seem to have yet come under the consideration of Government, who expected in Extract Minutes Consultation, dated 7th May 1858, that it would be placed before them. I would therefore suggest that it should form an Appendage to this report, as its contents seem essential to the right appreciation of the character of the work, and of the labors of the Southern party of the Settlement Department in the past season as will presently be seen.

No. 81.

No. 607.

7. The first step taken towards the organization of the Settlement Establishments was the appointment on 16th March 1858 of two Deputy Directors, one of whom, Mr. Banbury, was deputed to the South Arcot and Trichinopoly Districts, in which the Survey had been in progress for some time; and to the other, Mr. R. E. Master, were allotted with the approval of Government, the Sub Division Talooks of Rajahmundry lying to the west of the Godavery including the intermixed Talook of Rylengy and part of Pentapad belonging to Masulipatam. To the latter also was assigned for demarcation the Gudiwada Talook of Masulipatam in the Kistna Delta, which was intended as a nucleus for the 3rd party, which has lately been commenced,

E. M. C. 11th Dec. 1857, No. 1289.

on Mr. G. A. Ballard taking up his appointment as a Deputy Director gazetted on the 16th November 1858.

8. Messrs. Master and Banbury on their appointment remained a short while for conference with me as to the detailed modes of procedure to be adopted, as well as to familiarize themselves with the general scheme as described in the correspondence. They left with a Manual of instructions and such rules of procedure as could be drawn up at the time, and reached their respective destinations on the 7th and 24th April following. I myself followed Mr. Master to the North so soon as he had got together and trained a sufficient number of hands for practically experimenting in the work.

9. To adjust the Establishments to the commencement of operations, two out of three classification parties belonging to the Rajahmundry Deputy were converted into Demarcation parties* in addition to the standard Demarcation staff, and subsequently one of the three classification parties in the South was made into an additional Demarcation Staff.

* E. M. C. 7th May 1858, No. 607.

E, M. C. 11th Aug. 1858, No. 1119.

10. A considerable portion of my own time was devoted at first to the consideration of the best modes of classifying and assessing lands and drawing out rules for this purpose, as well as preparing in consultation with the Superintendent of Revenue Survey, Rules for conducting the Demarcation. The results will be found in several of the appended papers.

11. From the end of June I was engaged in the Northern Districts in superintending operations, instituting enquiries on the numerous subjects connected with the Survey and Assessment in those parts, and I returned to Madras just as the North East Monsoon commenced in October. After the heavy rains in the next two months had subsided and some little delay from the difficulty of making up my Establishment to the requisite strength before the beginning of the year, I set out on a tour to the South in January, and was enabled to visit parts of the Talooks of Torriore, Volcondapooram, Arealore, Oodiarpaliem and Lalgoody of Trichinopoly, and also those of Manargudy and Chellumbrum of South Arcot in all of which either Survey Demarcation or classification had been going on during the year, and also to consult the Collectors of these Districts and their principal Subordinates, as well as the influential ryots in the several Talooks on numerous subjects. The result of my observations in this tour is embodied in this report as far as they relate to the past year's operations.

12. Before tracing the organization of the two parties and their progress in their work, it is proper to refer to the difficulties which were met with at the outset by the Department generally. The novelty of the duty, the impression of the temporary character of the Establishments not entitling the servants to the benefit of the Superannuation Pension Rules, the disinclination to constant travelling, separation from home and friends and almost incessant exposure in field work, operated principally to deter persons from entering the Department on salaries which would otherwise have been esteemed very remunerative.

13. Upon my earnest representation, the Government was pleased in Extract Minutes of Consultation, dated 16th April 1858, to declare that service in the Survey and Settlement Departments should be counted for Pension according to the Standing Rules,—thus promptly removing one difficulty. Another, however, soon after springs up in the rumour, which found a place in the public papers, though it could not be traced to any official source here, that under financial circumstances the Survey and Settlement operations were about to be postponed. This general rumour as alluded to in para. 7 of my letter of 29th October last to Government, had a most mischievous effect in deterring persons already in any other Departments, or who had any hopes of getting into them, from joining on apparently less certain prospects, the new Establishments, and this was not dissipated till the determination of the Court of Directors to continue the Survey and Settlement Departments was conveyed in their despatch on the Enam Commission, dated 1st September 1858, No. 8, communicated in Extract Minutes Consultation of 16th November 1858, No. 1531.

Letter to Government, 19th March 1857. No. 499. No. 488.

No. 611.

14. In illustration of the disinclination to leave situations in other Departments for the less settled life of constantly moving about and exposure to many inconveniences, I may briefly allude to instances in which posts of 20 and 25 Rupees were declined by persons on the Collector's Establishment drawing only 7 or 10 Rupees, and in a similar way the higher ones of Rupees 100 and upwards were declined by incumbents of about Rupees 25. In vain also was the attempt made to enlist youths educated in the Government and other Schools; a few applied, but found the duties did not suit their tastes and ideas, and left before going through a training in the work. The Curnum class, although well qualified in some respects from their local revenue knowledge, and acquaintance with soils and their produce, were equally reluctant to enter upon duties involving the thought of incessant moving and exposure, and the liability also of removal from their own District. These difficulties were shared by both the Deputies, and in a great measure also by myself, and up to the present moment I have been unable to secure a permanent incumbent for the important Office of my Uncovenanted Native Assistant.

15. Training classes were however gradually formed for demarcation and Classification from such hands as could be got from the hangers on at the Cutcherries and other classes of persons who did not rank so high in respectability and intelligence as could have been desired. Material aid was obligingly afforded from the Southern Survey party by the transfer of such hands as could be spared.

16. I shall now briefly follow Mr. Banbury in his operations in South Arcot and Trichinopoly. A considerable extent of Surveyed Villages was ready at once for him to enter upon the Classification. The whole of May and most of June were occupied in procuring and training hands, and it was not till July that the Classification began to come into anything like working order. One classification party was made up by August and the 2nd not completed till September, the 3rd classification party was as already stated, with the permission of Government, converted into an extra demarcation party.

17. The irrigated Talooks of Chellumbrum and Manargoody in which he set to work were not in some respects so favorable for shewing speedy results of the work as some other localities, for in the first instance the fields there are very small, requiring a longer time to get over an aggregated area, and the freshes of the Coloroon also most seriously impeded work and rendered the destruction of soils more difficult than when in a dry state.

18. But a difficulty of a still graver nature existed in the disappearance, particularly in the Chellumbram Talook, of such boundary marks as had formerly been placed, and consequently in tracing the Survey fields, which had been formed by the Survey Aumeens into quadrilateral figures without regard to existing boundaries of actual fields. I need not here enter into particulars on this point, as these will be found amply given in my report on the subject alluded to in para. 6 above. It may suffice to say that the conclusions therein arrived at have been borne out by experience, viz., that while great confusion and difficulty had arisen in this respect, the survey generally was capable of being adopted for Settlement purposes with the application of certain remedial measures including the re-measurement of a few of the worst Villages.

19. The measures adopted were, first to furnish the Curnums with copies of the field books and the maps, and to aid both them and the Classifiers in all cases of difficulty by deputing persons from the Deputy Director's Office or the Survey Department, acquainted with Survey details to direct them in measuring or otherwise tracing the field boundaries. The Survey Department also rendered material aid in tracing out the new fields generally, and in several instances arrangements were made by the ryots to defray the cost of extra hands entertained for the purpose on moderate pay, thus saving any charge to the State on this account.

20. The Classifiers thus had to see that the marks were reconstructed as well as their own proper duty to attend to, and considerable delay necessarily occurred, which, however, as described by Mr. Banbury, was not altogether without some compensating advantages, for "the Kurnums have

"thus become thoroughly acquainted with the new system of measurements and the calculations "in acres and decimals. The ryots who formerly ignored the new Survey have now become "interested therein, and know the limits of the new fields as well as the Kurnums themselves. "There is also reason to hope that in process of time the Ryots will cultivate in accordance "with the newly formed fields running their field banks along the Survey chain lines."

21. Though the restoration of these arbitrary fields has been accomplished with tolerable success, and thus saved the additional expense of a re-survey and plotting the whole over again, some awkwardness and inconvenience still remain, and care will be required in the introduction of the new assessment to prevent confusion. Mr. Banbury found the greatest apathy on the part of the ryots in the restoration and preservation of the field marks, and it was only by recourse to the penalties provided in Act 20 of 1855 and a most energetic supervision that the work was eventually done. The permanency also of these marks in future is very questionable, particularly in the loose black soils under irrigation, as they are constantly liable to be impaired by the rains and inundation, and to become obliterated by being ploughed up and other accidents. This liability, which would exist under any circumstances, is much aggravated in places by the marks falling in an inconvenient position in the middle of fields and away from banks and other natural boundaries. In the Arealore and Oodiarpolliem Talooks of Trichinopoly, which have shared (particularly the former) in the faults above described, the restoration of the boundary marks is somewhat more promising in consequence of there being a more ready co-operation on the part of the people than in the South Arcot Talooks, where the royts assume a spirit of independence, which would be commendable, were it not carried out into a frequent disregard of authority.

22. Another circumstance, which has affected the reception on the part of the people of the Survey and Settlement operations in the South, is the liberal reductions that have been made in the former assessment. Could these measures of relief have been associated with the operations of the Survey and Settlement Departments, it would have secured them a far more hearty welcome than is now generally accorded to them. The ryots seem content with the temporarily reduced assessment, and do not always appreciate its readjustment on better principles, particularly as the necessary operations of Survey and Classification involve much trouble and inconvenience for the time.

23. Although the extent of work done by the two Settlement parties will be noticed in the sequel in connection with the expenditure, it may be mentioned here that the whole of the Chellumbrum and Manargoody Talooks comprizing together 343 Villages have been classified, with the exception of two that were re-surveyed and will be ready for immediate Settlement, while the greater part of Odiarpolliem Talook and some portion of Arealore in the Trichinopoly District have also been classified. The Classification in the two Trichinopoly Talooks was easier than in those of South Arcot in consequence of the fields not being generally irrigated, and running larger in size and other local circumstances. The mode of Classification and the manner in which tests were applied to it will be noticed below under a separate head.

24. The progressive increase of work in each month will be seen from the following Statement:—

Months.	Classifiers employed.	Acres Classified.
May	6	2,724
June	15	19,326
July	18	39,757
August	25	52,905
September	27	58,499
October	26	63,332
November	20	22,977
December	4	2,520

The decrease in the last two months is during the recess, which was employed in making up he Accounts.

25. Besides the Classification, other subjects connected with the Revenue Settlement, have been taken in hand. The outturn of crops has been examined during the harvest, and the productive power of the soils ascertained as far as possible. Translations of the Survey field books have been made for the Kurnums to enable them to keep up the details of the new Survey. Missing Theodolite Stations have been erected, corrections necessary to be made in the Survey Maps owing to improvements, alterations, spread of cultivation, and other causes, have been ascertained and recorded.

26. The Demarcation Establishment under Mr. Banbury, consisted at first of the Standard party, to which was subsequently added an additional one formed out of the 3d classification party as above noticed, as it was found that the single party could not make sufficient progress so as to overtake the Survey, which had the start of it in the season by about three months.

Para 9.

27. This branch was more unpopular even than the Classification and the most inferior Agents had to be employed and trained. Its organization was aided by the transfer of some hands from the Survey Department who had been practised in the laying out of field and other boundaries, including an efficient person for the head of it as Boundary Inspector. The first party set out in May with only six hands and was gradually made up as men were trained. The additional party commenced in September.

28. The following Statement shews the progressive increase of work:—

Months.	Gomashtas engaged.	Acres demarcated.
April	3	0
May	11	0
June	32	18,436
July	30	19,820
August	30	28,666
September	67	78,503
October	67	1,40,674
November	67	1,08,990
December	67	1,28,952

The portions of work done in villages in progress is not included in this.

29. In the Volcondapoorum Talook of Trichinopoly, the first surveyed in the season, the demarcation party followed the Survey to make good the field marks, and to erect the pillars and other village boundary marks. In the adjoining Torriore Talook, the demarcation entirely preceded the Survey, and very materially expedited it. Both the above Talooks were finished in the year with the exception of a trifling portion since completed. The two other Talooks of Moosery and Lalgoody, lying to the north of the Cavery, were also commenced before the close of the year, and there is a demarcated area of about 240 Square miles ready for the Survey to enter upon in the ensuing season. Both Volcondapoorum and Torriore afforded better facilities than the Cavery Delta for the boundary marks, as stone for pillars was at hand, and scattered stones were in some places easily collected for ridging the corners of the field boundaries instead of earth. It may be added that the ready aid afforded by the ryots of these Talooks in the demarcation contrasts very favourably with the conduct of the richer and more influential cultivators in Chellumbrum and Manargudy, and that their co-operation in procuring materials for boundary marks, has rendered the expenditure on this account comparatively small, the Tahsildars of Volcondapoorum and Torriore are also mentioned as having afforded efficient aid whenever required.

30. I have reason from the Villages I examined to be satisfied with the Demarcation of the Volcundapoorum Talook, which as above stated followed the Survey. The Survey Department in laying out their fields paid general regard to existing boundaries, though here and there from a want of appreciation of revenue matters their arrangement was not always perfect. The Demarcation in Torriore seemed from the Villages I saw to have been very efficiently carried on with considerable expedition, the Demarcation party worked there entirely under the Demarcation Rules before the Survey commenced, and have fully carried them out. In short, the strict adherence to existing boundaries and the limits of existing rights will secure the desideratum of a correct plan of the features of the country, and record of the existing allotment of lands with their recognized limits.

31. The Demarcation of the small irrigated fields with innumerable torturous channels in the Lalgoody Talook also came under my observation, and clearly shewed that Mr. Banbury's Demarcation staff had well learnt their duty, and that, notwithstanding the inferior materials at first available for its organization, it was qualified to carry on the work in a business like style.

32. In the Arealore Talook, I re-examined in company with my Deputy, several Villages, with the view not only to testing the Classification, but to see how far the Survey which was made in 1855 and 1856, could be traced. The boundary marks had in very many cases disappeared, and the difficulty of recovering them is increased by the fields having been often arbitrarily laid out, but it was surprising to see the perseverance, and aptitude of the Classifiers and Curnums together in tracing the points, frequently by re-measurement from the field books, and there is every prospect of the same successful issue of these efforts here as in the South Arcot Talooks. In Oodiarpolliem, surveyed in 1857 the measurements are much better and present less difficulty to the Classification.

33. In concluding this brief notice of Mr. Banbury's operations of the season, it is proper to remark that he has labored under the difficulty of having to superintend demarcation and classification operations necessarily separated often by a distance of 60 to 100 miles in consequence of there being intervening Talooks already surveyed, which could not be classified till after Chellumbrum and Manargoody were done, without creating a still greater inconvenience in the future disposition of the two operations. To meet this and other difficulties it has required the most persevering energy and unsparing exertions of Mr. Banbury, which have been severely taxed, and it is with the greatest regret I find that last year's work superadded to the arduous duties he had previously gone through elsewhere render it imperative for him to recruit his failing health by returning to England. It is gratifying to find that some of his chief subordinates have shared in the same activity, though it is to be regretted that this has resulted in the death of two of his best men induced by over-exertion and exposure.

34. It seems essential that the field of labor of each Deputy's party, which is 1250 square miles of Demarcation and the same of Classification, should be arranged as compactly as possible, in order to prevent both delay and inferiority in the work. A remedy for this will be proposed in the sequel in the combination of the two operations of Demarcation and Classfication simultaneously.

35. In noticing the organization of the Settlement party for the Godavery Delta of Rajahmundry it would be too tedious to go over the same circumstances of difficulty which presented themselves to Mr. Master equally with Mr. Banbury in South Arcot and Trichinopoly. Besides the obstacles he shared in common with Mr. Banbury, he had the further disadvantage of taking up a locality entirely untrodden by the Survey Department, and of not being able to obtain any hands from the latter acquainted with the laying out of field and village boundaries. On the other hand he was not fettered with such troubles as those which Mr. Banbury had to contend with in the defects of the experimental Survey in the South.

36. The Survey Class was carefully reserved for the Survey Department who seemed to have the best claim upon it, though the training the pupils had had in laying out fields for

measurement would have been of great advantage for the Demarcation. The result was however that few of the Class were content to join the regular Survey Establishment.

37. The work in the north was at first necessarily confined to Demarcation. The first party in Rajahmundry was gradually made up out of a Training class, and was not completed till about the middle of July, another was made up by the end of August while also a party was commenced in Gudiwada about the end of June, and gradually completed.

38. A Demarcation party, was sanctioned on the 6th October 1858 out of the Estimate of the 3rd Deputy Directors' party, which enabled Mr. Master to bring up his Establishment in Rajahmundry to the full sanctioned strength, which he did by placing a 3rd Demarcation party at work in Relenghy and Nuggeram, leaving that in Gudiwada as the commencement for the 3rd Deputy's operations.

No. 1350.

39. By the time the Establishments were being made up, the S. W. Monsoon set in with the heavy rains which are then usual in the Northern Districts, and the Mogultur Talook, the first scene of operations was, with its very imperfect drainage, subjected to inundations which continued more or less till the end of October, and so great was the impediment to the work that I contemplated the withdrawal of the Servants and transporting them to a more favorable locality, but the advantage of this step seemed to be counterbalanced by the great loss of time which it would have occasioned.

40. The Demarcation in Gudiwada met with a sudden check in October, and nearly a whole month's labor was lost owing to a combination on the part of the ryots not to put themselves to the trouble of placing field marks. The heavy floods, after the monsoon set in rendered it difficult of access to Mr. Master without serious loss of time in the tedious and circuitous route that remained open, while, as already brought to notice in my letter to Government of 29th October 1858, the Inspector at the head of the party was suddenly apprehended on a charge of aiding and abetting the rebellion of Soobareddy in Rajahmundry, and removed from his work for a considerable time, advantage was taken of these circumstances by the people to stop the Demarcation, but a visit made to the spot shortly afterwards by Mr. Master speedily restored confidence in the work, and led to renewed efforts on the part of the ryots to carry out the Demarcation of their fields with promptness, so that recourse to severe measures was not necessary under the circumstances.

No. 611, para. 6.

41. In both the Godavery and Kistna Deltas there was very little resource for field marks but in ridges of black soil. These are from their nature liable to be dissolved more or less in each monsoon, and although of good dimensions at first cannot be expected to survive more than a few seasons at most without constant renewal, and it will require no small exertion to secure their preservation from time to time through the ordinary revenue authorities.

42. Stones have been adopted as far as possible for marking the subdivision traverses of large Villages, and although water carriage is available in places, the transport from the channels to their destination by means of coolies (as there are no tracks even for bandies) is troublesome and expensive. The masonry pillars which mark the Village boundaries have progressed, though not to completion, owing to the floods and the difficulty of getting workmen and materials.

43. The Demarcation has extended over the whole of the Mogultur and Gudivada Talooks, has made considerable progress in those of Danuku and Ralinghy, and has also been commenced in those of Nuggeram and Pentipad.

44. The following Statement, based upon the Curnums Accounts, shews roughly the progressive increase of work in the several months.

Months.	Gomasthas.	Acres demarcated.
May,	11	1,255
June,	28	1,120
July,	53	5,251
August,	62	16,151
September,	71	17,051
October,	70	42,63[illegible]
November,	94	51,666
December,	94	58,493

The portion of work done in Villages in progress is not included in this Statement.

45. For the classification in Rajahmundry a few hands were got together by the time I reached that District at the end of June, but it took the best part of the next month to train them for the work, and it was not till September that a suitable person was found as Supervisor of the party, the strength of which was only gradually made up. With this delay even, it was found that work could not, until the end of November, be allotted to the Classifiers throughout the month, as they could only be sent to Villages completely demarcated, in consequence of the Village Servants being unable to attend the boundary Gomasthas and Classifiers in the same Village conducting two separate operations, while the large size of many of the Villages, kept them a long time under the demarcation, which was further impeded as above explained by the floods.

46. The Classification thus has been limited to about 82 Villages in Moguttur, Taunkoo and in Ralunghy, the aggregate ayacut area being according to the Curnums accounts 84,039 Acres, or taking 40 per cent for deficiency as shewn by a Main Survey circuit, the result would be 117,655 Acres or about 184 square miles.

47. The progress of the Actual work may be seen as follows:—

Months.	Number of Classifiers.	Actual Extent of Classification.
July,	4	306
August,	9	5,218
September,	9	3,580
October,	13	9,354
November,	13	17,339
December	13	30,587

The portion of work done in Villages in progress is not included in this Statement.

48. I proceed now to notice the mode in which the Demarcation has been conducted. The general principles were laid down in my draft Rules forwarded to the Board on the 16th December 1857, No. 94, and approved by Government in Extract Minutes of Consultation 11th January 1858, No. 44, with slight modifications suggested by the Board in their Proceedings dated 19th December 1857, No. 4575. These Rules were however in fact only applicable to the state of things prior to the sanction of the new Establishments, and a more complete Code was afterwards drawn up on the same general principles expanded to meet the circumstances of the New Department.

Demarcation.

Appendix F,

49. As the Board and Government are aware, one of the great evils connected with the experimental Survey in South Arcot has been the want of a competent agency for laying out

the boundaries and securing the requisite marks being placed upon them. The Magnitude of this work was dwelt upon when the Estimates for the Establishments and general plan of operations were under consideration, and even in the provisions made for a separate Establishment for demarcation, it was allowed* that much aid must still be expected from the local revenue servants and Village Officers. It was not however easy to secure this aid promptly and efficiently, and experience very soon shewed that the work of demarcation required as many hands and even a longer time than the classification of the lands, thus deranging the calculation of the proportionate staff and expenditure required for these operations respectively, as will be presently noticed more particularly.

* E. M. C. of 25th January 1858. No. 96, p. 14.

50. It seemed, however, essential that the Settlement Department should undertake the Demarcation in a thoroughly efficient way, as being the basis both of the Survey and the Assessment, particularly as the responsibility of thus defining the details of these operations could not be placed upon the Survey Department. The Rules therefore provide for the formation of a regular field register, and a Thakbust map or rough sketch of the fields of the Village, as well as a rough sketch to shew the Village boundaries and the works placed upon them. Specimens to illustrate these will be found in the Appendix to the Demarcation Rules. It was arranged also that all the boundary marks should be placed, and the theodolite station pillars built in a manner approved by the superintendent of Revenue Survey before the Survey commenced. With the rough sketches of the Village boundaries and of the fields, and a complete field Register, and all the boundaries properly marked, the Survey Department has thus every facility afforded for the prosecution of its work with expedition and certainty, and the result has been, as will appear in the Report on the Survey, that the Aumeens have been enabled nearly to double the average extent of daily measurements, upon which the calculations of the Estimate are based, the rates of the work without demarcation to that after demarcation being as 1 to 1.8 (para. 50 of Survey Report for 1853).

Vide also specimens of work Appendix K. at seq.

51. As an instance of this immense aid to the Survey, I found on recently looking at a Village in which the Aumeens were measuring, that they were able to carry on their work with the assistance of the Field Register and Demarcation sketch, and some of the principal ryots, without the attendance of the Curnum, whose absence at the Jummahbundy would otherwise have seriously impeded the Survey.

52. It would take too much space to recapitulate here the whole of the Rules, but a few of the principal ones may be noticed. The exterior boundaries of Villages are marked with masonry pillars 2 feet square and 3 feet high including foundation, at every tri-junction point of three villages. These of course form Theodolite stations; particular care is then taken to select and mark with secondary pillars, 1½ feet square and 3 feet high, the next theodolite station on each side of the tri-junction pillar. Additional pillars, similar to the last, are then placed at each prominent corner of the Village boundary, and also intermediately where the tri-junction points are very far apart. These additional pillars are not numerous and with the principal and secondary pillars form sufficient marks for retracing the village circuit at any future time, should such be necessary, while the infinity of masonry pillars on every petty corner on which the theodolite is placed is thus dispensed with; these minor points being marked with large square mounds or stones if procurable. The main circuits run along the boundary stations of the villages included in them.

53. The subdivision of large Villages into minor circuits has been carefully provided for, as calculated to preserve the survey from obliteration, and to afford the means of restoring any details of fields, which may from time to time be required. In the experimental Survey these minor circuits were run at random generally round large tracts of waste, and were never preserved on the ground, but now their arrangement and demarcation, in convenient forms of about 200 acres are advantageous to the Survey, as affording checks of details in a systematic way, as well as conducive to the permanency of the work.

54. The erection of field marks is a most tedious process, and one that presents great difficulty as above observed, in some localities, such as the River Deltas, where no stones are procurable, and where the soil is so loose as to lead to their dissolution in one or two monsoons. The general plan adopted is to have earthen ridges ½ a yard high extending 2 yards from the corner in the direction of each side of the field, with intermediate ridges of 2 or 3 yards along any long distances. Stones and bushes are also made use of where available.

55. As regards the village boundary pillars some doubt was felt at first as to whether the Settlement Department had sufficient skill to build them in suitable places before the theodolite angles were taken. The difficulty, however, of building them afterwards so as to secure the requisite degree of accuracy of the angles, led to the attempt being made, and it is satisfactory to find that with the aid of the station markers attached to the Survey Department it has proved successful.

56. About the permanency of the field marks there is ground for apprehension as already remarked. In the Surveyed Talooks of South Arcot recently classified they have in places been restored in the form originally adopted, viz., small round earthern mounds, and although much labour and energy have been bestowed upon this work both by my Deputy and his subordinates; I have little confidence of their universally remaining for any length of time, particularly as they are often in the midst of fields, owing to the arbitrary way in which the survey lines were measured, as alluded to in a previous part of this report. Where however the marks fall on the natural boundaries of fields, and the lands are almost entirely cultivated, the future loss of these marks will not be of so much consequence, as the occupation of land is the very best preservative of boundaries, and the Village Maps and Field books will be a guide in all doubtful cases. Under any circumstances it will require coustant attention on the part of the Revenue Authorities to keep up the field marks after the Settlement Department has left the ground, and rigid measures ought to be adopted for this purpose, and an annual examination and restoration of them enforced.

57. The minimum size allowed for survey fields, as hitherto authorized, is 1 acre for irrigated land and 2 acres for dry land, all small integral fields being clubbed together within the above limits for Survey, and the details being left to the Curnums to measure under certain checks by the Survey Department, who afterwards sketch them into the Village Maps. The size of the Minimum is a matter of much importance in regulating the expedition of the Demarcation and of the Survey, and it has long been suspected that it is too small to admit of the work going on with that rapidity which might successfully be attained.

58. The Board in para. 16 of their Proceedings of 19th October 1858 proposed that, when the Superintendent of Revenue Survey and myself were satisfied that the Curnums were competent to measure fields within the limit of 10 acres, they should be allowed to do so under the requisite check, these details being sketched into the map by the Survey Department without plotting to scale, the relative position in the map being the chief object, and any want of accuracy in the sketching in within the above limit being of little consequence, particularly as the area is correctly recorded. In Extract Minutes of Consultation, dated 6th November 1858, the Government approved of this proposition, but on the 16th idem * * * * directed that it should not be carried out till it *could be shewn* that the Curnums were equal to the enlarged task.

No. 3941.

No. 1503.

No. 1530, p. 8.

ITEMS.	Mr. Banbury's party.			Mr. Master's party.			Total.		
	Completed.	In progress.	Total.	Completed.	In progress.	Total.	Completed.	In progress.	Total.
Village Boundaries.									
Number of Villages,	290	40	330	243	68	311	533	108	641
Number of Khundums or Subdivisions.	235	58	293	854	262	1116	1,089	320	1,409
Pillars. Trijunction	610	104	714	501	37	536	1,111	141	1,252
Pillars. Secondary	1,170	211	1,381	1170	89	1259	2,340	300	2,640
Other marks on Village boundaries	11,437	2,041	13,478	6729	837	7,566	18,166	2,878	21,044
Marks on Khundums	3,690	1,038	4,728	9343	3,676	13,019	13,033	4,714	17,747
Field Boundaries.									
Number of Villages	287	22	309	229	31	260	516	53	569
Villages divided into Khundums. Number of Villages,	86	32	118	175	67	242	261	99	360
Villages divided into Khundums. Number of Khundums,	260	83	343	830	280	1,110	1,090	363	1,453
Number of fields marked,	1,85,961	36,715	2,22,676	80,401	19,655	1,00,056	2,66,362	56:370	3,22,732
Field marks	4,71,813	91,556	5,63.369	2,30,842	56,128	2.86,970	7.02,655	1,47,684	8,50,339
Number of fields examined for checks	26,103	2.228	28,331	13,787	878	14.665	39,890	3,106	42,996

68. The principles upon which the land should be classified according to its productive powers, and assessed with reference to this and other circumstances of markets, roads, distance, &c. were discussed in my scheme of operations approved generally by the Board and Government, but necessarily without entering upon some points which could only be disposed of after actual experience. I beg now to refer for details of operations as since worked up into a more comprehensive system to the Instructions to Deputy Directors, Rules for Classifiers, Notes on Soils and other papers appended to this Report.

Classification.

Dated 28th October 1857, No. 40. Board's Proceedings 19th Nov. 1857. E. M. C 15th February 1858.

69. In submitting my preliminary scheme, I advocated the fixing the assessment directly in money value, in which I was partly supported by the Board, the Government, however, in para. 21 of Ex. Min. Cons. 15th February 1858 No. 191, considered that the proper course was to proceed upon the grain value in detail, applying afterwards the processes of commutation of price, and allowances for favorable or unfavorable circumstances.

70. I have accordingly given my best attention to the subject, and it has occurred to me whether, to meet the views of Government, advantage might not be taken of the progressive state of agricultural knowledge in England through the medium of agricultural chemistry and geology, in the important measure of a new Settlement of Land Revenue of this Presidency.

71. The services of an agricultural Chemist, long promised by the Court of Directors, and for which the Government has renewed its application, would have been very valuable to me in coming to a conclusion as to the best scheme of Classification suited for this country, but, in the absence of this aid, and with a recollection that I have only an untrained agency to work with, I have not ventured to go abstrusely into the subject, or further than I believed it would be intelligible to the people, and capable of being easily carried into operation.

Ex. Min Cons. 10th November 1858, No. 1515.

72. The accompanying Notes on Soils describe the plan adopted for the classification. The greater part of Sections 2 and 3 are intended only to aid in occasional experiments, while the first Section is of general application. I may add that, in translating these Notes into the Vernacular languages, much care has been bestowed to get rid of unintelligible technicalities, and to adopt absolute or explanatory terms which are generally known.

Appendix C.

73. The soils are first divided into five great series.

1st. The *Alluvial and Exceptional* which provides for the rich island soils of extraordinary fertility, and for garden and other soils permanently improved, and ranking above the ordinary cultivation, as decided in Ex. Min. Cons. 15th February, 1858, No. 191, para. 31.

2d. The *Regur* series comprizing what is called the black cotton soil with all its varieties under the head of Musub and other native terms, which are not very definite.

3rd. The *Red Ferruginous* series, originating from sand stone, laterite, &c., and possessing distinct characteristics in its constitution and fertility.

4th. The *Calcareous* series, originating from under-lying strata of chalk of lime, the original characters being more or less modified by atmospheric and other influences as respects the surface soil.

5th. The *Arenaceous* series, comprising chiefly the sandy tracts originally deposited from the sea in littoral districts.

74. The origin or characters of the soils, as particularized in the above series, have a very decided influence upon their fertility, but as the soil of each series varies in quality, it is necessary next to consider what other circumstances mainly affect the productive powers. These may be resolved into 1st, their *mechanical* composition of clay, sand, lime and organic matter, and 2ndly, their *chemical* composition, in which is to be taken into account the minute quantity of salts, acids and other mineral ingredients, the presence of which is essential to the nourishment of plants. To these might be added the physical properties of the soils, but these again depend mostly upon the mechanical composition. The mechanical composition is easily resolved and brought under arbitrary rules, but the resolution of the chemical composition is a difficult task beyond the comprehension of ordinary agency, and is only attainable at best on a limited scale. The determination of the mechanical composition of clay, sand, &c., is found of great practical use, as it often distinguishes the soils according to the particular texture suited for the several crops, and also according to the relative cost of cultivation. For instance a stiff clay regur is found to grow Cholum well, and is unfit for Cumboo and some other grains, while a mixed or sandy regur will grow Cholum only scantily, but produce good crops of Cumboo, Ragee and Varagu, while the expenses of cultivation differ in the stiff clay and the light loose soils. Some of the loamy soils also will grow Indigo and other choice products, which cannot be obtained in the clay lands. These are very important considerations in arriving at the proper assessment and are thus in the system pursued placed in a tangible form.

75. It follows then that, with the agency at command, soils may be advantageously classified under arbitrary rules according to their Mechanical composition, and that Chemical and physical properties must be taken into account discretionally with other circumstances affecting their fertility. This plan obviously affords the means of an important check by re-examination, which would be wanting, were the whole left to the discretion of the Classifier. The table of classification given at para. 5, of the notes on soils accordingly provides for the above considerations. The proportions of clay and sand fall under an arbitrary rule, while the 1st and 2nd *sorts* allotted to each *grade* provide for the discretional application of other circumstances in determining the relative grain value. Thus the Regur series run as follows:

Clay regur containing upwards of $\frac{2}{3}$ clay,	1st and 2nd sort.
Mixed regur with $\frac{1}{3}$ to $\frac{2}{3}$ clay,	1st and 2nd sort.
Sandy regur not more than $\frac{1}{3}$ clay,	1st and 2nd sort.

76. Grain values on three or four of the staple dry grains and on paddy are then assigned to each grade and sort, differing for each Talook or other Tract of country according to local circumstances of fertility. These form a guide to the Classifier in arranging the soil under the several sorts. No very definite rules are at present laid down to guide the discretional deter-

mination, but these may perhaps gradually be supplied with the aid of professional knowledge, as the Classifiers advance, as they continually are doing, in intelligence and skill.

77. In practice the classification is found to be simple and easily intelligible, and the Classifiers, with nothing more than a common thin phial to test occasionally the proportions of sand and clay by dissolution in water, are expert in determining the composition of the soil, to which a little experience enables them to add a relative estimate of its other properties. In many villages I visited with my Deputy in Arealore and elsewhere, great pains had been taken, and the Classifiers had no difficulty in arranging the soils under their respective classes, or the Head Classifiers and Supervisors in checking the same with a considerable degree of certainty.

78. In examining the fields the soil is dug up in several places to see its texture about 6 or 8 inches below the surface, which latter is often very little guide, from its being altered for the time by the action of the sun or water, and presenting a different appearance from the part from which the plants derive their nourishment.

79. The table of classification is constituted on principles somewhat similar to those on which the classification and Nomenclature of soils have been arranged in a table published in the Journal of the Royal Agricultural Society of England, Vol. III. p. 156.

80. To carry on a systematic classification of lands according to their productive powers it is absolutely necessary that the table should be sufficiently expansive to take in all circumstances deserving of consideration. Many of the classes will eventually merge together in the same money rates, and the grades and sorts which are six in number for each series will only appear in one descriptive column with a Tarum or money value attached in another: the 1st and 2nd sorts also will not appear together in all villages; and while the table is sufficiently comprehensive for a whole Talook, so as to secure an equalization of the classification in the several villages, the latter will each have but very few rates generally out of the whole. Further details can best be given when the actual Settlement is submitted.

81. The above plan of classification seems specially adapted for parts of the country where agriculture is in its primitive state, and has not been advanced by any artificial improvements from the application of capital beyond the most ordinary tillage, and it seems to suit the upland Talooks of Trichinopoly where it is now being carried out.

82. In the first instance of Classification in Chellumbram and Manargoody, before the above plan was matured, another scale of Classification was adopted which left much more to the discretion of the Classifiers. It was as follows:

Taram.	Description of Soil.	Estimated produce in Harris Cullum to the Cawny of Paddy.
1	Islands and other alluvial deposits.....	60
2	Permanently improved lands, Garden lands near the Village site termed Nuttaraya Oorwary, ...	55
	REGUR.	
3	Best regur mixed with Vandal or Sand-Regur of the first quality termed Sandrickay, rich in organic matter with oxide of Iron also,.....	50 45
4	Regur of ordinary quality less rich in organic matter,.....	40
5	Inferior Regur mixed with sand, Sukan or any other bad ingredients, ...	

Tarum.	Description of Soil.	Estimated produce in Harris Cullum to the Cawny of Paddy.
	MASSAB.	
6	Best Massab, rich in organic matter or Vandal,.....	55
7	Good Massab,.....	50
8	Ordinary Massab,.....	45
9	Inferior Massab, mixed with deteriorating ingredients, or having but little clay in its composition,.....	40
	LAL OR RED SOIL.	
10	Best red earth,.....	45
11	Ordinary do.	40
12	Worst do.	30
	INFERIOR SOILS.	
13	Regur and Massab of so bad a quality as to prevent its falling into tarums 5 or 9,.....	30
14	Sandy, stony lands with hardly any clay,.....	20
15	Pure sand, or gravel,.....	10

83. This seems to have answered the purposes well in these Talooks, as the culture has advanced beyond its primitive condition, and there are more numerous circumstances there than elsewhere, which modify the fertility of the soil as judged from its original constitution, and which might not have been so easily fitted into an entirely new system of classification at the outset, without previous experience on the part of the Native Agency.

84. Each plan has been submitted to rigid tests under my personal superintendence in the several Talooks, by taking over numerous fields in different localities first one party of intelligent ryots and then another, without any intercommunication between the two parties. The grain values assigned to the fields by each party were taken down at the time and compared with the relative tentative grain values of the classification tables. As might be expected the ryots invariably underrated the produce, but while their Statements often materially differed among themselves the relative values upon the whole generally accorded with the ratio of the scales adopted, so as to give confidence in the correctness of the Classification.

85. These differences in the grain produce assigned by different parties of ryots selected for their intelligence and knowledge of agriculture, were however very remarkable, particularly in dry lands, where they gave the value in several grains, and in these it was not always easy to reconcile their Estimates one with another, thus shewing that there was not sufficient ground for characterizing the Classification as inaccurate, when it did not tally with the ryots' Estimates. It is also amusing that in several instances, after bringing the same ryots a second time to the same fields, they have unconsciously given a different grain Estimate to that at first assigned by them. I mention these circumstances to shew, that endeavours have been made to test the work by the opinions of the ryots, and that the latter are not always to be taken as a certain rule, though they may, in some measure, form a guide as to the qualities of the soils. The knowledge of the ryots is also limited to their own immediate neighbourhood and is less valuable there on account of their self-interests.

86. As above remarked, the rates will eventually be fixed for the several localities, after numerous examinations of the crops. The latter however will require careful consideration, as there has been a tendency, in places, to select portions of fields rather above the average; and the speedy completion of the examination within the morning, which is necessary to ex-

clude opportunities of fraud, does not always admit of the grain being properly winnowed, while it also measures more immediately when thrashed than when it is taken to market.

87. The process, as above described, is somewhat elaborate and is withal liable to so many disturbing influences, that the result must be treated discretionally. I have not however felt at liberty, under the expression of the views of Government in Extract Minutes of Consultation, 15th February 1853, para. 21, to shrink from the task by attempting to arrive directly at the relative money rates suited for the different Talooks by a less intricate path. Care will, however, be taken to put the financial results of the process in a simple form.

88. The money rates must not, I think, be fancifully few under the idea of simplicity, for if the difference between the rates is considerable the calculations for markets, roads distances may be elaborately made merely to strike them out again by adjusting the resulting amount to the next higher or lower rate, the difference between which being greater than the special item of calculation. In England we find a valuer carrying his rates to even sixpences in such high values as 20 per cent and upwards, and the corresponding minimum fraction of ¼ Rupee is not too low in this country for the much lower rates, at least of punjah, which will even then be limited.

89. In accordance with the views of the Court of Directors, that the net profits should be taken as the basis of the assessment rather than the gross produce, it is intended, in converting the grain value into money rates, not to take an arbitrary share of the produce as the Government portion, but to vary this somewhat in the different kinds of soils, according to the expense of cultivation, facilities of growing especial produce, &c., and thus to bring out the assessment approximately in the ratio of net profits. These calculations will vary for different tracts of country, and will belong to the report on the new Assessment formed for the same, as well as the rate of commutation which will also vary in different localities.

Despatch dated 17th Dec. 1854, No. 17. para. 19.

90. As described at para. 36 of the Manual of Instructions for conducting the Assessment, the distance from the Village is proposed to be classed into 3 grades differing each ½ a mile,—Lands within ½ a mile being considered favorably situated, those from ½ to 1 mile as less favorable, and those beyond 1 mile as requiring still further consideration. The ryots in most parts of the country do not appreciate the treatment of this item so minutely, but are generally agreed as to distinctions of land situate at a distance of ½ to 1 mile. In many of the small Villages of South Arcot, this item will not need consideration, as the lands within an exterior area of about ½ a square mile may all be considered as favorably situated, and, as experience advances, I am disposed to think a somewhat larger circuit than half a mile may be taken for the normal condition, and that a single deduction for lands beyond that will under general circumstances suffice. The circumstance of lands adjoining the Village site often falling into the higher rates of the exceptional series favor this view. The case can however be best disposed of in making the actual settlement.

91. Markets, besides forming a general consideration for a whole District or Talook, will also be taken into account with reference to the advantages they afford to the Villages in their more immediate proximity.

92. Irrigation it is proposed to class according to the sources of supply, such as anicuts, tanks, channels, &c., and also according to relative advantages of distribution, levels, &c., making additions or deductions accordingly from the primary rates. A sketch of the scheme in detail will be found in paras 37 and 38 of the Manual of Instructions above alluded to.

93. As above noticed, the Talooks of Chellambram and Manargoody are now completely classified, and the formation of the Assessment will form the subject of a separate report, when the present harvest has afforded sufficient data for forming calculations for the purpose. In the meanwhile my visit to that locality has enabled me to arrange, in personal communication with my Deputy, and after local enquiry and numerous investigations with the ryots, the other items

which enter into the consideration of the assessment; and to put the requisite accounts under preparation.

94. I may in this place just notice one or two circumstances, which may influence the standard of Assessment. The liberal reductions of Assessment made in South Arcot and Trichinopoly, although nominally of a temporary nature, are accepted by the people as a general standard not to be raised, and care must be taken not to stultify the measures of Government by any attempt to re-impose under the new Assessment what has been reduced under the acknowledged circumstance of over-taxation. It is apparent also, that the late reduction of the Assessment on the basis of the old rates, could not correct inequalities existing under each rate, and that unless the new Assessment falls somewhat lower than the reduced rates, such corrections, in many cases, can only be made by raising again what has been reduced, which will be attended with no little dissatisfaction and opposition. It will be easily understood that the New Assessment would, in the absence of the large reductions already made, have supplied a correction of the old rates without any such difficulty as that above described, and at the same time have gained an universal popularity, but any embarrassment which may now arise must sink into insignificance, when contrasted with the general benefits conferred on the people, by the prompt measures of relief which may have occasioned it.

95. It however still remains to be seen, when the requisite data are sufficiently complete for the New Assessment, what relation it will bear to the present reduced standard, and whether with the principles of moderation laid down for the former, so as to adapt it to the abolition of remissions for crops and uncultivated portions of occupancy, and also to the circumstances of an ordinary harvest and ordinary tillage with allowances for bad seasons, it may not still be sufficiently low, when compared with the latter standard, as to obviate the difficulties, which I have thought it proper to allude to on this occasion as possible of existence in some places.

96. In taking leave for the present of the subject of classification and Assessment of lands, I would suggest the expediency of attention being given in the Educational Department, to the subject of Agricultural Chemistry and the nature and properties of soils. The diffusion of even the most elementary knowledge of this nature, by means of the Schools in the provinces, is calculated to improve the intelligence of the rising generation of the rural classes on a subject which most intimately concerns them, as affording a clue to the improvement of the Agricultural resources of the country, while the instruction in a course of Agricultural Chemistry in the higher institutions, would be a means of affording valuable qualifications for the higher grades of the Settlement Department, and might also have its practical effect in inducing some influential and enlightened land holders to take advantage of the science as it is now advanced in Europe, for the improvement of their own estates.

97. One of the simplest School books I have been able to find on the subject, is Johnston's shilling Catechism of Agricultural Chemistry, which will be found in the Appendix. The more advanced "Elements" and "Lectures" of the same author, are also considered standard books of reference on the subject, which, it may be observed, requires very considerable modification in its treatment to suit it to the circumstances of this country.

Appendix V.

98. The following three accounts A. B. C. shew the expenditure incurred in each month and its distribution upon the extent of country classified and demarcated. The total amount expended since the date of the sanction of the establishments in 12th March 1858, is Rupees 99,349, besides the sum of 23,026 Rupees incurred from 13th August 1857, on account of the previous appointment of the Director of Revenue Settlement for the preparation of the general scheme and estimates of Establishments and other preliminary work. The central office expenditure has been divided upon the two Settlement parties which were organized in the year, and the portion of salaries belonging to superintendence by the office of the Deputy Directors has been distributed upon the number

Expenditure.

of parties employed under them for field work whether for Classification or Demarcation, these two duties being considered about equal as regards supervision, demarcation requiring if any thing, more active control and direction than classification: thus under Mr. Master when there were three demarcation parties and one of classification ¾ of the expenditure for superintendence incurred for his office is charged to the former, and ¼ to the latter, and under Mr. Banbury the charge was divided equally, when he had two parties for demarcation and 2 for classification, other proportions of the two staffs are adjusted on the same principle for each month. To the collective amount for superintendence both of the Central office and of the Deputies' obtained as above for the two operations respectively, there is then added the expenditure for the field Establishment for each, and the total is then distributed upon the area of classification and demarcation respectively under each Deputy and the result brought out at the foot of the Statement in the cost per square mile.

99. The exact area of work is not very easily obtained, particularly in Rajahmundry, where the accounts are vague, as there was a large field of demarcation in progress at the close of the year. This however has been taken at a fair proportion under the circumstances, about one half being given for the southern party and three-fourths in Rajahmundry where many villages nearly finished could not be entered as completed in consequence of obstructions from several causes. In Rajahmundry also the area of Curnums' accounts has been increased 40 per cent for the more correct area, as the large circuits of about 100 square miles taken by the Survey Department shewed them to be deficient to that extent, while in some places 50 per cent. was found deficient in the mere nominal returns of the Curnums, which were roughly commuted from Pooties to Acres without actual experiments of the numerous differing sizes of the Pooty. The above explanation seems necessary to the proper understanding of the accounts.

100. Statement A. gives the account for the whole Department collectively; B. applies to the Deputy Directors' party in South Arcot and Trichinopoly; and C. to that in Rajahmundry. In the two latter the expenditure has been distributed upon the Talooks on the principle above explained, but it is not practicable to give more than approximate results, as the cost of Superintendence is not always in the same proportion to the cost of out-door work and an attempt to apply more than a general average rate of one to the other would be a hopeless task. The results are however sufficiently accurate for the purpose of judging of the relative cost of work in different localities.

A.

MONTH.	Revenue Settlement Central Office.	Deputy Directors and their Office Establishment, &c.	Classification. Pay of the Supervisors' parties.	Demarcation. Pay of the Inspectors' parties.	Grand Total.
1	2	3	4	5	6
	Rs.	Rs.	Rs.	Rs.	Rs.
From 12th March 1858,...	2,202	1,205	.....	.....	3,407
April,.....	3,904	2,883	17	93	6,897
May,...	3,908	3,266	125	564	7,863
June,...	4,306	3,567	573	1,163	9.609
July,.....	4,258	3,717	767	1,332	10,074
August,...	4,164	3.759	984	1,733	10,640
September,...	4,484	3,804	1,178	2,555	12,021
October,...	4,132	4,032	1,359	2,684	12,207
November,...	3,944	3,986	1,432	3,024	12,386
December,...	4,126	4,909	1,512	3,698	14,245
	39,428	35,128	7,947	16,846	99,349
From 13th August 1857 to 11th March 1859.....	23,026		Superintending Charges, ...		74,556
			Field expense,.....		24,793
	62,454		Total,.....		99,349

B

SOUTHERN PARTY.

Month.	Revenue Settlement Central Office,	Moiety of Column 2.	Deputy Director & his Establishment and Contingent charges.	Total of Columns 3 and 4.	Classification. No. of parties.	Classification. Pay of Supervisors parties.	Classification. Proportion of Superintendence distributed on parties.	Classification. Total of Columns 7 & 8.	Demarcation. No of parties.	Demarcation. Pay of Inspectors parties	Demarcation. Proportion of Superintendence distributed on parties.	Demarcation. Total of Columns 11 and 12.	Grand total of Columns 9 and 13
1	2	3	4	5	6	7	8	9	10	11	12	13	14
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
March, ...	2 202	1,101	552	1,653	...	...	826	826	...	...	827	827	1,653
April, ...	3.904	1,952	1,552	3,504	1	17	1,752	1,769	1	33	1,752	1,785	3,553
May, ...	3,909	1,954	1,778	3,732	2	125	2 488	2,613	1	208	1 244	1,452	4 065
June.	4,306	2,153	2 010	4 163	2	542	2,776	3,318	1	399	1,387	1,786	5 104
July, ...	4,257	2,129	2,072	4,201	2	706	2,801	3,507	1	450	1,400	1,850	5,357
August, ...	4.165	2,082	2,078	4,160	2	853	2.774	3,627	1	571	1,386	1,957	5,584
September, ...	4,484	2,242	2,058	4.300	2	941	2,150	3,091	2	1.111	2,150	3,261	6.352
October, ...	4,131	2,066	2.076	4,142	2	977	2,071	3,048	2	1,163	2 071	3,234	6,282
November, ...	3.944	1,972	2.020	3,992	2	1,028	1,996	3.024	2	1,163	1,996	3,158	6 182
December	4,126	2,063	2,790	4,853	2	1,058	2,426	3,484	2	1,170	2,427	3,597	7,081
Total.	39,428	19,714	18,986	38,700	17	6 247	22,060	28,307	13	6,267	16,640	22,907	51,214

Superintending Charges .. 38,700
Field Expense... 12,514
51,214

EXPENDITURE DISTRIBUTED ON THE TALOOKS.

	Talook.	Number of Villages.	Ayacut or Total area.		Of which Classified in Detail.		Expense.	Average expense per square Mile on Co. 4 and 7		
1		2	3	4	5	6	7	8		
				Sq. Miles.	Acres	Sq. miles	Rs.	Rs.	A.	P.
Classification	Chellumbrum, ...	144	75,063	117.30	62,595	97.81	9,706	82	11	10
	Munargoody, ...	197	71.820	112.19	57,884	90.44	8.900	79	5	2
	Oodiarpolum, ...	257	2,01,123	314.25	98,936	154.56	7.046	22	6	9
	Arcalcre, ...	50	47,277	73.88	44,625	69.75	2,655	35	15	...
	Total...	648	3,95,283	617.62	2,64,040	412.56	28,307	45	13	5
Demarcation.	Volcondapuram, ...	131	2,94,263	459.80	...	..	3,885	8	7	3
	Torriore, ...	121	2,32,718	363.62	...	...	14,648	40	4	8
	Lalgoody, ...	22	28,099	43·88	...	...	2,639	60	2	6
	Moosery, ...	13	36,261	56·69	..	...	1,735	30	10	...
	Total...	287	5,91,341	924.	...	...	22,907	24*	12	8

Total...51,214

* Note.—The average omitting Volcondapuram is Rs. 40-15-3.

C.

NORTHERN PARTY.

Month.	Revenue Statement Central Office.	Moiety of Column 2.	Deputy Director, his Establishment and contingent charge.	Total of Columns 3 and 4.	Classification. Number of parties.	Classification. Pay of supervisor parties.	Classification. Proportion of Superintendence distributed on the parties.	Classification. Total of Columns 7 & 8.	Demarkation. Number of parties.	Demarkation. Pay of Inspector parties.	Demarkation. Proportion of Superintendence distributed on the parties.	Demarkation. Total of Columns 11 and 12.	Total of Columns 9 and 13.
1	2	3	4	5	6	7	8	9	10	11	12	13	14
	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
March	2,202	1,101	653	1,754	...	...	...	...	...	...	1,754	1,754	1,754
April	3,904	1,952	1,331	3,283	...	..	...	...	1	60	3,283	3,343	3,343
May	3,999	1,954	1,488	3,442	...	...	...	...	1	856	3,442	3,798	3,798
June	4,306	2,153	1,557	3,710	1	31	1,236	1,267	2	764	2,474	3,238	4,505
July, ...	4,257	2,129	1,645	3,774	1	61	944	1,005	3	882	2,830	3,712	4,717
August,... ...	4,165	2,082	1,681	3,763	1	131	941	1 072	3	1,162	2,822	3,984	5,056
September, ...	4,484	2,242	1,746	3,988	1	237	997	1,234	3	1444	2,991	4,435	5,669
October, ...	4,131	2,066	1,956	4,022	1	382	1,005	1,387	3	1,521	3,017	4,538	5,925
November, ...	3,944	1,972	1,966	3,938	1	404	788	1,192	4	1,862	3,150	5,012	6,204
December, ...	4 126	2,063	2,119	4,182	1	454	836	1,290	4	2,528	3,346	5,874	7,164
Total...	39,458	19,714	16,142	35,856	7	1,700	6,747	8,447	24	10,579	29,109	39,688	48,135

Superintending charge..... 35,856
Field expenses..... 12,279

48,135

EXPENDITURE DISTRIBUTED ON TALOOKS.

	Talooks.	Number of Villages	Ayacut or Total Area.		Of which classified in detale.		Expense.	Average per square Mile on Column 4 and 7.		
	1	2	3	4	5	6	7	8		
				Syllabies	Acres	Syllabies	Rupees	Rs	as	P
Classification	Mogultore, ...	64	1,01,475	158·56	78,602	122·81	79·65	50	3	9
	Tanookoo, ...	14	11,491	17·94	10,259	16	348	19	6	6
	Ralungy, ...	4	4,689	7·33	3,657	5·75	134	18	4	10
	Total...	82	1,17,655	183·83	92,518	144 56	8447	45	15	4
Demarcation	Mogultore, ...	75	115,424	180 38	...	...	16,828	93	...	10
	Tanookoo, ...	57	87,928	137 37	...	...	7,478	54	7	10
	Ralbungy, ...	32	67,713	105·81	...	...	3,970	37	8	4
	Nagarum, ...	2	506	·81	...	...	75	92	9	6
	Peutapand, ...	1	405	·63	...	...	37	58	11	8
	Goodinada, ...	62	111,107	173·56	...	...	11,300	65	1	7
	Total...	229	3,83,033	598·56	...	...	39,688	66	4	10

Total... 48,135

101. By the Southern party the area of villages classified is 617·62 square miles of which 412·56 square miles were classified in the detail of small fields, the remainder being blocks of waste porumboke, &c. The cost of this total area is Rupees 45-13-5 per square mile. The area demarcated is 924 square miles which cost Rupees 24.12.8 per square mile. The rate has been considerably reduced by one Talook being demarcated after Survey as above stated with only half the labor and trouble. In Rajahmundry attention was mostly given at first to Demarcation in order to provide, as soon as possible, a sufficient field for the Survey and the classification covered an area of 183·83 square miles, of which 144·56 square miles were classified in the detail of fields. The cost per square mile on the total area is Rupees 45.15.4 a rate closely approximating to that obtained in the South. The Demarcation extended to an area of 598·56 square miles and cost Rupees 66.4.10 per square mile, which is considerably higher than the rate in the South, even making allowance for the favorable circumstances of the one Talook above alluded to. In explanation of this difference the following circumstances may be considered. Mr. Master was longer than Mr. Banbury in joining his station, and the change of Superintendence both in his and the Central Office was going on for a longer time without actual results. The large Establishments took a longer time to get into efficient training in the tedious process of demarcation, for which no assistance could be obtained, as in the South, from the Survey Department, while the portion allotted to the Gudivada Talook in Masulipatam lost a whole month after starting by the combination of the Ryots as explained above in para. 40. The South West Monsoon rains, which are felt earlier in the North, also presented most serious obstacles as already described. So that upon the whole Mr. Master labored under greater special difficulties than Mr. Banbury in the Demarcation. These however are being overcome, as may be instanced by the circumstance of his Demarcation for the month of December last being calculated to have cost within Rupees 30 per square mile.

102. The further analysis of the cost of the two operations shews that the classification in the Chellumbram and Manargoody Talook of South Arcot cost Rupees 82-11-10 and Rupees 79-5-2 respectively per square mile, while in those of Oodiarpoliam and Arrealore it is Rupees 22-6-9 and Rupees 35-15-0 per square mile respectively. The circumstances of the defective state of the Survey, and the great labor imposed upon the Classifiers in recovering and placing boundary marks, as well as the minute size of the fields, which are mostly irrigated, have already been dwelt upon, and account for the larger expenditure in that locality, while, on the other hand, a larger proportion of waste lands in the Trichinopoly Talooks reduces the average rate for the whole area. The expenditure also during the recess fell mostly upon the Chellumbrum and Manargoody Talooks, for which the accounts were then under preparation.

103. The Demarcation in Volcondapuram Talook after the Survey cost only Rupees 8 7-3 per square mile. In Torriore it was Rupees 40 4-8, in Lalgoody Rupees 60-2-6, in Moosery Rupees 50-10-0. The work in the two latter was only commenced towards the close of the year, and the rate for Lalgood is not a fair average, it being unduly raised by time lost in travelling and other preliminary arrangements. Omitting the Volcondapuram Talook in which, as above explained, the Demarcation duty was particularly done by the Survey Department, the average is Rupees 40-15-3 per square mile, which may be taken as the fair rate of complete demarcation according to the rules.

104. A similar analysis of the work of the Northern party shews that the classification cost in the Talook of Mogultore first commenced upon, Rupees 50-3-9 per square mile, and subsequently Rupees 19-6-6 and Rupees 18-4-10 in other Talooks more recently undertaken, but this does not include any expenditure for preparation of accounts as the work was not sufficient to call for a recess for this purpose.

105. The Demarcation in the first Talook marked out, viz., Mogultore cost Rupees 93-0-10 per square mile, which rate was reduced to Rupees 54-7-10 and Rupees 37-8-4 in the Tanukoo

and Reylungy Talooks respectively, while in the Goodiwada Talook, the rate was somewhat higher, viz. Rupees 65-1-7 which has already been accounted for in para. 101. The rates of Rupees 92-9-6 and Rupees 58-11-8 in the two other Talooks are no criterion of the cost, as only 3 Villages had been taken up, and are charged with all the expenses of preliminary arrangements.

106. It will be at once observed that the Classification has thus, under all the unfavourable circumstances of commencement of operations, come greatly under the estimated rate laid down in the sanctioned estimates, while the Demarcation cost has proved far more heavy than was contemplated. Combining however the average rates of the two operations for the two parties we have,—

This omite the favorable rate for Volcoudapuram Talook, which would reduce the rate for the two operation from 86-12-8 Rupees to Rupees 70-10-1. and the total overage Rupees 91-72.

	Classification.	Demarcation.	Total.
Sonthern, ...	45 13 5 +	*410 15 3=	86 12 8
Northern, ...	45 15 4 +	66 4 10=	112 4 2
Average, ...	45 14 4½ +	53 10 ½=	99 8 5

The whole costing Rupees 86-12-8 and Rupees 112-4-2 per square mile respectively, in the South and the North, while the Estimates are based upon the rate of Rupees 61 per square mile, which, although intended apparently at first for Assessment only, was afterwards made to include Demarcation.

107. Whether the area accomplished in the first season which had considerably advanced before the sanction was received is considered in connection with the circumstances of organization above described, or whether it be compared together with the rates of cost, with the results of the earlier seasons of operations of a less minute character in the Northern Provinces of India, or again with the earliest years of the Survey in South Arcot, I hope what has been accomplished by the Settlement Department in the past year may be considered satisfactory under all the impediments and unfavorable circumstances above described.

Professional Survey Bengal,	1838-39, per Square mile.	1839-40. per Square. mile
Provinces (Manual, p 512)	60 0 1	49 9 4
Add average rate of Khusrah (page 535)	28 8 6	28 8 6
Total Rupees	88 8 7	78 1 10

Cost of South Arcot Experimental Survey

	Square Miles.	Rate per Square Mile.
1854	40	288
1855	275	80
1856	450	86
1857	476	86

The Settlement Charges in the following Districts of the N. W. Provinces was as follows.
(Selections from Records N. W. Provinces No. 10)

	Per 100 Acres.	Per Square Mile
Humeerpoor	13·27	84 93
Etewah	19·01	121 66
Moradabad	10·13	64·83
Calpee	11·08	70 91
Paneeput	12·41	79 42
Ghazapoor	12·92	82 68

Madras Settlement.

	Demarcation. Area.	Rate per Sq. Mile.	Classification. Area.	Rate per Sq. Mile.	Total rate per Square Mile.
Southern party,	924	24 12 8	617·62	45·[illegible]5	70 10 1
Northern party,	598·56	66 4 10	183·83	45·15·4	112 4 3
Average...	761·28	45 8 9	400·72	45·14·4	91 7 2

108. But it may be shewn that in these results are contained the elements of further success for the future in attaining the estimated standard of work and its cost. The charge for Superintendence by the Central Office was distributed on 2 parties while it will eventually fall upon the four, and this with the Deputies' salaries was necessarily running on for the first few months with only very small results in field work. Till the Establishments were fully trained, a low rate of work only could be obtained at first, so that it would not be unreasonable to deduct at least 3 months on this account, or one-third for the portion of expenditure unproductive of actual results, which enter into the calculation of cost per square mile. This would reduce the combined rates of the two operations to Rupees 57-13-10 and Rupees 74-13-6 respectively for the two parties, the average of the two being Rupees 66-5-8 corresponding within a trifle with the Estimate of Rupees 61.

109. Another important circumstance in the consideration of ultimate results, is that of the charges of the Central Office being hitherto distributed on only two working parties, instead of on three or four eventually to be formed. In the past year the charge of the Central Office has been about 40 per cent. of the total expenditure, but its distribution on four parties would reduce the cost of the whole work by about 20 per cent. Nearly a moiety of this saving will be realized from the beginning of 1859 as the 3rd Deputy Director commenced his duty in January last, and a 4th party will probably be started by the following year. This should therefore modify any conclusions drawn directly from the calculations above given, and, in connection with the considerations in the preceding para, warrants the expectation of the Department coming up to the standard of estimated cost within an early period, though all the difficulties of its earlier stages of progress have not yet passed away, and have to be encountered in some measure in the organization of the 3rd and 4th parties.

110. The subject of Demarcation requires some further notice with reference to its large cost. In the preparation of the estimates for the Settlement Department it was originally intended that this duty should be conducted with much co-operation and aid from the ordinary Revenue Establishments and the Village Officers, as the making out each field and village boundary by an independent special agency was thought to be a task involving enormous labor and an overwhelming expense. The experience of the past year has however shewn that the assistance from the Revenue Department cannot be relied upon except as a secondary means, and in an inconsiderable degree, as affecting the rapidity of the work, which is the grand essential in calculations of expence.

111. It would be easy for me at once to reduce the cost of the Demarcation by confining the work simply to marking out fields and village boundaries, dispensing with the rough sketches of the fields, and leaving the preparation of the Field Register to the Survey Department, as was the case in the experimental Survey. The inexpediency of entrusting the Survey Department with the Field Register which is the basis of all Settlement as well as Survey operations has been dwelt upon in para. 50, and the advantage of carrying on the Classification, in Rajahmundry at least, immediately after Demarcation without the loss of time and expenditure in waiting for upwards of a full year for the Survey Records, rendered it desirable to have the sketch and Register prepared at the first; and, notwithstanding the arduousness of the task, it seems the wisest and best plan in the end that the Demarcation should be thoroughly and effectively conducted by the Settlement Department; for it has had the effect of facilitating the Survey beyond all previous conception. Captain Priestley in paras. 49 and 50 of his Survey Report for the past year shews the rate of work measured by his Ameens since the Demarcation to have increased in the ratio of about 4 to 7 or nearly double, so that the cost of Demarcation must be considered in connection with that of the Survey. The latter has not even in recent years come under Rupees 81 to Rupees 87, the square mile, and if the above ratio holds good, as there is reason to suppose it will, the cost of survey will be reduced to within Rupees 50 per square mile, which leaves about Rupees 15 per square mile as a saving within the estimate of Rupees 65. The difference between the above relative rates is no less than about 35 Rupees, which of itself compensates in a great measure for the cost of demarcation, and may possibly do so entirely in future work. In any case it seems clear that the Survey has not till the past year been in a position to fulfil the conditions of the Estimate, that a thorough previous Demarcation is requisite for the purpose, and that although the cost of Demarcation may seem high at first sight, it reduces the cost of the survey in a very considerable degree.

112. It remains now to consider how the unequal working of the Demarcation and Classification can be best adjusted. A temporary arrangement was made to press forward the former by appropriating, with the sanction of Government, one or two out of the Classification parties to the extension of Demarcation. In a former part of this Report I drew attention to the great inconvenience and impediments arising from the Classification and the Demarcation going on in separate localities far distant apart, thereby greatly enlarging the area of supervision by the Deputy Director beyond due limits. This evil is likely to be of constant occurrence. Another consideration is the annoyance to which the ryots and Village Officers are subjected by their presence and aid being required on three separate occasions for the three-fold operations of Demarcation, Classification, and Survey, which leads to much dissatisfaction. The remedy I propose is to reconstruct the Establishments so as to allow of the two former operations being carried on simultaneously. The Classifiers being made responsible for boundaries as well as classification, and the former boundary Goomastahs with their Peons being placed under them to carry out the details of placing the marks, &c. as the necessity of this modification became very apparently the end of the year, when a sufficient time had elapsed to shew the result of carrying on the two processes separately. I thought it proper to apply to the Government without delay for sanction for carrying out this proposition, which may however be briefly noticed in this place to render the subject complete.

E. M. C. 7th May 1858, No 607, 11th August No 1119, 29th November No 1595.

To Gov. 19th February 1859, No.146.

113. It was pointed out that although it would appear more natural to unite the Demarcation with the Survey, still this arrangement was in the first place improper, as the Demarcation field registers, which are the foundation of both Survey and Classification, are a *revenue* account, for which the Settlement Department should be responsible, and 2ndly, it was equally inexpedient from the experience in South Arcot and Trichinopoly of the confusion and difficulty in accounts prepared by the Survey Department, when it marked out its own fields often without reference to existing boundaries or to important Revenue considerations, which were not well understood by it. It was also shewn that the combination of the two operations of Demarcation and Classification would have the effect of causing the latter to be more deliberately done, and would expedite business by leaving the preparation of the Demarcation Register and Classification accounts jointly to the Classifiers and their Goomastahs, and that Classification would not be impeded by having to wait for the completion of the Demarcation as had been the case. The objection that it would be better for the Classifiers to wait till the Survey records were supplied, was held to be not of much importance, as a demarcated field with a rough map could be classified at once without the area, and moreover the Settlement Department would be relieved from the inconvenience arising from any delay in completing the Survey Maps in case of arrears in the Survey Department.

114. The following is the scale of Establishment recommended in substitution of the former Establishment, with which it corresponds in the aggregate cost, as suited for two parties for combined Demarcation and Classificatlon under a Deputy Director with the requisite provision for check and supervision. The scales of salary are much the same as before; the pay of the Goomastahs is somewhat lower in consequence of their taking a subordinate place under the Classifiers instead of working independently

	One Party.	Rs.	A.	P.
1	Supervisor of Assessment and Inspector of Boundaries, ...	150	0	0
1	Deputy Inspector,...	50	0	0
1	Do. do.	40	0	0
4	Office Goomastahs at 30, 21,15 and 12 Rupees, ...	78	0	0
12	Peons at 5 and 6 Rupees, ...	66	0	0
12	Classifiers on 21 Rupees each,	528	0	0
12	Do. 20 do.			
12	Goomastahs 12 Rupees each,	264	0	0
12	Do. 10 do.			
24	Peons at 5 Rs. each, ...	120	0	0
2	Head Classifiers at 30 Rs.....	116	0	0
2	Do. do. 28 „			
12	Volunteers with addition from vacant salaries as now sanctioned.... ...	21	0	0
		1,433	0	0
	Another such party, ...	1,433	0	0
	Total Rupees,...	2,866	0	0

115. The area to be accomplished by this Establishment is taken at 7,48,800 acres or 1,170 square miles. If the Head Classifiers are included in the calculation of area to be assessed, as in the original estimate, the result would be much more, and it seemed more proper to omit them as their services are employed almost exclusively in re-examining and checking lands, which does not affect the general area for the year. To the above 1,170 square miles are added 10 per cent. for large patches of land marked in the lump and not classified in detail, which brings the area up to 1287 square miles for the party for the year, while 1290 square miles, taken in round numbers at 1250 square miles is the calculation upon which the sanctioned estimates are based.

260 working days + 48 classifiers + 60 acres = 7,48,800 or 1,170 square miles.

116. From the extent of knowledge of Demarcation and Classification now imparted to numerous persons connected with the Department, there seems no difficulty in carrying out the above arrangement which has certainly much in the experience already gained to commend it to a fair trial.

117. I may here notice the scene of operations for the next season. The upland Talooks of Trichinopoly are now in progress by the Southern Settlement party which will, as explained in para. 8 of my letter of 8th November 1858, complete the Trichinopoly Dooab lying between the Cavery and Vellar Rivers, and then pass over the frontier into the Southern Talooks of the Salem District, as approved in Extract Minutes of Consultation, dated 30th November 1858 No. 1600, about April next.

To Government, No. 635.

118. The Rajahmundry party will have its attention first given to the completion of the Talooks of the Subdivision, where under the present engagement with the Ryots, no enhancement can be made in their assessment on account of irrigation until the New Settlement takes place. The intermixed lands of Masulipatam will be included in their operations, which will gradually expand over the Godavery Delta, and the rest of the District. The Masulipatam party is engaged in the Goodiwada and Pedana Talooks, and will expand itself gradually over the Kistna Delta in that District and eventually to the upland Talooks.

119. In conclusion I may remark that in the necessarily unsettled state of things in the organization of a New Department on so large a scale with new principles and rules to be laid down and experimented upon before, in many cases, any satisfactory conclusions could be arrived at, it is not to be expected that the earlier settlement duties can assume any very

systematic form. I have thought it well to enter into much descriptive detail on many points as the best way of informing the Government of what has been done, and what are the prospects of the Department for the future.

120. If I have been too diffuse in some places it will probably be allowed that the error is, under the circumstances, on the right side, and I may add that my constantly moving about in camp and being employed in out-door work during the time the report was under preparation has caused great interruptions, and may I hope excuse defects in its arrangement, I will add I confidently look to the continued kind consideration of Government, as suggested in para. 64 of the Board's Proceedings of 19th November 1857 and accorded in para. 39 of Extract Minutes of Consultation 15th February No. 191 to support me in the present experimental state of the Department, which involves no inconsiderable degree of watchful care as well as arduous labor and responsibility, and that I feel encouraged by the experience so far gained to trust that the important measure of the new settlement will, under God's blessing, be eventually carried out so as to secure those wise and benevolent purposes for which it was designed, and thus to contribute in no small degree to the progress and welfare of the people, which are inseparable also from the interests of Government.

No. 4044

I have the honor to be, Sir,

Your most obedient Servant,

H. NEWILL,
Director of Revenue Settlement.

To

J. D. SIM, ESQ.,
Secretary to the Board of Revenue,
FORT ST. GEORGE.

List of Papers which accompany the Report of the Director of Revenue Settlement dated 25th March 1859 No. 273.

A ¼ Copies of Instructions to the Deputy Directors of Revenue Settlement dated 10th December 1855.

B ¼ do of Rules for Supervisors of Assessment, Head Classifiers and Classifiers

C ¼ do of Notes on Soils, their Character, Composition &c. with simple modes of testing the same dated 24th June 58 prepared for the use of the Settlement Department.

D ¼ do of above in Telugu.

E ¼ do of do in Tamil.

F ¼ do of Rules for the demarcation of boundaries in English dated 31st March 1858.

G 1 Copy of above in Telugu

H 1 do of do in Tamil.

I ¼ Copies of Manual of Hustabad or Field measurement for Curnums and other Public Servants.

J ¼ do of the above in Telugu

K 2 Original Sketch Maps of Village boundaries of Medapaud and Bunagapally in the Mogultur Talook prepared by the Demarcation party in Rajahmundry.

L 7 Original Sketch Maps of Field boundaries in the Khmeums or Subdivisions of the above Villages and Kodair in the Mogultur Talook prepared by do

M 3 do Sketch maps of Village boundaries of Sembari Singarivar and Immidivarum in the Salgudy Talook prepared by the Demarcation party in Trichinopoly.

N 2 do do of Khmeums or Sub divisions of the Villages of Immidivarum of the Salgudy Talook prepared by Do

O 2 do do of Field Boundaries of Sembari and Singarivar of do prepared by do

Rec^d 30th Nov^r 1859

P 3 Original Field Registers belonging to the Sketches of the above villages
Q 1 Copy made in the Office of the Deputy Director Rajahmundry of the Sketches of Village and Kundum boundaries of the village of Permaumuvo in Rajahmundry.
R 6 Copies made in the same way of field boundaries of the above villages and of Vammpullie Boggesvaram & Guggesmuvo
S 4 do Field Registers belonging to the above Villages.
T 1 Map of the Village of Gazambatur in which the clubbed fields measured by the Canungo are inserted.
U 3 Original field books of Canungo belonging to the same
V 1 Johnsons Catechism of Agricultural Chemistry and Geology.

Report addressed to the Board of Revenue on 6th March 1858 on the State of the Survey in the South Arcot and Trichinopoly Zillahs and its adaptation to the new Settlement [to be submitted by the Board of Revenue to Government with their Report.]

Copy in Letter Mg 6th March 1860 No 22

28-4-92

Revenue 1859 Depart
Rec^d from Gov^t 30th Nov^r
No 1523.

Proceedings of the Board of Revenue.
Dated 14th August 1859
Desp^d 20th
Rec^d 22d
24

Encl 91

No 3020.

No 1594 23d November

Submitting, with the Board's remarks, the report of the Director of Revenue Settlement on the organization of his Department, and the operations conducted by it from the date of its sanction to the 31st Dec^r 1858. together with a report from the Superintendent of Revenue Survey concerning his Department.

No 30

11th November 815th

72. With reference to Extract Minutes Consultation, 15th February 1858, No. 191, para. 7, the specimen maps are designed to show the method of exhibiting Inám lands. It will be seen that this is done by shading the fields with fine diagonal lines as shown in the margin. Mr. Newill thinks, that they should be simply coloured as irrigated or dry, and that they might afterwards be washed with a dark brown, or black, in cases of resumption; but the Board are disposed to prefer Captain Priestley's plan. The shaded fields will still be coloured as dry or irrigated, and might afterwards be washed, in cases of resumption, as suggested by Mr. Newill, while the original shading will preserve the distinction between them and other Government lands, which is an advantage.



73. In conclusion, the Board are glad to learn that all the officers of the Survey Department have performed their arduous duties during the year to the complete satisfaction of the head of the Department.

(A true Extract.)

Secretary.

J. D. BOURDILLION, Esq., Secretary to Government, R. D.
Copy to Director of Revenue Settlement.

Rev. Depart.

No. 1594.

Proceedings of the Madras Government

Under date the 23d November 1859.

Read the following Pro-
ceedings of the Board of Revenue.

Submitting with the Board's remarks the report of the Director of Rev. settlement on the organization of his Department & the operations conducted by it from the date of its sanction to the 31st Dec. 1858, together with a report from the Superintendent of Rev. Survey concerning his Department.

(Here enter 4th August 1859 No. 3020)

In this paper the Board of Revenue review the operations of the revenue Settlement and survey Departments up to the close of the year 1858. The report has been attentively considered in Council, but at this late period it is unnecessary to record lengthened observations upon it. Several changes alluded to by the

the Board as advocated by Mr. Newill, have now been already approved and sanctioned by Govt. on separate reports; in particular, the union of the demarcation and classification duties, referred to in para 56, and the allowance of Sunday as a day of rest, referred to in para 56. The Government will now conform themselves to those points in the report which seem specially to call for notice.

2 The most important of these is the question discussed by the Board in paragraphs 22 & 28, as to the best mode of making the field measurements. The fields in many parts of the country are extremely small, especially in the case of irrigated land; and not only would the measurement of all these minute plots by the regular surveyors be very costly, and greatly delay the survey; but it would be useless, inasmuch as it is often found convenient to alter the size and form of the small fields by uniting two or more into one. For these reasons it was long ago ordered that no field of smaller area than one acre of irrigated land, or two of dry land, need be measured by the survey

Defrs

Department; smaller fields being left to be measured by the Karnams. And a proposition by the Board to enlarge this minimum to ten acres, and leave all within that to the Karnams, received the conditional approval of Government, who directed, however, that this should not be done till the survey officers should be satisfied that it would not impair the accuracy of the field maps.*

3 In the present report the Board discuss at length a further proposition made by Mr. Nevill, after conference with Capt. Priestley. This proposal is that the operations

* November 6th 1858 No. 1503
" 16th 1858 " 1530
Para 8.

* 20th May 1858. No. 1530
Para 8.

operations of the Survey Department shall not descend below the "minor circuits" — as they are called, being village subdivisions containing generally from 150 to 200 acres; and that all the interior measurements of these areas shall be made by the Karnams by "Khasrah" survey, rough or sketch field maps being also prepared by the same agency. Mr. Nevill appears to think that under the check which this plan would

would afford the Karnams might be trusted to measure with accuracy;* but he does not propose the scheme, which he admits to be "much less perfect than the present system," unless it should be deemed important to push on the survey in Rajahmundry District more rapidly than is practicable under existing arrangements.

* Settlement report Para 64.

Ibid Para 63

4. The Board of Revenue

Revenue advocate the change of system much more decidedly. They quote a report from Lieutenant Hessey, to prove that Karnams' measurements when properly supervised, attain a high degree of accuracy; and they point out that the proposed system is precisely that followed in Bengal, and they might have added the North West Provinces) except that the Karnam there used a rod,

a

a rope, or a chain, accord-
ing to the local
customs, while here
the karnams would
use the standard
chain; in other re-
spects would work af-
ter a better method.

Para 26.

Further, they notice
that as wealth in-
creases there will
be a tendency
to an increase
in the size of fields
and that it will be
impossible, as it
will also be
undesirable, to
maintain

maintain the present fields;
that, however fields mea-
sured and laid down by
the Survey Department must
be maintained intact, where-
as if the detailed work is
left to the Karnams,
all changes occurring may
be readily introduced into
the maps and village Regis-
ters. The Board also
dwell on the advantages
of having in the Village
Karnams a body of trained
surveyors.

Para 27.

5. The Government
fully appreciate the importance
of this question: they have
given it very careful
consideration and on his
recent tour, the Honorable
the President took the oppor-
tunity of being at Masu-
lipatam where the Super-
intendents of both the
Settlement

Settlement and the Survey
operations in that District
and Rajahmundry met him,
to discuss the question at length
with those Officers, as well
as with Mr Newill and
other Revenue Officers of
experience. On the whole,
after careful consideration
the Government are unable
to approve the proposed change.
They admit that in ~~some~~ many
respects the measure would
be advantageous, especially
as it would greatly expedite
the progress of the Survey
and Settlement; but they are
satisfied that the Agency of
the Karnams could not be
employed as proposed, without
to some extent compromising
the accuracy and trustworth-
-ness of the Survey.

~~With regard to the~~
~~argument drawn from the~~
~~expediency of permitting abstentions~~
~~on~~ The

Secretary Scully
agree with the Board
the necessity
avoided it is daily
do not think it
desirable
Scale be great-
-ly

The Board of
Revenue properly notice
the importance of not hamp-
-ering the action of
Ryots in altering the
dimensions of their fields.
In order to avoid as much
as possible putting any
check on changes which
are justly described by
the Board as natural,
the Government consent
to adopt Mr Newill's
proposal to enlarge the
minimum of Survey
fields to two acres
of wet land and
four acres of
dry. They would
be prepared to
assent to a still

further

further enlargement i
but it is observed that
Mr. Nevill does
not consider it ex-
-pedient to adopt
generally the extension
to ten acres*, because
such an arrangement
would involve the
necessity of special su-
-perintendence over
the internal mea-
-surements of the
survey fields by the
Karnams.

Report Para 60.

In order still more
to leave freedom of action
in the matter of the size
of fields, surveyors should
be not only permitted
but enjoined not to
measure

measure fields of less
than the fixed mini-
-mum size, where it
can be avoided.

j. It is deserving
of notice that the enlarge-
-ment of holdings is not
necessarily inconsistent
with the maintenance of
the boundaries of the
Survey fields. The
change is ordinarily
made by the consoli-
-dation of two or
more holdings into
one, without ref-
-ference to the posi-
-tion or size of the
fields.

8 Under this
decision of Govern-
-ment the existing
system

system of survey must be substantially maintained; but the Governor in Council considers it to be of great importance to accelerate the progress of the work; especially in ~~the Krishna and Bagalkot country and Godavari Districts~~ ~~Nasik Khandesh~~, where there has been a great increase of valuable cultivation, in consequence of irrigation works constructed by Government. This may be done in two ways without

without proportionate increase of charges; viz first by increasing the number of Subordinates under each Deputy Superintendent; and 2nd by entertaining additional Survey parties. He Government resolve to refer this subject to the Director of Revenue Settlement, for his early and careful report in communication with Captain Priestley, as to the detailed means proper for giving effect

ffect to this reso-
-lution to expedite
the survey.

Independently
of new measures,
the Government en-
-tertain the hope
that as the seve-
-ral survey par-
-ties become better
trained and more
rate of progress
experts, their ~~performa-~~
~~-nces of the exist-~~
~~-ing agency~~ will
increase till they
reach the standard
laid down for
them.—

2. The remaining points
requiring

requiring notice are few.
The Govt are fully aware
of the difficulties which
the new Department
had to encounter on both
its parts of settlement
survey, and
and, are quite ready to
make allowance for de-
-fects in consequence.
But these difficulties
have now, it is hoped,
been overcome. The
permanent character of
the Departments is known,
and employment in them,
if not so popular as in
more stationary offices,
is no longer shunned as
it was at first. The
confidence of the agricul
-tural classes has evi-
-dently been to a great
extent secured, as is
shewn

shewn by the greater readiness to supply necessary information, and the change recently sanctioned in the mode of obtaining subordinate agency, will the Government confidently believe, make the work of the Survey both more easy and more rapid.

10 The Government will not refuse to refer Mr Neville's suggestion for the establishment of classes for agricultural chemistry in the Provincial schools, for the opinion of the Director of Public Instruction, as recommended by the Board,* but they must at the same time express a doubt as to the utility

Board's Progs Paras 1143

* Order Nov 17th 59 No 1564

* Para 39

utility of such a measure.

18 There are some points on which the Board have called on Mr Neville for explanation or information, the replies should be noticed in the Board's report on the operations of the two Departments for the current year. The Govt take this opportunity to express the hope that that Report will be before them at a much earlier period than that now under notice. The Board will not fail to perceive that the interest and value of the present Report was greatly lessened

by

by its lateness; and that in fact several of the suggestions contained in it had been superseded by separate and independent applications. In order that the Board's report should be prompt, it is necessary that those of the Settlement and Survey Department should be so. The Board will point this out to the Heads of those Departments, and will at the same time remind them that one great cause of delay is prolixity of style. It should be the object of all officers to make their Reports complete, but

not prolonged. unnecessary minuteness of details, and doing this they will not only be able to despatch them much earlier than they could do otherwise, but the labour and consequently the time required in the Board's office will also be greatly lessened.

In concluding these remarks the Government have much pleasure in expressing their full concurrence in the Board's acknowledgement of the zeal, judgement, and ability displayed by Mr. Neville in the performance of his important duties, an acknowledgement which

Paras 1 to 8

such they consider to
be due also to Captain
Prestley. They are happy
also to receive their Pre-
sident's testimony to the zeal,
activity, and intelligence
of the officers in charge
of the operations of
both Departments in the
Northern Division, viz Messrs
Ballard and Masters of
the Settlement Depart.,
and Captains Crewe and Pratt
of the Survey. This high
standard of qualification
in the officers of the two
Departments, and the Govt.
fully believe that the local
Superintendents in the South
do not come short of it,
affords the best guarantee
for the success of the Survey
and Settlement operations.

J. A. H.

6 Copies to the
Board of Rev Disp. 24
Dep. Rev
Sept. 9, Settlement 15
Editors table with papers.

1 Director of Public Instruction
For Public Departments

Copy in a letter to C
dated 15th March 1860 No 22

374/18

23-1-92 d

Revenue 1859 Dept.
Pro: of Govt 30th Nov.

No 1594.

Pro: of the Madras Govt.
Dy 23d Nov. 59.

Pro of the Bd of Revn 2/3d
Novr 59 C No 7075 in C 20 Feb 60
L 569 @ 318

Forwarding Dup of Ben Pol 22d N. Nov 60
C No 2888

Passing observations on the
operations of the Revenue
Settlement and Survey Depts
up to the close of the year 1858.

No 20 of 31.

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