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MADRAS RECORD OFFICE.

Government of Madras.

Revenue DEPARTMENT.

G.O. No. 1964 Press ~~Mis.~~

Dated 29th Septr 1879.

Not to be folded or roughly handled

GOVERNMENT OF MADRAS.

REVENUE DEPARTMENT.

29th September 1879, No. 1,964.

READ THE FOLLOWING PAPERS:—

No. 413. Proceedings of the Board of Revenue, dated 25th August 1879, No. 2,454.

Read again the following Proceedings of the Board of Revenue, dated 29th July 1879, No. 2,140.

Read the following letter from Lieutenant-Colonel A. DEC. SCOTT, R.E., Superintendent of Revenue Survey, to C. A. GALTON, Esq., Acting Secretary to the Board of Revenue, dated Ootacamund, 27th June 1879, No. 59-B :—

IN their Order of the 21st October 1878, No. 1,698, the Government state that in view of the extreme and apparently increasing costliness of the Wynad survey, and the delay thereby entailed on the completion of more pressing work elsewhere, they are disposed to order its being at least postponed for a time at the end of the current working season. They further call on the Board of Revenue to report whether there is any public object to be gained at all comparable with the cost of the operations.

2. In my letter contained in the Proceedings of the Board, No. 558, of the 1st March 1879, I stated that I was engaged in collecting data which would enable me to afford the Board and the Government information regarding the past, the present, and the probable future cost of the survey of the Wynad. In order to arrive at the actual cost of the operations of the last season and the quantity of work executed it was necessary to await the conclusion of field work and the closing of the work books and cash accounts, and this has caused some delay in furnishing the present report.

3. The survey of the Wynad by this department may be said to have commenced in October 1870. Demarcation and the survy of coffee estates had been previously to some extent carried out under the Revenue and Settlement Officers, but the results were not satisfactory. Owing to the want of permanency in the character of the demarcation marks, and the consequent difficulty in picking up old work, the surveys of twelve estates only, aggregating 905 acres, were incorporated in the general survey subsequently executed in 1870. At the time the survey fairly commenced South-East Wynad consisted of four amshoms, three of which, viz., Munanad, Cherankod, and Nambalakod were subsequently transferred to the Nilgiri District; but the character of the country comprised in these three amshoms is essentially the same as that of the tract which now constitutes the Wynad Taluk, and in framing a forecast of future expenditure for the completion of the survey the results attained in all the amshoms named, as well as in others dealt with and still belonging to Malabar, should be considered. Before entering, however, into the question of cost it is desirable that a few remarks should be recorded regarding the property, tenure, and cultivation in the Wynad Taluk.

4. The whole area of the taluk as formerly constituted may be approximately estimated at about 1,065 square miles divided amongst sixteen amshoms. Excluding the amshoms transferred to the Nilgiris the area is 826 square miles, and as the survey of the Ganapathivattam amshoms, area 164 square miles, may be considered to be completed, the area to be dealt with by the department in the future is apparently 662 square miles.

5. By far the greater portion of the land in the Wynad Taluk is held under jenma or jenm tenure by native proprietors, who apparently stand in the position of owners of estates in fee-simple, subject to the obligation of allowing the Government to levy from the tenants of each jenmkar or landlord a tax or assessment on cultivation, at a rate now determined by long custom. So far then as this assessment is concerned the interest of the Government in the jenm land is limited yearly by

the extent of the cultivation of whatsoever nature it may be. The Government is also interested in the definition of the boundaries between jenm and Government land, but is not for revenue purposes directly concerned with inter-jenm boundaries.

6. It is, however, clear that for other reasons the definition of the boundaries of each jenm property is a matter of some public importance. In the first place the extent of these private properties is practically unknown, and while on the one hand the evidence of title to much of the land claimed is supposed on good ground to be vague and perhaps unsustainable, on the other it is very probable that it would be found on investigation that there were tracts of land now supposed to be included within jenm estates, but as to which at present no claims would be set up. It is, however, tolerably certain that if the Government continues to leave the boundaries of its land unmarked and undefined encroachments will rapidly increase, stimulated by the extension of coffee cultivation and the increasing value of the forest land. In a return furnished by the Collector of Malabar and appended to this report the extent of the jenm properties in the twelve amshoms constituting North and South Wynad, and as yet unmeasured, is stated to be 844 square miles. This estimate is apparently based on data of the vaguest description, and the area given is nearly 200 square miles larger than that assigned from other data to the whole of these twelve amshoms. At least nine-tenths of this area is waste, mostly forest, and it is evident that this estimate practically assigns to native proprietors the ownership of the whole of the forests of North and South Wynad. It happens unfortunately that, owing to the absence of demarcation of the waste lands attached to the Coorg forms, the rights of the Government over the woodlands of much of that province also are undefined and subject to be called in question, and thus the control and preservation of forests which extend over some 2,700 square miles from the Nilgiris to the northern frontier of Coorg, and which are the nurseries of the Cauvery and other streams which water much of Mysore and the Madras Presidency, cannot be attained without special legislative enactments. The Forest Act of Bengal and that proposed for Madras confer, I believe, the necessary powers on the executive. For the due exercise of these powers, however, a knowledge of the position of the boundaries of jenm estates abutting on Government land is absolutely necessary, and questions of compensation for the restriction of proprietary rights cannot well be settled without the determination of inter-jenm boundaries within forest reserves.

It would seem therefore that whether for the purpose of rescuing from usurpation Government land involved amongst jenm estates, or for the prevention of the abuse by "Jenmkars" of the rights of proprietorship, the demarcation and survey of the boundaries of jenm lands in North and South Wynad are desirable measures.

7. There is another class of holdings which form a prominent feature in the Wynad. These are coffee estates (excluding from the term the small patches cultivated by natives) chiefly held by Europeans, who have embarked a considerable amount of capital in the venture, and who, it may be assumed, will in most cases, whether holding under Government or Jenmkars, practically become in course of time absolute owners of the soil. It is evident that as respects estates on jenm land the Government are only concerned with the extent of the coffee cultivation from which they derive revenue, and not with the estate boundaries within the jenm land. It is different with estates on Government land. These, if acquired under the Waste Land Rules, will of course be surveyed at the time of purchase. Otherwise it is to the interest of the Government to demarcate and survey the boundaries in the course of a general survey of the taluk.

8. Under the term cultivated areas must be classed what are called coffee gardens. These are patches of ground often attached to a native dwelling and held in combination with rice land. This cultivation is subject to a special rate of assessment, and the Government are interested in ascertaining its extent, but the areas of cultivation fluctuate, these isolated pieces are expensive to survey, and it is a moot question whether the operations of the department should extend to them, or whether the estimation of the extent of cultivation should not be more roughly and cheaply ascertained than has hitherto been done by the Survey Department.

9. The rice lands of the Wynad, commonly called paddy flats, constitute also a special feature of the taluk which requires to be considered when determining the scope and nature of a general survey. These flats form the bottom lands of vallies running between the hills, and consist of rich alluvial soil which has so accumulated as to bring the lower portions of the valley to what is almost a dead level, and the deposit abuts against the surrounding hills much in the same manner and with the same abruptness as the water of a mountain lake. Their boundaries are therefore very clearly defined by nature, they are usually fully cultivated, and the extent of the cultivation cannot materially increase. The demarcation of the boundaries with stone is considered by the Collector to be unnecessary.

10. The last class of holding which it is necessary to notice are puttas on dry waste land, cultivated with grain or produce other than coffee. The cultivation is of a temporary character, analogous to that called Kumeri in which the land cleared of jungle is deserted after a few crops have been raised, and demarcation and survey would be thrown away if applied to it.

11. The various holdings and areas which have been the subject of the foregoing remarks are objects which come within the scope of a revenue and property survey. The boundaries of administrative divisions, whether amshoms, taluks or districts, would be settled, demarcated, and surveyed in more or less detail, whether the survey undertaken were of the class already mentioned, or one directed solely towards the production of the ordinary topographical maps on small scales.

A purely topographical survey would, however, exclude from its operations all property boundaries of whatsoever kind, and although this rule is relaxed in practice, and the boundaries of native zemindaries and extensive properties of a like kind are usually sketched in in the course of a topographical survey, the main object in view is the delineation of State and administrative boundaries and natural features, such as chains of mountains, valleys and table lands, rivers and streams, roads, railways and canals, the sites of towns and villages, &c., and to collect and tabulate information regarding the resources of the country.

12. A revenue and property survey of a tract of country supplies the basis for the topographical survey, and it would be incomplete without such a survey, as by its means key maps showing the relative position of properties, as well as their situation in relation to the surrounding country and its physical features, are produced.

On the other hand, operations directed towards the production of topographical maps and limited to that object supply a result which may be considered complete in itself. The maps serve certain definite purposes, they supply a basis for preliminary investigations of all kinds, and as the cost of such surveys is but a fraction of those of a cadastral character there may be irresistible arguments in favor of their execution where property surveys would be considered entirely out of place.

13. In connection with the Wynad Taluk therefore the first question which presents itself is in regard to the nature of the survey to be adopted whether cadastral and revenue, that is to say, a survey of properties and cultivation, or whether topographical. If the answer merely depended on a consideration of the effect of the accurate survey of cultivation on the revenue collections there would be little ground for affirming the necessity of incurring the considerable outlay necessary for the execution of a large scale survey. The average revenue in the North and South Wynad from land apparently does not exceed Rs. 1,40,000. The cultivated areas fluctuate, the rates of assessment are very low, and a considerable margin of errors in estimated areas can produce but little effect on the realizations. It is otherwise, however, when the advantages which would be obtained by a proper settlement and survey of the boundaries of jenm properties are borne in mind, and it is the unsatisfactory position of the Govern-

	Per Acre.					
	From			To		
	RS.	A.	P.	RS.	A.	P.
Nunjah (rice)	0	13	4	1	15	4
Forest land cultivated with dry grains ...	2	0	0	2	0	0
Grass land cultivated with dry grains ...	1	4	0	1	4	0
Coffee after four years.	2	0	0	2	0	0

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...key map of jenms and their areas, names of proprietors,
...boundaries, &c.
...lists for all areas cultivated at the time of survey and
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...of the cost of such a survey as is here described may be based
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...It should be observed, however, that the present scheme differs
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...abandonment to a considerable extent of the use of the theodolite and
...demarcation in connection with the survey of the boundaries of such hold-
...is an important innovation, and the arguments which have prompted its introduc-
...as well as the nature of the operation proposed as a substitute for the previous
...and the question of the value and economy of the results, require to be
...some detail. It must be premised that in the case of both the Nilgiri
...Wynad the boundaries of every individual holding have been sur-
...what is called the traverse method with theodolite and chain, and all
...the boundaries exceeding a narrow limit have been marked with stones.
...has proved to be very costly. It was adopted because the rugged
...nature of the country rendered it impracticable to fix the boundaries

of puttas as is done in the low country by chain measurement across the holdings, and it is the only alternative method whereby the results of measurements in the field can be independently worked out and plotted in office, so as to afford a constant certainty that all errors in distance and angular measurement will be detected without the possibility of evasion. But the result has been that the Revenue Survey in the Nilgiris has cost something like Rs. 1,315 per square mile, or about Rs. 2 per acre on land much of which is assessed at As. 4 per acre.

18. These considerations led me, in April 1878, to propose the introduction of the plane table in lieu of the theodolite for the survey of the boundaries of Nilgiri puttas in the interior of circuits run by theodolite, and which included the collections of puttas proposed to be constituted into villages. The outer circuit surveyed by the more delicate instrument and plotted in the head-quarter office was to furnish a check on the interior plane table work. The survey of puttas on the Nilgiris was, however, drawing to a close, and the experiment which was commenced by Colonel Cloeté was not completed by him. In March 1878, the subject of the survey of North and South Wynad was also under discussion with the same officer, and I requested him to reconsider the system of work generally, suggesting at the same time the survey of the demarcation stones as well as the boundaries of individual holdings by plane table. In December 1878 this subject was further considered by Major Freeth (who was then in charge of the Wynad Survey Detachment) in conjunction with the Collector of Malabar with reference to the order of Government quoted in the first paragraph of this report. Mr. Logan was strongly of opinion that the demarcation with blocks of stone of the naturally well-defined limits of paddy flats was unnecessary, and Major Freeth then submitted for approval a scheme of demarcation and survey, which as regarded jenm estates and other holdings, was essentially that detailed in paragraph 15 above.

19. This scheme included the survey by plane table of paddy flats and coffee-garden boundaries without preliminary demarcation of the boundary with stone, except that three marks were to be set up on each paddy flat and garden to serve as reference points hereafter. I directed Colonel Cloeté to test the feasibility of the proposals. An experimental survey of a small jenm estate already demarcated and surveyed in the ordinary manner was accordingly carried out. The results of the comparison instituted between the two surveys were, I consider, fully satisfactory. The areas of the interior cultivation and holdings within the jenm, computed from the plane table survey, differed in no essential degree from those derived from the theodolite survey already made. The sum of the areas of 43 puttas computed from the plane table survey was 186·44 acres. The sum of the areas of the same puttas computed from the theodolite survey was 186·80, showing a difference of 0·42, or less than half an acre on the collective area of the whole cultivation. The greatest difference amounted to 0·58 acres on a holding of 21·88 acres.

The saving in expenditure was equivalent to Rs. 183-14-0 per square mile of jenm holding and Rs. 634 per square mile on the cultivated holdings, averaging 6·22 acres each, representing a total saving of Rs. 43,112 on the whole of the 68·2 square miles, composing the area of cultivation in North and South Wynad, by the new method as compared with the old one. But this estimate of the saving is based on the supposition that the average area of the holdings is about the same as that of the puttas experimentally surveyed, whereas according to the revenue accounts the average area of the 19,888 holdings in North and South Wynad is 2·19 acres, and consequently the cost per square mile of theodolite survey would be very largely increased. The absolute saving under these circumstances by the use of the plane table would probably not fall short of Rs. 75,000.

20. When working with the plane table the Surveyor plots as he proceeds the results of measurements, and he at the same time sketches in all the detail such as streams, houses, and wood, &c. This under the old system was a separate operation, or at any rate could not be performed with accuracy if attempted simultaneously. In short, the Surveyor with the plane table need not leave the ground until he has produced a complete map of the locality, and he has the means of checking the accuracy of his work as he proceeds. The disadvantage of this method of surveying is that

there is no independent check in the office, such as is exercised over the whole of the measurements when they are simply booked in the field and plotted at head-quarters. The only way in which the good faith of the Surveyor and the quality of his work can be tested is by inspection and partial remeasurement in the field. But I think a sufficient check can be so exercised, and it should be noted that the expenditure on the experiment of which the results have been quoted included the cost of remeasurement and testing to the extent of 73 per cent. of that of the original survey, arguing that a very extensive and thorough investigation is provided for at the rate of cost quoted.

21. It being estimated by the Revenue Officers, as already stated, that there are in North and South Wynad 19,838 paddy flats and coffee gardens with an average area each of 2·19 acres, a length of boundary of probably more than 3,000 miles is thereby indicated, which under the system at present in force would have to be permanently marked out with blocks of stone and traversed with theodolite. The cost of this operation would probably not be less than Rs. 1,23,000, or Rs. 3·2 per acre, nearly equivalent to the total revenue collections of three years, while on the other hand the survey of the same puttas by plane table would not exceed Rs. 40,000, or less than one-third the first amount. Even if it were found, which would probably be the case, that the average area of the holdings was double that supposed, or that a system of surveying by theodolite in blocks of 4 or 5 acres were adopted, the saving by the use of the plane table would even then be considerable, not less indeed than half a lakh on the cost of survey of cultivated areas. In fact, the cost of surveying by plane table may be estimated at from one-third to one-half that of survey by theodolite, depending on the average size of the holdings.

22. Seeing that this economy is practicable, and having in view the comparatively small rental derived by the Government from the area in question, I am of opinion that the use of the plane table for the purpose described should be introduced. In holding this opinion I differ from Colonel Cloeté, who states that he is strongly opposed to the plan of obtaining the boundaries of properties for assessment by plane table because there is no check except inspection in the field. It is evident from the results of the experiment already referred to that by means of this instrument, properly used, boundaries can be plotted on paper, and areas computed therefrom with sufficient accuracy for all practical purposes; and it seems to me that at any rate trial should be made of the effect of careful inspection and examination of work on the ground in ensuring the continuance of the results already attained before additional expenditure, amounting on the lowest calculation to not less than half a lakh of rupees, is incurred.

23. Reverting to the consideration of the results and cost of the work already performed, the following is a list of the Wynad amshoms taken up for survey since 1870:—

—		Area.	
		In Acres.	In Square Miles.
Formerly South-East Wynad.	Munanad	39,814	62·21
	Cherankod	23,494	36·71
	Nambalakod	89,561	139·94
	Ganapathivattam	104,896	163·9
North Wynad.	Ellurnad	76,736	119·9
	Kuppatod	40,960	64·00

24. The total expenditure under all heads up to the 31st March last amounted to Rs. 2,03,970-12-4. The work of survey was commenced in the two last-entered amshoms only during the season just ended, and is generally in an incomplete state, but that in the four amshoms formerly constituting South-East Wynad is so nearly concluded that its final cost can be estimated with practical certainty. It will

amount to Rs. 1,63,385-10-4 distributed amongst the four amshoms as shown below:—

—	Revenue Survey 16 Inches to a Mile.			Topographical Survey.			Grand Total Demarcation and Survey.
	Demarcation.	Survey.	Total.	Demarcation.	Survey.	Total.	
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
Munanad ..	12,829 7 0	25,158 9 10	37,988 0 10	854 0 11	2,561 9 11	3,415 10 10	41,403 11 8
Nambalakod.	14,819 15 2	33,354 2 2	48,174 1 4	1,882 13 3	3,884 4 9	5,767 2 0	53,941 3 4
Cherankod .	8,110 11 6	17,633 1 6	25,743 13 0	255 2 11	384 1 10	639 4 9	26,383 1 9
Ganapathivattam ..	7,449 6 0	27,886 8 11	35,335 14 11	3,189 13 1	*3,141 13 7	6,331 10 8	41,667 9 7
Total ..	43,209 7 8	1,04,032 6 5	1,47,241 14 1	6,181 14 2	9,971 14 1	16,153 12 3	1,63,395 10 4

*Rs. 500 added for completion.

25. The expenditure for Revenue Survey, Rs. 1,47,241-14-1, represents the cost of demarcating, surveying, and mapping on the scale of 16 inches to a mile, as well as recording particulars and computing areas of 88·35 square miles of holdings classed as shown below:—

	No.	Sq. Miles.
Coffee estates and waste land block	100	36·43
Paddy flats	1,496	25·07
Jenm estates	438	24·76
Other holdings	138	2·09
Total ...	3,172	88·35

The cost of demarcation per square mile will amount, therefore, to Rs. 489-1-1, of survey, mapping, and other processes to Rs. 1,177-7-11, and the total to Rs. 1,666-9-0 per square mile. The average area of the holdings is 20 acres. The collective area of the four amshoms is 402·77 square miles. The topographical small scale survey has extended over the whole area not surveyed for revenue purposes, viz., 314·42 square miles; the latter has been hill-sketched on the small scale, and will be completed for a total outlay of Rs. 16,153-12-3. This represents a rate for demarcation and survey of Rs. 51-5-11 per square mile.

26. When the results of work on the whole Nilgiri District are investigated the expenditure on Revenue Survey appears to have been up to date Rs. 6,31,389, and on Topographical Survey Rs. 26,450, showing a rate for revenue demarcation and survey of Rs. 1,558·5 per square mile and for topographical survey of Rs. 42·5 per square mile.

The total number of holdings surveyed was 18,119, and the averege area of each holding 14·31 acres. If the cost of the survey of the settlements of Ootacamund, Coondor, and Kotagiri, which amounted to Rs. 3,130 per square mile, is excluded from the calculation, the cost arrived at for the remainder of the revenue areas is Rs. 1,315 per square mile.

The causes which have led to the high cost of the Nilgiri and South Wynad surveys are not far to seek. The unhealthiness of the Wynad rendered it necessary to remove the survey party every year, and a system was adopted whereby the season for work there alternated with that for the Nilgiris. Thus during every year there were four transfers, each entailing the breaking up the party and the cessation of work for a time. But even with this precaution there was much sickness towards the end of every Wynad season, and a large percentage of the subordinates were generally prostrated with fever on their arrival in the colder temperature of the Nilgiri Hills. The rugged and hilly nature of the country both in the Wynad and the Nilgiris rendered the work more exhausting, and the obstacles in the shape of forest and rocky ground which rendered necessary an immense amount of clearing and divergence of chain lines greatly impeded progress. Survey by mere chain measurement was impracticable, and the more expensive method of work with the theodolite was adopted for every putta. Owing to the manner in which the hold-

ings were scattered over the country the men were necessarily much dispersed and close supervision was impracticable, and the delays reported on account of sickness, rain, clearances not carried out by proprietors, &c., were always very numerous and difficult to check.

For a very long period the detachment employed in the Wynad and on the Nilgiris was under the supervision and direction of a Sub-Assistant, and it was only occasionally inspected by a superior officer. To the fact that the detachment in North Wynad was, during last season, closely looked after by an Assistant Superintendent, who was living on the ground under survey, is partly attributable, in my opinion, to the reduced rate of cost which the accounts now exhibit. There seems to be no reason why the lower rates of last season should not be maintained if a considerable detachment is employed under the direct control of an Assistant Superintendent and if the system of continuing the demarcation during the monsoon is persevered with, and therefore the estimate of the cost of future work has been chiefly based on last season's work, and but very partially on that carried out in former years.

27. The work of demarcation and survey in the Ellurnad amshom of North Wynad was commenced in October 1878, and the record of expenditure and outturn shows that the cost per square mile of theodolite survey of jenms with the interior holdings (averaging 15·3 acres each) has been at the rate of Rs. 646-9-4 per square mile. The cost of the survey by theodolite of the interior cultivated holdings calculated on the actual area of the holdings* and not on that of the jenm estate was at the rate of Rs. 1,074 per square mile. The cost of the plane table survey of the same holdings and theodolite survey of the exterior boundary was at the rate of Rs. 439·5 per square mile, showing a saving of Rs. 634·5 per square mile of cultivation as compared with the theodolite survey on the present system.

* Averaging 6·2 acres each.

28. Recapitulating what has been already stated, there are in North and South Wynad, according to the revenue accounts, 3,795 jenm estates with a collective area of 844 square miles, and 19,888 paddy flats and coffee gardens with a collective area of 68·2 square miles. The estimated length of boundary for survey amounts to a total of 8,089 lineal miles, comprising 270·25 lineal miles for amshoms, 135·12 lineal miles for roads, forest reserves and connecting lines, 25 lineal miles for coffee estates, and 3,000 miles for paddy flats and coffee gardens.

At the end of this report is appended a schedule of rates for survey of North and South Wynad of the kind detailed in paragraph 15 above. These are derived from the work of the past season.

The following is an abstract of the estimate based on the above rates, showing the cost of each of the several operations or sections of the programme suggested in paragraph 15:—

		RS.
1.	Secondary triangulation	2,500
2.	(*a.*) Demarcation and survey of district, taluk, and amshom boundaries	15881·38
	(*b.*) Demarcation and survey of district, taluk, and amshom boundaries between Government land and jenm and coffee estates	19100·6
	(*c.*) Demarcation and survey of district, taluk, and amshom boundaries between jenm and jenm	256169·05
	(*d.*) Roads and forest reserves	8131·40
3.	Demarcation and survey of boundaries of European estates on jenm land	Nil.
4.	Survey by plane table of coffee cultivation and native coffee gardens and paddy flats	33,000
5.	Topographical survey and map	12353·14
6.	Area computation and plotting	5392·61
7 & 8.	Key map and register of jenms and cultivated areas	1,324
	Total ...	351351·64

29. The nature of the survey may of course be varied almost indefinitely; but as the cost of a number of distinct items has been given above, the Board or Government will have no difficulty in obtaining from the information supplied an idea of the effect of any modification which they may think desirable. If it were decided to adhere to the system of theodolite survey for coffee cultivation and paddy flats, item 4 would have to be increased by half a lakh of rupees. If the Government decided against the survey of inter-jenm boundaries, the amount opposite item (2-*c*) would be removed from the estimate, but on the other hand the cost of item (2-*d*) forest reserve and (5) topographical survey would have to be increased. The first, say, by Rs. 25,000 and the second by Rs. 30,000, and the net reduction would probably amount to Rs. 2,06,058. The reason for increasing the estimated cost of these items is that the inter-jenm boundary survey would obviate the necessity of the special survey of forest boundaries, for these could generally be made to coincide with jenm boundaries, and it would also serve as a basis for the topographical survey and render the tertiary triangulation unnecessary, which must otherwise be carried out.

30. The time within which the survey, as proposed in paragraph 15, could be carried out, would depend almost entirely on the strength of the detachment employed. The expenditure during last season, *i.e.*, from 1st October 1878 to 31st March 1879, amounted to Rs. 41,000. This could easily be increased to Rs. 60,000 per annum, and the survey would then be completed in about six years.

31. In conclusion, I would remark that a consideration of the amount of labor and the cost involved by surveys such as these leads to the conclusion that measures should be carefully devised for ensuring that that the mass of information collected by the department is fully utilized in the administration of the land and corrected as changes occur.

In the case of the Nilgiri District the Revenue Department has, or will shortly have, in its hands the registers of occupancy and division and the area lists and maps of some 18,000 holdings comprising 402 square miles. If these maps and records are carefully catalogued so as to be available at once when required, if transfers and relinquishments of puttas, land sales and other transactions are recorded in the form of addenda to the records and the maps are duly corrected or added to, if the boundaries of villages and Government waste lands are periodically perambulated and compared with the maps so as to check encroachments, if, in short, the maps, registers, and area lists are made the basis of land administration, then the expenditure of some six lakhs which the survey has up to date necessitated will be fully justified; but if on the contrary these records are simply lodged without system, and left entirely in the hands of subordinates who do not understand their use, they will year by year become less trustworthy, and the fruits of the survey will soon be lost. With the view to prevent this result a small survey detachment should, I think, be organized and attached to the Commissioner, and its duties both in field and office defined, before the district is finally quitted by the Surveyors of this department.

ENCLOSURE No. 1.

SCHEDULE of Rates for the Survey of North Wynad derived from Work executed during the Season, 1878-79.

		RS.
Boundary demarcation per lineal mile		20·88
Do. survey do.		18·63
Traverse working do.		1·00
Boundary plotting do.		0·43
Area computation ... ...Sqr. mile.		5·43
Plane table survey of paddy flats, &c., per mile		10·
Detailing on the scale of 2 inches to a mile, per square mile	18 10 8	
Officers' supervision 10 per cent. on total of outlay under all other heads		
Petty supervision 25 per cent. on outlay on work		
Contingencies 2·5 per cent. on outlay under all other heads.		

OOTACAMUND,
—June 1879.

(Signed) A. DEC. SCOTT, Lieut.-Col., R.E.,
Superintendent of Revenue Survey.

ENCLOSURE No. 2.

WYNAD TALUK.

STATEMENT showing the Number of Jenmam Blocks of Land, Approximate Acreage, also the Number of Puttas, the Number of Paddy Fields and Gardens, and Approximate Acreage in each Amshom excepting Gunapaddyvattom (already surveyed).

Amshoms.	Jenmam Holdings.			Puttā Holdings.				Remarks.
	Number of Jenmis.	Number of Jenmam Blocks.	Acreage.	Puttas.	Number of Paddy Fields.	Acreage.	Number of Gardens.	
1	2	3	4	5	6	7	8	9
						ACRES. AS. AM.		
1. Pudady	67	116	24,214	602	834	2,348 11 3	975	10
2. Kupathode	64	340	23,876	680	619	1,574 4 13	1,179	The putta holding acreage is not the latest, but the area is approximately accurate.
3. Ellurnad	94	804	29,000	669	526	1,991 6 6	1,123	
4. Nalurnad	107	289	4,944	404	403	968 11 3	575	
5. Thondernad	55	229	26,125	686	338	841 3 3	2,247	
6. Periah	25	52	16,000	269	193	330 11 3	698	
7. Edavaga	74	876	18,542	504	534	1,257 12 3	1,025	
8. Kurumbala	64	540	18,650	693	691	1,446 0 0	1,635	
9. Poroonanur	39	245	56,500	725	618	1,798 8 0	1,568	
10. Edanadasakur	32	155	141,935	682	480	1,417 4 13	1,260	
11. Vyteri	27	118	134,835	283	132	280 3 2	512	
12. Mupeynad	20	38	45,650	652	603	2,406 4 13	1,130	
Total ...	668	3,795	540,271= 844 square miles	6,849	5,961	16,681 1 8	13,927	26,975 7 6

ABSTRACT.

Total number of jenmis		668
Do. of jenmam blocks		5,795
	ACRES.	
Estimated acreage		540,271
Average size of jonm block		142

ABSTRACT.

Total number of puttas		6,849
Do. of paddy fields and gardens		19,888
	ACS.	AS. AM.
Acreage	43,656	8 14
Average size of field or garden	2	3 1

(Signed) W. LOGAN, Collector.

(Signed) A. DEC. SCOTT, Lieut.-Col., R.E.,
Superintendent of Revenue Survey.

(True Copy.)

OOTACAMUND,
27th June 1879.

FORWARDED to the Collector of Malabar for the early submission of such remarks as he may wish to make.

2. The report promised in the Collector's letter, dated 3rd March 1879, No. 40, has not reached the Board.

(True Copies and Extract.)

(Signed) C. A. GALTON,
Acting Secretary.

Read also the following letter from G. McWATTERS, Esq., Acting Collector of Malabar, to C. A. GALTON, Esq., Acting Secretary to the Board of Revenue, dated Calicut, 18th August 1879, No. 1,715.

I HAVE the honor to acknowledge receipt of the Board's Proceedings, dated 29th ultimo, No. 2,140, forwarding for my remarks a letter from the Superintendent of Revenue Survey furnishing report called for on the survey of Wynad.

2. The amshoms of the Wynad taluk remaining to be surveyed consist for the most part of private property, and I think that the course of survey sketched in paragraph 15 of the Superintendent's report, with perhaps one omission, would be the most suitable under the circumstances. The proposals of Colonel deC. Scott are in accordance, I believe, with the views of Mr. Logan on the subject.

3. The omission I refer to is the permanent demarcation and survey of interjenmom boundaries, which makes a difference in the total estimated cost of the survey of over two lakhs of rupees.

4. Would the advantages to be gained by defining these boundaries be at all comparable to the cost? This seems to me to be the most important question raised in the proposals of the Superintendent of Revenue Survey.

5. Mr. Logan is particularly anxious that jenmom estates should be demarcated and surveyed. He thinks that it would be sufficient for all practical purposes and greatly reduce the expenditure if the jenmom boundaries only were permanently demarcated and surveyed and the interior cultivation details filled in with plane table. The cost of survey by plane table would be half or one-third (according to the average size of the holdings) of the cost of survey with theodolite. The saving is estimated to be at least Rs. 50,000.

6. Mr. Logan's object is to have the survey by jenmoms eventually extended to the whole district with the view of making the next revenue settlement with the jenmis instead of with their tenants.

7. There is no doubt that the settlement would have originally been made with the jenmis if the Nayars and Nambudris had not been afraid to venture near the public cutcherries during the Mysore occupation. They dreaded being made converts to Islam, and they sent their tenants to negotiate in their stead.

8. In all the revenue paimashes of the Malabar province it has invariably been ascertained who the jenmi of *occupied* land was, but there is nothing in the accounts to show the extent of *waste or unoccupied* land belonging to each jenmom. This is an unknown quantity to the present day, and it is chiefly owing to this fact that jenmis have been so successful in their fictitious claims to the best tracts of forest.

9. Mr. Logan would fix a lump assessment for a period of twenty-five years or so on the jenmom block, the amount of the assessment being the same as that for the year then current, calculated in the present fashion on the cultivated area. Nothing would be charged for waste for the first period of the settlement, and this would be an inducement to the shrewd and industrious jenmi to open up and develop the resources of his estates.

10. If there is to be a jenmi settlement, it must be preceded by a jenmom survey, and there is no doubt that a jenmi settlement, if its introduction were not altogether impracticable or exceedingly perilous, would greatly facilitate the

revenue administration of the district. The present system, however, has been in force for about a hundred years, and considering that the Malayalees are so adverse to change, and that even Sir Thomas Munro was signally unsuccessful in attempting to introduce the ryotwari settlement, the Settlement Officer of the present day, who endeavored to substitute the jenmis for the existing puttadars in regard to dealings with Government, would meet with implacable opposition.

11. In my opinion current events point rather to the necessity of strengthening the position of the jenmis' tenants by giving them a fixity of tenure so long as they pay a reasonable rent, and this would certainly be more difficult to accomplish under a settlement that dealt only with the jenmis.

12. On the whole, therefore, unless a jenmi settlement is contemplated, I consider that the inter-jenmom boundary survey would not be worth the cost. The scheme provides for demarcating the boundaries between Government and jenmom properties and the boundaries of such tracts of forest as it may be considered necessary to preserve. The demarcation and survey of these latter boundaries are what is most urgent both in Wynad and other parts of Malabar, where there are forests left worth preserving.

13. I would strongly recommend the proposals contained in paragraph 15 of Colonel deC. Scott's report save 2-C, the boundaries between jenmom and jenmom, unless the jenmis bear the total cost.

IN G.O., No. 1,698, dated 21st October 1878, the Government called on the Board to report, in communication with the Collector of Malabar, whether there is any public object to be gained at all comparable with the cost by continuance of survey operations in the Wynad which are now being carried on to the detriment of more pressing work elsewhere. The Board have since received the letters read above from the Superintendent of Revenue Survey and the Collector of Malabar, and are therefore in a position to submit the opinion required.

2. The area of the Wynad taluk as now constituted is 826 square miles, of which 662 square miles remain to be surveyed. The Gunipativatam (Sultan's Battery) amshom containing 164 square miles has been surveyed at a cost of Rs. 41,667. The cost of completing the remainder is estimated by Colonel Scott at 3½ lakhs of rupees to be spread over the next six years.

3. To secure this result some changes in the system of survey and some addition to the strength of the party are needed. The substitution of the plane table for the theodolite, and the rough and inexpensive demarcation and survey of coffee cultivation constitute the principal points of the changes proposed; this scheme was worked out in communication with the Collector (Mr. Logan), who was in favor of defining the boundary of every jenm estate; the Acting Collector, however, is of opinion that such definition is hardly requisite between jenm estates, when they do not abut on a boundary or on Government property, and as the area of coffee cultivation varies on many estates, and as a rule is ever extending, the permanent definition of the area cultivated in any one year seems to be unnecessary.

4. Colonel Scott's scheme for the future progress of survey seems on the whole well suited to the requirements of the Wynad, and the Board support the proposal to measure all jenm boundaries. This approval of the proposed method of working does not, however, affect the main question as to whether, in consideration of more pressing needs elsewhere, the survey of the Wynad should at present be continued at all.

5. In reviewing the survey report for 1878-79 the Board regarded with much apprehension the probability of the progress of the settlement being almost brought to a standstill for want of survey areas and maps for the districts yet to be settled. The survey have finished North Arcot, and this will occupy the settlement parties during 1880-81, but at the end of that official year six settlement parties will require work in Madura, South Arcot, and Bellary, and as yet but one taluk in each

of these districts is surveyed and ready for settlement. The Board therefore urged the necessity for employing the five survey parties entirely on turning out work for the settlement, for at present what with the withdrawal of one entire party for the survey of the Nilgiris, Wynad, and other areas not required for settlement, and the weakening of other parties for topographical purposes, the outturn of the survey in fields has fallen off very considerably just at the time that the Settlement Department, by an improved system of working, have increased their outturn so considerably that the number of settled districts has risen in the last three years from five to eight, and should rise to eleven this year if areas are only procurable.

6. Under these circumstances the Board cannot approve of the continuance of the survey of Wynad until the Madura, South Arcot, and Bellary Districts are finished, and, in view of the small amount of land revenue, Rs. 140,000, and the extremely light assessment of the Wynad, it is improbable that even a moderate interest on the cost of the survey will be recouped by a settlement.

(True Copies and Extract.)

(Signed) C. A. GALTON,
Acting Secretary.

No. 414. From Lieutenant-Colonel A. DEC. SCOTT, R.E., Superintendent of Revenue Survey, to J. H. GARSTIN, Esq., Acting Secretary to Government, Revenue Department, dated Chepauk, 21st August 1879, No. 150-G.

WITH reference to the Proceedings of the Board of Revenue, No. 558, dated 1st March 1879, submitting my proposals for the employment of the Wynad Survey detachment and Government Order thereon No. 664, of 17th March 1879, I have the honor to report that the demarcation of cultivated holdings in the Wynad has been discontinued pending the decision of the Government on the general question of the nature of the survey to be carried on. There is, however, a certain area already demarcated which has not been surveyed, and I request the sanction of Government to my completing the survey so far, as it would be a pity not to utilize work done.

No. 415. ORDER THEREON, 29th September 1879, No. 1,964.

Miscellaneous.

IN October 1878* the Government expressed themselves doubtful whether there was any public object to be attained at all comparable with the cost of the operations of the Survey Department in the Wynad Taluk of Malabar, and requested the Board of Revenue to report on the point after calling on the Collector to submit his views. The two first of the papers above read contain the Board's reply to the order of Government, and a report from the Superintendent of Revenue Survey on the past, present, and probable future cost of the survey of the Wynad Taluk.

* G.O. of October 21st, 1878, No. 1,698.

2. In paragraph 15 of his report Colonel Scott sets forth compendiously the course of survey best suited, in his opinion, to the circumstances of the taluk, and the Acting Collector of Malabar strongly recommends the adoption of all his proposals except one, viz., the demarcation and survey of the boundaries between jenmom properties where they adjoin each other. It also appears incidentally that the Collector, Mr. Logan, is in favor of Colonel Scott's proposals, and is particularly anxious that the boundaries between jenmom properties should be demarcated and surveyed in view to having the survey by jenmoms eventually extended to the whole district, in order to make the next revenue settlement by estates instead of on their cultivated area. The Board of Revenue approve of all Colonel Scott's proposals, so far as the future progress of the survey in Wynad is concerned, if it is to be continued, but do not think that it should be until the Madura, South Arcot, and Bellary District surveys are finished. They also give it

as their opinion that it is improbable that even a moderate interest on the cost of the survey of the Wynad Taluk would be recouped by a settlement.

3. The last paper is a letter from Colonel Scott suggesting the advisability of completing the survey of a certain area of cultivated holdings in Wynad already demarcated, as it would be a pity not to utilize the work already done.

4. The reductions now in progress in the Survey and Settlement Departments will materially affect the relative progress of the various Survey and Settlement parties, and arguments based on this consideration may therefore be at once set aside. The Government also negative the suggestion which appears to have commended itself to Mr. Logan, that a total change in the revenue system of Malabar (which has existed in its present form since Hyder first introduced a State revenue assessment there) should be aimed at, and that with this view a survey of jenmom estates should be carried out throughout the province. The question of the use of the Wynad Survey, or of any survey in Malabar, is thus much simplified.

5. The sole objects to be attained by Government for revenue purposes are—

(1.) a knowledge of the exact localities and contents of properties escheated to Government, or, in the case of forests, perhaps, devolved on them with the Royalties of the former dynasty, and

(2.) a knowledge of the area of cultivation in private estates to assessment on which their revenue demand against the jenmis (or represented by their tenants) is restricted. In the opinion of the Governor in Council it is beyond question that, as regards the cultivated area (which is constantly fluctuating), no result to Government commensurate with the cost of elaborate survey could possibly be attained. The question is therefore narrowed to escheats and State forests.

6. As regards the former it would, the Government think, be certainly desirable that the most accurate information should be obtained and recorded, but they can see no reason why these should not be taken up individually and merely plotted into the Topographical Survey maps. The only escheat of magnitude was that of the Pychi Raja's estate, the bulk of which is believed to have been situated in South-East Wynad (as formerly constituted), the survey of which has been almost entirely completed. Whatever remains to be done in the four Amshoms of Munanad, Nambalakod, Cherankod and Ganapathivattam should be done at once. It is understood from Colonel Scott's report that the cost will be quite inconsiderable. The other areas in Wynad already demarcated and ready to be surveyed should also be completed.

7. The Collector of Malabar should report whether the Pychi escheat is included in the area above specified, and if not, he should submit proposals, in communication with Colonel Scott, for the boundary settlement of this and of any other escheats deserving consideration, and for their survey and plotting into the Topographical map. The cost of this would, probably, be trifling.

8. There remains the question of forests. The Conservator of Forests somewhat recently submitted to Government a sketch showing the tracts of forest in the Wynad Taluk which, for departmental objects, he wished to deal with. The bulk of them are private property, and the matter has been referred to the Collector for report. If any portion of them is found to be State property and worthy of reservation, it can be dealt with precisely as Forest Reserves elsewhere will be. The tracts will certainly be isolated ones.

9. As regards the bulk of the Malabar forests the Government are satisfied that the State has no rights, and that the Acting Collector's theory of the origin of private claims to them is unfounded. Up to Hyder's invasion Malabar had been divided among a numerous body of petty principalities, of whom the Zamorin was "primus inter pares;" they owned the land (which was not the property of still smaller proprietors) or jenmom (*birthright*) system and they are, at the present time, represented by the principal Nair landlords (Jenmis) of Malabar. The forests are, as a rule, their property, and have been recognised as such from time immemorial.

Moreover, the Conservator of Forests has very lately stated that he has no wish whatever to meddle with the forest tracts on the western slopes of the Western Ghats which are not State property, as the climatic considerations apply in their case.

10. The Government come therefore to the conclusion that with the few exceptions above stated there is no object, commensurate with the cost, to be attained by the further prosecution of the cadastral survey of Wynad and they accordingly direct its cessation. Whether in view of the current reorganisation of the Survey Department even these limited objects can be pursued at present is questionable. It is probable that there will be far more pressing demands elsewhere on the reduced establishment.

(True Extract)

(Signed) J. H. GARSTIN,
Acting Secretary to Government.

To the Board of Revenue.
„ the Superintendent of Revenue Survey.
„ the Conservator of Forests.
„ the Collector of Malabar.

Exd. W. H. French.

Govt. of (1879) Madras.

REVENUE.

To

THE BOARD OF REVENUE,

&c., &c., &c.

Dated September 29th.

Printed October 20th.

Read. *Encl.*

G.O. 30th September 1879, No. 1, [illegible]

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