

MADRAS RECORD OFFICE.

Government of Madras.

Revenue DEPARTMENT.

G.O. No.	1009-A	Press ~~Mis~~
442-43	Dated 30-6-1820	~~19~~

Not to be folded or roughly handled

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*Proceedings of the Madras Government, Revenue Department,
30th June 1870.*

No. 442. Read the following Proceedings of the Board of Revenue, dated 5th October 1869, No. 7,389 :—

Read the following Proceedings of the Madras Government, dated 19th June 1869, No. 837, Public Department.

ABSTRACT.—Passing orders on Dr. Bidie's Report on the ravages of the Borer insect.

IN the Proceedings of Government, dated 18th May 1868, Government communicated to the Board a Report by Dr. Bidie on the effects of forest-felling in Coorg. The Board circulated it to all Collectors, and called from those in the districts named in the margin to report the result of their practical experience.

Coimbatore.	Malabar.
Salem.	Madura.
	Tinnevely.

2. Copies of their replies are submitted to Government, with reference to Government Order, 19th June 1869, No. 837.

3. The Board do not concur with Dr. Bidie in the suggestion at page 15 of his report that before land is made over to planters, the chief Revenue-officer and Executive Engineer of the district and the Conservator of Forests should inspect the block of land applied for, and state whether it is suitable or not; nor do they agree with the proposition to reserve all forest growing on the slopes of hills having a south-western exposure. Large tracts along the western hills will necessarily come under this description, and if the exposure is generally recognized as so decidedly unfavourable to Tea and Coffee cultivation, application for such slopes will be exceptional and probably extremely rare. In general, the most satisfactory course is to leave planters to follow their own views in the selection of land.

4. The proposed rule at the same page of the Report, that forest surrounding paddy-fields should be preserved also seems to the Board undesirable, as likely to cause loss of crops by the incursions of wild animals and to make fever prevalent.

5. With these exceptions the Board are of opinion that Dr. Bidie's regulations should be carried out in disposing of Government forest-land intended for clearing.

6. In the opinion which Dr. Bidie has expressed, to the effect that forest-clearings are without influence on the total rain-fall of the country, the Board entirely concur: the physical history of the country, so far back as it is known to them, shows that prolonged droughts and recurring years of bad harvest, arising from deficient rain-fall, were experienced at periods when forest clearing had not been commenced; and, on the other hand, it cannot be said that the clearings of Coorg and the Wynaad have diminished the quantity of rain usually enjoyed by those countries in an average year.

7. In regard to perennial springs the Board do not share Dr. Bidie's views, the causes which operate to create and maintain the supply being beyond the influence of the local vegetation around the spring.

No. 443. ORDER THEREON, 30th June 1870, No. 1,009 A.

Forests, No. 24.

ORDERED to be recorded.

(True Extract.)

(Signed) H. E. STOKES,
Under-Secretary to Government.

To the Board of Revenue.

Exd. F. R. Bantleman.

From A. WEDDERBURN, Esq., Collector of Coimbatore, to the Acting Secretary to the Board of Revenue, dated 27th November 1868, No. 311.

In reply to the Proceedings of the Board of Revenue, dated 26th June 1868, No. 4,917, communicating Dr. Bidie's report on the effect of Forest clearing in Coorg, I have the honor to state that Forest clearance appears to have a local effect, such as is stated to have been observed by that officer.

2. That local clearance should have an appreciable effect on the general rain-fall can scarcely be predicated without a registry of rain-fall for many years, and some valid proof that such cause really produced such effect.

3. Rain-fall, according to my observation, appears to be heavier in some years than in others, and not to be gradually diminishing year by year, which would be the case if it was affected by gradual forest clearance.

4. There is no doubt of the advantage of conserving the forest covering of Hills, on account of local irrigation.

5. Hitherto the extension of cultivation has competed with this object, but for the future, the rule that no forest land be given for cultivation, without a reference both to the Conservator and Engineering Department, will be the best and only remediable measure now available.

Exd. T. Carledge.

Govt. of 1870 Madras.

REVENUE.

To

THE BOARD OF REVENUE.

Dated June, 30th.

Recd.

Encl.

G. O., 30th June 1870, No. 1,003 A.

JUNE.

Nos. 442, 443.

Forest-felling in Coorg.—Opinion of Revenue Board on certain points noticed in Dr. Bidie's Report on the subject, recorded.

3

From J. F. PRICE, Esq., Acting Sub-Collector in charge of the Salem District, to the Acting Secretary to the Board of Revenue, dated 22nd February 1869, No. 40.

I HAVE the honor to reply to the Proceedings of the Board, No. 4,717, dated 26th June last.

2. As far as my observation and experience extend, I believe that the conclusions arrived at by Dr. Bidie are for the most part correct. Hilly country undoubtedly attracts rain clouds, and in a tropical climate such as this, the consequence of rain is increased vegetation and forest.

3. I feel diffident in commenting upon the opinion expressed by Dr. Bidie, but it appears to me that forests do, whether on hill or plain, exercise a considerable influence upon the rain-fall, as the atmosphere which surrounds them is much cooler than that which is to be found in the neighbourhood of a bare, rocky, or grassy mountain, or an open plain. The consequence is that where there is forest, a rain cloud passing over it is more frequently condensed into the form of rain, than when exposed to the action of the heated air evolved from ground which is not thus protected by the direct rays of the sun. The view which I take is supported by the fact that during the time of the heavy showers which precede the south-west monsoon, I have often observed that the rain passed lightly and quickly over the open and rocky portions of a hill, and that the cloud hangs more heavily and longer over points, at the same elevation, which were covered with trees. This effect I can only attribute to the presence of forests.

4. Mr. Pochin is, I believe, of opinion that the supply of water on the Shervaroy Hills has been sensibly affected by the clearing, during the last seventeen years, of the forests which clothed their slopes. In my own division, I know that the only spring on the Mailgherry hills has become dry, owing to the cutting away of the jungle which surrounded it some twenty years ago. This does not of course go to prove that forests influence the rain-fall, but it shows clearly that they have a very considerable effect upon the water-supply, and that clearing them away must have a highly injurious effect.

5. I consider that if planting on hill sides was more generally carried out than it is, and that if ravines which have been cleared for the sake of the timber growing on them were replanted, the effect would be a larger supply of water than now exists. I think, too, that cultivation on hills should be as much restricted as possible. At present, so long as a piece of ground is not required by the Forest Department, that is, if it has not timber of some value growing on it, it is given to the first applicant. Every stick is remorselessly cut down and burned, and the land is for six months in the year a barren patch, which, like a sheet of glass, sends the rain that falls upon it into the nearest nullah, eventually, in nine cases out of ten, to run to waste to the sea.

Exd. T. Cartledge.

4

From G. A. BALLARD, Esq., Collector of Malabar, to the Acting Secretary to the Board of Revenue, dated Calicut, 25th January 1869, No. 21.

On the receipt of the Board's Proceedings noted, * I addressed several of those most likely to be able to give information on the questions whether the forest clearings have sensibly affected, firstly, the rain-fall, and, secondly, the drainage of this district.

* Dated 26th June 1868, No. 4,717.

I cannot say the replies received throw much real light on the subject. What I wished to get were facts. I have got little but opinions, and some very crude ones.

2. The records of the district do not supply me with the means of giving much information not already within reach of the Board.

There is a rain register extending from 1810 to 1861 kept by the late Mr. Brown of Anjerakandy, which from that gentleman's habits of accurate observation may be looked on as a very valuable record. But it tends to throw little or no light on the immediate subject of inquiry, as Anjerakandy is only some eight miles from the coast, and forest has not been in existence in its vicinity for centuries.

I send however copy of the statement as of intrinsic interest.

3. The returns of the district rain-fall from 1853 (before which registers were not kept) show little or no tendency to permanent decrease in the averages.

Whether local deficiencies, where observable, are due to the local clearings or not, is a question on which different opinions will certainly be expressed.

My own opinion is that general and extensive clearings in ordinary countries must tend to diminish the local rain-fall. But in such a district as Malabar, where lofty mountain ranges lie across the course of moisture-charged winds from the ocean some 30 or 40 miles distant, clearings must be quite insignificant in their general effects. The forests themselves are insignificant compared with the mighty natural agents that produce such rain-falls as the monsoons.

I see that Dr. Bidie is of this opinion.

4. As regards the question of the effect of clearings on drainages, it seems to me there can be no reasonable doubt that Dr. Bidie's views are sound, and that the smaller streams whose sources and upper courses have been cleared from forest must and do show a tendency to run off in violent floods, and either to run dry altogether, save for such time as heavy falling rains feed them, or have much smaller perennial flows than when sheltered.

As far as my limited observation in parts of Wynaad, etc., goes, it confirms this view, which is generally, though not universally, adopted by those who have consulted on this

5. But I can find nothing to show that the effect on the smaller streams has as yet been sufficiently powerful to affect the larger streams in this district in any way even near their sources. I do not learn, for instance, that the larger confluent, only a mile or two from the head of the Tambracherry ghaut, where the coffee clearings are extensive and contiguous, have been really sensibly affected, that their floods have been more sudden and more violent, or their normal volumes lower, than before the clearings were made.

Yet, as above said, the clearings are extensive; are massed in a comparatively compact area; and have been made within the last eight years or so. It is true there are considerable tracts of forest along the crests, the retention of which may have neutralized results that would otherwise have followed the denudation of the planted land.

But to follow the drainage, I find nothing to show or lead me to believe that the eastward flowing streams at lower points of their courses, as at Bawally, where a great portion of the drainage of Wynaad has collected and enters Mysore, or that the westward flowing streams traversing Malabar proper, show that the distribution of the drainage they receive has been affected in any way of late years.

6. Whilst therefore believing that the theory so plainly set forth in paragraphs 2 and 3 of Dr. Bidie's letter is sound, I am unable to say that results supporting it have made themselves apparent to any appreciable extent in Malabar.

7. In conclusion I beg to say I have no preventive or remedial measures to suggest in connection with Forest clearing as affecting streams.

Vide Standing Circular No. 31, dated 9th April 1864, and Rule 18 of the Rules for the sale of Waste lands in Wynnad. The orders of Government, * etc., appear sufficiently to provide for the protection required on Government Forest land.

On private lands (referring now especially to Malabar) I think private interest must be left to itself. The advantage of keeping up perennial water-courses through plantations of every sort is thoroughly felt. If owners and Managers are convinced that by preserving belts of forest about spring heads and the upper courses of rivulets, they can do much to secure, whilst by a contrary course they will destroy their running waters, I think no Government interference will be required. But to disseminate right views and encourage right action, I would keep the subject well ventilated and supply the Public Press, Planters' Associations, etc., as well as local Officers, with all the information that Government may collect from time to time upon it.

ENCLOSURES Nos. 1 and 2.—Statements of rain-fall.

Exd. T. Cartledge.

5
From J. R. ARBUTHNOTT, Esq., Acting Collector of Madura, to the Acting Secretary to the Board of Revenue, dated 11th July 1868, No. 186.

With reference to paragraph 2 of the Board's Proceedings, No. 4717, dated the 26th ultimo, I have the honour to report that, as there has been no extensive or rapid clearing of Forest tracts in this district, I am not in a position to state, from experience, what would be the effect of such a proceeding. So far as I have been able to form an opinion on this subject, I quite agree with Doctor Bidie in the conclusions he has arrived at with reference to Forest clearings; but I do not think any new remedial or restrictive measures are required for the conservancy of the Madura jungles.

Exd. J. Wright.

From the Honourable D. ARBUTHNOTT, Collector of Madura, to the Acting Secretary to the Board of Revenue, dated 21st September 1868, No. 255.

With reference to the Board's Proceedings, No. 4,717, dated 12th June 1868, I have the honour to report, that, from all I can learn, Forest clearing in this district has been carried on chiefly on the plains, and only to a small extent on the hills.

2. I perfectly concur with Doctor Bidie in opinion that trees or forests have no influence whatever on the rainfall, and I very much doubt if trees exert much beneficial effect in the conservancy of springs.

3. It is notorious that large tracts of jungle on the sides of hills frequently do not contain a single spring, whilst large and permanent springs are not unfrequently found on the sides of hills totally devoid of trees.

4. A very remarkable instance of this is to be found at the Mahanundy Pagoda, in the Nundial talook of Kurnool. The hills above this spring are covered with coarse grass, and a few small trees at long intervals; but the spring issues from this bare ground in such volume that it is at once a considerable brook.

5. Springs, I conceive, depend much more on the nature of the rocks beneath the surface than on anything* else, and if large and perennial, are far too deeply seated to be affected by what happens to grow on the surface at their place of exit, which may be many miles distant from their real source.

* Rainfall of course excepted.

6. In a hot climate, vegetation and water have become so closely associated, that effects have been mistaken for causes. Water or rain will certainly produce trees, but the converse of the proposition is not tenable.

7. With regard to the effect of trees on climate, I have frequently found, from actual experiment, that the additional coolness derived from the shade during the day was compensated by the greater heat at night.

8. I think, also, that the loss of soil in cleared ground as compared to that in uncleared land is somewhat exaggerated. The most complete clearing is, of course, in coffee planting, where not only every tree and shrub is removed, but even the weeds are not allowed to spring up; but here, I think, Doctor Bidie has proved somewhat too much, for, if the binding of the soil together is chiefly effected by the roots of trees, etc., then in land cleared for coffee no great denudation of soil or heavy land slips ought to occur, for the roots of trees and even several feet of the stems are invariably left in the ground, and by the time these have decayed, the coffee trees have to a considerable extent taken their place. The alleged delay of the descent of rain water through a Forest is more theoretical than real. If water is in any way retarded in finding its own level, that very delay must cause accumulation, and it is scarcely necessary to add that such accumulation must increase the impetus, and, with that, the denuding power.

9. The complaints in Coorg of dry and hot seasons might, with equal truth, be re-echoed over nearly the whole country; and I see no reason to attribute them in Coorg to the felling of timber, when in other places the same want of rain must be attributed to quite different causes.

10. In this district there has been but little jungle cleared for coffee cultivation, and from the dryness of the climate there is no prospect of our Forests suffering to any great extent from that cause, and legitimate felling of trees for timber never extirpates a Forest. The only felling in this district which in complete destructiveness rivals that for coffee planting, is carried on for cultivating plantains or grain, and this should be discouraged as much as possible, and in Government land utterly forbidden. If this is attended to, the Madura Forests will supply the wants of its inhabitants for many generations to come.

Exd. J. Wright.

7

From R. K. PUCKLE, Esq., Collector of Tinnevely, to the Acting Secretary to the Board of Revenue, dated 26th August 1868, No. 364:—

1. In reply to Board's Proceedings, No. 4,717, dated 26th June 1868, I have the honour to inform you that I thoroughly concur in all that Dr. Biddie has written regarding the destruction of Forest.

2. In this district Coffee planters have not cleared to any great extent; but unfortunately they have cleared the very places they should not have touched, and have opened estates in the ravines through which several of our minor streams flow; the streams are thus thoroughly exposed to the sun, their small feeders have long since dried up, and no longer trickle down water; evaporation is immediate, and the ground becomes dry and baked almost as soon as rain ceases; the wind rushes through these cleared ravines, and disperses the clouds that would otherwise hang in the forest, and at all events keep it damp even if they did not break into rain; while the soil of the clearings, burnt and pulverized by the sun, is swept down the steep slopes by wind and rain to a certain extent every year, till those who have most experience in the matter can almost fix the period when the clearing will be barren rock, and the whole of the soil will have vanished.

3. In a district like this, dependent on mountain streams, the hillside forest should never have been allowed to be cut, it should have been kept as strictly as a pheasant preserve at home, for each acre of clearing diminishes the water supply, and if looked at in a financial view the result seems clear enough.

4. An acre of Coffee here pays an assessment of one Rupee, and an acre of paddy land pays an assessment of ten Rupees, if each acre cleared of its forest on the hills deprives an acre of paddy of its value, it is a loss of ten Rupees per annum for each acre of forest cleared.

5. The clearing about a Coffee estate will go on extending, do what we will to prevent it, for the owners of estates employ large numbers of coolies from the villages at the foot of the hills, and these people are partly remunerated by the wood they are allowed to bring down every day. If this system continues the forest will gradually vanish, and perhaps the water too, and there is no saying what may be the effect on the district in the course of a few years more.

6. This year we have had but one fresh in the river during the south-west monsoon, and the ryots are loud in their complaints of the falling off of the water supply.

The area wholly or partly cleared is much greater, and altogether perhaps 5,000 acres of forest are affected by these estates.

7. No one of the estates is of any considerable value; the best are but few in number, and the remainder are very poor: the total area under Coffee is only 1,425 acres.

8. Something must be done, but it is difficult to know what to recommend; the best mode of solving the difficulty would be to buy up the estates, and there is a good opportunity of doing so now, as most of the native estates are impoverished, and the two or three European planters would prefer moving to the Travancore side of the hills; the estates might be purchased for about two lacs of rupees.

9. Demarking the estates and preventing trespass in Government Forests are remedies sufficient in theory; but when the boundaries are nearly indefinite, each estate claiming a valley skirted by precipitous hills, demarcation is not so easy, and preventing trespass is impossible, as trespassers would seldom be caught, and if caught, could not be punished.

Ed. J. Wright.

Enclosure in the Pro. of the
Board of Geo. to the Secy
to Govt. R. P. d. 4th 3-4
Oct. 1869 N^o 7389.
Rev. 3508/69
From 30th June 1870 to 24th 1871

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fundus .

The undersigned much
regrets that owing to this
paper having been lost
for some months it
desired has been delayed.
It is submitted that
it may be suitably
"revised" in approval
of the Board of Managers.

J. H. H. to make
the English new to
the work:

Mr. L. D. ...

[Handwritten signature]



Per 15 June 1869 - 20.

Per 15 June 1869 - 20.

Per = 1869. *Depart*
Board of Revenue
MADRAS.

No. 3508.

PROCEEDINGS, 5TH OCTOBER 1869, No. 7,389.

Dispt 13th October 1869 Encl. 1

Received 14th 1869

OCTOBER.
No. 7,389.

RECORDED.

Forest felling in Coorg. — Opinion submitted to Government on certain points noticed in Mr. Bidie's report on effects of —, and reports from certain Collectors on results of their practical experience, forwarded.

14. 1869. Dispt 13th Oct 1869

216 June 1869