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REVISED

WORKING PLAN REPORT

FOR THE

BORI FORESTS

IN THE

HOSHANGABAD FOREST DIVISION

OF THE

NORTHERN CIRCLE, CENTRAL PROVINCES,

FOR THE PERIOD

1909-1919.

Nagpur

PRINTED AT THE GOVERNMENT PRESS.

1909.

MAJ. LIB. AGRICULTURAL DEPT.

CENTRAL PROVINCES ADMINISTRATION.

Forest Department.

Nagpur, the 29th October 1909.

READ—

Revised Working-Plan Report for the Bori forests in the Hoshangabad Division.

READ ALSO—

Letter No. 116—44-2-W.P., dated the 10th September 1909, from the Inspector-General of Forests and enclosures.

RESOLUTION.

The Chief Commissioner agrees with the opinion expressed in paragraph 2 of the Inspector-General's letter and directs, that unless the Conservator of Forests finds it absolutely necessary to sanction other arrangements, the marking should be carried out by a Provincial or Imperial Officer.

2. The Chief Commissioner sanctions the plan which will come into force with effect from the forest year 1909-10.

ORDER.—Ordered that a copy of this Resolution be forwarded to the Government of India in the Department of Revenue and Agriculture, for information and transmission to the Inspector-General of Forests and to the officers noted on the margin.

Chief Conservator of Forests, Central Provinces.
Conservator of Forests, Northern Circle.
Commissioner, Nerbudda Division.
Deputy Commissioner, Hoshangabad, and the Reporter on Economic Products to the Government of India.

A. E. NELSON,

Third Secretary to the Chief Commissioner,

Central Provinces.

9457
8915

NO. 1071
JAN 1902

CENTRAL PROVINCES ADMINISTRATION.

Forest Department.

Madras, the 28th October 1901.

READ—

Revised Working-Plan Report for the Forests in the Forests Division.

READ ALSO—

Letter No. 111—14-2-W.P., dated the 10th September 1901, from the Inspector-General of Forests and Game.

RESOLUTION.

The Chief Conservator of Forests is directed to cause the opinion expressed in paragraph 2 of the report to be taken into consideration, and to report thereon to the Government.

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Agric. dept.

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Agric. Dept.

The Chief Conservator of Forests is directed to cause the opinion expressed in paragraph 2 of the report to be taken into consideration, and to report thereon to the Government.

A. E. NELSON.

Chief Secretary to the Government.

Central Province.

Library of
California

No. 116—44-2-W. P., dated Dehra Dun, the 10th September 1909.

From—F. BRADON BRYANT, Esq., Inspector-General of Forests to the Government of India, 4

To—The Secretary to the Chief Commissioner, Central Provinces.

In accordance with Article 90 (i) of the Forest Department Code, I have the honour to transmit herewith a copy of the Revised Working-Plan for the Bori forests in the Hoshangabad Forest Division, Northern Circle, Central Provinces, received under cover of Chief Conservator of Forests' letter No. 617—H-138, dated the 23rd August 1909, a copy of which is appended.

2. The success of this plan depends entirely upon the manner in which the marking officer interprets the felling Rules as laid down in paragraph 36 of the plan. In this connection I would draw your attention particularly to paragraph 36 (6) of the plan and say that markings should, in my opinion, be carried out by a Provincial or Imperial Service Officer. The forest is one of the most valuable in the Central Provinces and every care should be given to it.

3. Subject to the above remarks the Plan meets with my approval and I beg to recommend it for sanction with effect from the Forest year 1909-10.

UNIV. OF
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Copy of a letter No. 617—H-138, dated the 23rd August 1909, from A. M. REUTHER, Esq., Chief Conservator of Forests, Central Provinces, Nagpur, to the Inspector-General of Forests to the Government of India.

With reference to your letter No. 62—26-4-W.P., dated the 10th July 1908, I have the honour to submit two copies in print of the revised Working-Plan of the Bori forest, in the Hoshangabad Division of the Northern Circle. The plan has been accepted by the Conservator of the Northern Circle, and I recommend it for sanction by the Local Government.

2. I annex for information the Conservator's letter No. 4680, dated the 21st August 1909.

Copy of a letter No. 4680 of 1909-10, dated the 21st August 1909, from A. F. GRADON, Esq., Conservator of Forests, Northern Circle, Central Provinces, to the Chief Conservator of Forests, Central Provinces.

In continuation of this office letter No. 679, dated the 24th April 1909, submitting the manuscript copy of the Revised Bori Working-Plan Report, Hoshangabad Division, to the Secretariat through you, I have the honour to submit, herewith, three printed copies of the same, one for your office and two for submission to the Inspector-General of Forests under Article 90 (i) of the Forest Code.

2. I beg also to enclose herewith an extract copy of Forest Department, Secretariat letter No. 810—XIV-7-8, dated the 12th August 1909, to my address, from which it will be seen that the necessary map will not be ready until the first week of September 1909.

An extract copy of letter No. 810—XIV-7-8, dated the 12th August 1909, from C. J. IRWIN, Esq., I. C. S., Under Secretary to the Chief Commissioner, Central Provinces, to the Conservator of Forests, Northern Circle, Central Provinces.

* * * * *

2. I am to add that the map which accompanied your letter is being lithographed, and that copies will not be ready till the first week of September 1909.

Copy of endorsement by the Deputy Commissioner, Hoshangabad, on letter No. C-437 of 1908-09, dated the 16th February 1909, from the Divisional Forest Officer, Hoshangabad, to the Conservator of Forests, Northern Circle, Central Provinces, submitting Preliminary Working Plan Report of the Bori Forest, forwarded through the Deputy Commissioner and Commissioner.

Hoshangabad, the 19th February 1909.

Forwarded. As I have only just taken over charge of the district and know neither the forest nor the neighbourhood I have no remarks to offer.

E. H. BLAKESLEY,
Deputy Commissioner,

Hoshangabad.

No. 799, dated Hoshangabad, the 13th March 1909.

Forwarded. I have not seen the forest, but I have read through this working plan and have no special comments to make. In one place it is said that there is to be no cutting of sound teak under 6' in girth, but I think this will be subject to some limitations, trees which are growing badly or checking the growth of more promising trees being rendered liable to removal, even though they may be sound. I am doubtful about the expediency of complete closure to grazing for 20 years. There is seemingly no demand at present, but it is hard to say what developments there may be in the course of 20 years, and I would make the closure provisional. Should any demand appear it might be considered whether there is no part of the forest where this might be allowed without danger to tree growth.

H. M. LAURIE,
Commissioner,
Nerbudda Division.

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Introduction to the Revised Bori Working Plan.

In revising the old Bori working plan I have been indebted chiefly to the assistance afforded me by the figures and stock maps collected during the period Mr. Caccia was Divisional Forest Officer of the Hoshangabad Division. The data thus placed at my disposal were accepted, my duties in the Division making it only possible to carry out a rough inspection of the forest for a few short periods. Information supplied in the old plan has also been made use of in writing the present revised plan.

The prescriptions of this plan are the outcome of correspondence on the subject which has taken place between the Inspector-General of Forests, the Chief Conservator of Forests, Central Provinces, the Conservator of Forests, Northern Circle, Central Provinces, and the Divisional Forest Officer of Hoshangabad. All the above mentioned officers have also inspected the forests.

A. A. DUNBAR-BRANDER,

Forest Divisional Officer,

Hoshangabad Division.

PART I.

Summary of facts on which the proposals are based.

CHAPTER I.—DESCRIPTION OF THE TRACT DEALT WITH.

ARTICLE 1.—*Name and situation.*

The forest dealt with is that known as the o'd Bori Reserve which is that portion of the Bori Range situated to the east of the Sonbhadra River in the Hoshangabad District. The previous working plan included the Dhain Block in the Bori Reserve : in the present plan this block has been excised.

ARTICLE 2.—*Configuration of the ground.*

2. The forest is situated in a deep valley about 10 miles long, at the bottom of which at an average elevation above sea level of about 1,450 feet runs the Bori River. This valley is enclosed on the north by a scarped ridge which is one of the main spurs of the great Pachmarhi Plateau and of which the highest point, Belkanda Deo, rises to 3,777 feet, and on the south by several minor ridges upto 1,900 feet above sea level, which are divided from one another by the gorges of the Kabra Nishanka and Patakhara Naddis, affluents of the Bori River.

The hills are often flat topped especially where trap occurs, and the slopes, which are frequently terraced, are unusually steep, sometimes even precipitous.

ARTICLE 3.—*Underlying rock and soil.*

3. The entire area is occupied by Gondwana rock with important masses of extruded and interbedded trap. The Upper Gondwanas are represented by the Pachmarhi Group which forms the scarped range bounding the forest on the north as well as several ridges and plateaux running down from the great Pachmarhi Block. This group consists of massive sandstones, greyish or brownish in colour, usually coarse grained and soft, often containing small sub-angular pebbles, and occasionally intersected by hard ferruginous bands, fragments of which are often seen scattered over the surface. In the more level southern portion of the forest Lower Gondwanas appear, being represented by the Motur and Bijori Groups. The Motur beds are composed of thick, coarse, soft, earthy, sandstone, grey or brown in colour, with bands of red and mottled clays and some nodular limestones. Sandy shales also occur. The Bijori rocks comprise felspathic sandstones, flaggy beds, and grey or brown, occasionally carbonaceous, sometimes earthy shales. The trap is found in isolated masses at the foot of the northern sandstone range, and there is a considerable extent of flat topped hills of this rock on both sides of the Bori River.

4. The soil which overlies the sandstones and shales is light and apt to be very dry, while that which is found on the trap is a stiff loam. But the soils derived from the one and the other class of rocks are intermixed in most parts of the area and the result is extremely favourable to forest growth. Speaking generally it may be said that the growth is best and teak in particular abundant, where trap is the chief rock, and that on the sandstone plateaux, where the strata are nearly horizontal and are close under the surface, the forest is thin and poor.

ARTICLE 4.—*Climate.*

5. In general terms the climate may be thus characterised:—During the cold weather (November—February) cool, often cold and even frosty (December—February) between sunset and sunrise, with a bright, warm, even hot sun in the day time, heavy dews common, prolonged into March, and occasional showers, especially in December, which in some years contribute considerably to the annual rainfall; during the hot weather (March—15th June) hot and dry; during the rainy season (15th June—September) warm, damp or steamy.

6. No meteorological observations have ever been taken within the forest itself. The nearest observatory is at Pachmarhi which is about 6 miles east of the eastern extremity of the forest: at this place the average rainfall is 77 inches and in the Bori forests it is probably much about the same. The result is that the forest is particularly moist for this part of India.

ARTICLE 5.—*Agricultural customs and wants of the population.*

7. No population or cultivation worthy of the name exists in or around the forest, nor are any cultivators dependent in any way in the forest which can therefore be worked purely from a forest point of view. The only population that exists is found in scattered forest villages and consists almost exclusively of Gonds and Korkus.

CHAPTER II.—COMPOSITION AND CONDITION OF THE FOREST.

ARTICLE 1.—*Distribution and area.*

8. The forest forms a single compact block having a total area of 26,960 acres exclusive of the Bori forest village which is 188 acres in extent.

ARTICLE 2.—*State of the boundaries.*

9. The lofty and almost impenetrable chain of hills which stretches along the north of the forest forms an effective and natural boundary on that side. On the west the Sonbhadra River forms a natural boundary equally distinct. On the south and east well demarcated lines of 30 to 40 feet in width are annually cleared and boundary pillars at suitable intervals are maintained.

ARTICLE 3.—*Legal position and rights.*

10. This forest was reserved under Section 34 of the Indian Forest Act, VII of 1878, and was notified as such in Chief Commissioner's notification No. 917-B, dated the 24th February 1879. There are no servitudes or rights of any kind.

ARTICLE 4.—*Composition and condition of the crop.*

11. The present condition of the crop is very much in the same state as when Article 14 of the old plan was written in 1897 with the exception, that in coupes 1 to 5 most of the large trees have disappeared owing to the fellings that took place. The stock map and figures given in the appendix show the distribution and girth classes of teak. Fully mature teak are in a minority: on the other hand there is a splendid crop of middle aged trees which give great promise for the future. Teak reproduces itself freely from seed and is the predominant tree of the forest in parts, especially along river banks, and in alluvial soil 90 per cent of the crop is teak. The only portion of the forest which practically contains no teak is in the extreme east and this area is probably unsuited to its growth: with this exception apparently all other parts of the forest are suitable, but at the same time the fact that some parts do not contain teak, would seem to show that there are unfavourable factors which we are not aware of. The larger blanks in low-lying grounds are easily accounted for by the long rank grass and the winter frosts. The reproduction from coppice, in point of size, is extraordinary; trees equal in size to seedling trees, *i. e.*, 6" in girth and 100 feet in height are thus produced. Aspect or possibly the soil formation seems to have an important effect on teak distribution, the southern slopes of the hills being almost invariably better stocked than the northern slopes. The following are the chief associates of teak, tinas saj, tendu, lendia, dhaora, bija and shisham. All these species and the others common to the Central Provinces mixed forests are found of exceptional size in this forest. Bamboos are unusually numerous and large. In the appendix is given a list of the common species found in the forest which has been taken from the old working plan.

ARTICLE 5.—*Injuries to which the crop is liable.*

12. Fires, climbers, frost, grass and storms are the principal injuries to which the crop is liable. Fires have been on the whole successfully dealt with by the fire protection system in vogue. Climbers are numerous, but can be cut out. Frost is a danger that is to be feared; the chief precaution against this, and also the danger from grass, lies in the exercise of care not to interrupt the leaf canopy too much in making fellings. Storms are frequent in spring and often blow down teak trees, which seem more easily overthrown than other species.

CHAPTER III.—SYSTEM OF MANAGEMENT.

ARTICLE I.—*Past and present management.*

13. The past history down to the year 1897 is given in paragraphs 20, 21, 22 and 23 of the old working plan, which are quoted below. It should be borne in mind, however, that this working plan only deals with old Bori.

Old Bori, or the portion east of the Sonabhadra, together with Dhain on the left bank, belonged originally to Thakur Bhabutsingh, from whom it was confiscated in 1859 or thereabouts, on account of his rebellion, and it was taken up by the Forest Department (only just then) organised in 1862. At that time there was a considerable local population of aboriginal tribes who practised "dahya" or "shifting cultivation," on such a large scale that three-fourths of the total area are said to have been under such cultivation. In "the dahyas" some of the larger trees were left standing after being completely lopped or pollarded; all the rest of the forest was ruthlessly cut down and fired. When the forest was taken over numbers of half burnt teak logs were lying on the ground. The best of these were collected in depôts and aggregated 110,000 cubic feet. Dahya cultivation was fortunately stopped in 1864, and with the exception of the villagers of Jholi and Harapala, which were kept up to supply labour for forest work, the population was induced to settle elsewhere; the forests were at the same time closed to grazing, except for the few head of cattle remaining in Jholi and Harapala, until these villages were deserted in 1871. The condition of the forests then was, it is hardly necessary to say, lamentable in the extreme; large areas were to be found almost bare, and the amount of young growth elsewhere was notably insufficient, while the larger trees were nearly all unsound. Destructive as dahya cultivation was, the miserable condition of the stock was partly due also to unrestricted fellings, for the supply of teak timber for the Nerbudda valley, from Bhankheri to Hoshangabad, came almost entirely from these and the adjacent forests, (New Bori) a certain quantity going as far as Bhopal, Indore, Mhow and Saugor.

In 1864 special measures for protecting the forests from fire were started. This is the first time such measures were adopted in any part of world. In the following year the forest was notified as a Reserve under the Forest Act, 1865.

In 1869 the forests were visited by the Inspector-General of Forests, and, as a result, Mr. Davidson, a Scotch Forester, was placed in resident charge (Head-quarters at Harapala) with orders to demarcate the boundary, divide the forest into blocks, make improvement fellings and plant and sow up blanks and abandoned dahyas. Mr. Davidson divided the portion north of the road from Jholi to Pachmarhi into seven, and the portion to the south into eight, compartments. No improvement fellings seem to have been attempted, but a small plantation of teak was made at Harapala.

In 1878 the portion to the west of the Sonbhadra up to the Kankri village boundary (New Bori) was added so as to include all the teak-producing tract there. The taking up of this area was recommended so far back as 1866 by Lieutenant (now Colonel) Doveton, then in charge of the Western Division.

In 1877 the Western Division (just mentioned) was broken up and Bori became a portion of the Hoshangabad Division, to which it has ever since belonged.

For all practical purposes there was no felling in these forests from the time they were taken over by the Department until 1889. From 1889 to 1894-95

mature teak and some tinas over 18 inches in girth were extracted from a definite area each year. The felling of teak was considered too heavy and removals have been made with a more sparing hand since.

In the year 1897 the working plan at present under revision came into force. The intention of the plan, however, was never carried out and instead of light thinnings and clearings being instituted, what amounted to heavy fellings were permitted. The result of this was that in 1902 after 5 coupes had been gone over the Conservator stopped all fellings and the working plan was held in abeyance. Since then no working has taken place.

ARTICLE 2.—*Special works of improvement undertaken.*

14. The whole of old Bori, *i. e.*, the area with which this Working Plan deals, was put under systematic fire-protection in 1865. At present the exterior boundary on the east and south is cleared and burnt annually. The Dhain-Bori-Rorighat Road is fired and so are several minor paths.

15. A track which is passable for lightly laden carts exists from Bori to Dhain. In 1908 a commencement was made on the export road from Bori to Bagra, which is the nearest station on the Great Indian Peninsula Railway.

16. Maps on the scale of 4 inches = 1 mile exist for the whole area. Stock maps and an enumeration survey of girth classes were carried out in 1904-05.

17. From time to time fellings and thinnings have taken place in the forest mostly with the object of improving the forest. These seem to have varied greatly, however, according to the individual opinion of the officer-in-charge, so that no continuity of working has taken place.

At various times climbers also were cut.

18. Two small areas, one on the low-lying land near the village site of Bori above the Bori River and the other an old "Dahya" on the top of a hill just above were planted up in 1869-71 with teak yearlings 6' x 6', the tap root being previously severed. The plantation on the hill top has been successful, but would be the better of an admixture of other species. The plantation on the low-lying ground is an entire failure due to grass and frost.

ARTICLE 3.—*Past revenue and expenditure.*

19. As already stated no working has taken place since 1902.

In the 5 preceding years coupes 1 to 5 were worked over. The resulting revenue and expenditure is given in the table below:—

Budget Sub-head.	Particulars.	Amount in rupees.				
		1897-98.	1898-99.	1899-1900.	1900-01.	1901-02.
R-I-a	Timber ...	...	...	...	916	193
R-I-c	Bamboos ...	...	61	...	...	...
R-II-a	Timber ...	4,539	7,471	3,927	4,513	8,839
R-II-c	Bamboos ...	80	182	97	144	119
R-II-d	Grazing and fodder grass ...	32	18	...	19	26
R-II-e	Other minor produce ...	50	36	35	49	35
R-V-b	Refunds ...	190	...	1	...	...
R-V-c	Other sources ...	5	10	20	11	17
	Total ...	4,896	7,778	4,080	5,652	9,229

The expenditure for five years of the Bori Range from 1897-98 to 1901-02.

Budget Sub-head.	Particulars.	Amount in Rupees.				
		1897-98	1898-99.	1899-1900.	1900-01.	1901-02.
	A.					
A-I-a	Timber ...	...	21	121	669	252
A-I-c	Bamboos ...	42	288	259	175	87
A-I-e	Grass and other minor produce.	...	...	1,503	...	12
A-II	Timber and other produce removed by purchasers.	626	313	62	153	150
A-VI-c	Purchase of stores, tools and plants.	8	...	...	...	...
A-VII-a	Roads and Bridges ...	90	55	...	84	78
A-VII-b	Buildings ...	169	29	28	713	30
A-VII-c	Other works ...	...	129	2	45	...
A-VIII-a	Demarcation ...	...	7	20	75	...
A-VIII-d	Working Plans ...	100	...	...	...	...
A-VIII-f	Protection from fire ...	902	806	672	782	744
A-VIII-g	Other works ...	...	10	60	106	...
A-IX-b	Other charges ...	...	2	694	22	...
	B.					
B-I-c	Subordinate forest and depot Establishment.	1,548	2,434	1,888	1,754	2,061
B-II-c	Do. do. ...	202	158	180	116	202
B-III-a	Stationery ...	...	1	...	...	1
B-III-b	Carriage of tents and records.	3	...	2	...	...
B-III-f	Sundries ...	88	23	117	119	6
	Total ...	3,778	4,276	5,608	4,823	3,623
	Surplus (+) or Deficit (—)...	+ 1,118	+ 3,502	—1,528	+ 829	+ 5,606

CHAPTER IV.—UTILIZATION OF THE PRODUCE.

ARTICLE 1.—*Marketable products.*

20. The chief marketable product is teak, all sizes of which can be readily sold, provided a good road for export is constructed to the Railway. Bamboos which attain a very fine size would also be exported if such a road existed.

ARTICLE 2.—*Lines of export.*

21. There is only one line of export, namely, by road through Khapa to the Great Indian Peninsula Railway Station at Bagra. This road is now under construction and a maximum gradient of 1 in 20 will enable timber of the largest dimensions to be exported.

The attempt to use the Sonbhadra for floating has been definitely abandoned and a thorough examination of the ghat between Dhain and Pinkapata shows that the scheme was never feasible.

ARTICLE 3.—*Markets.*

22. The important markets are Bhopal, Indore, Burhanpur, Bombay and Berar as well as small towns lying on the railway in the Hoshangabad District.

ARTICLE 4.—*Mode of extraction and its cost.*

23. The system generally in vogue in the district is to mark trees for felling and sell them standing to contractors by auction. It is doubtful, however, if this system is either possible or desirable in this highly valuable teak forest. In this case fellings will probably have to be departmental. It is estimated that Rs. 2 per acre will cover the cost of all operations including removal of climbers undesirable species and stool dressing. The sale of the material felled on the ground should recoupe the cost of this operation.

ARTICLE 5 .—Net value of each class of produce.

24. The following are the fixed rates of produce in the Bori Range: these rates, however, are purely artificial and as there is fairly keen competition amongst contractors to secure teak we may expect to get the true commercial value of the produce, which is considerably in excess of the fixed rates:—

Schedule of rates for the Hoshangabad Division, Bori Range.

	Description of produce.	Timber, Class I.	Timber, Class II.	Timber, Class III.	Remarks.
		Teak, Tinsa Shisham.	Bija, Anjan, Khair, Saj, Tendu, Ghiria and Haldu.	All other species.	
		Rs. a. p.	Rs. a. p.	Rs. a. p.	
Timber	Poles 12" at the thick end ...	0 1 0	0 0 6	0 0 3	
	Do. 15" do. ...	0 2 0	0 1 0	0 0 6	
	Do. 18" do. ...	0 3 0	0 2 0	0 1 0	
	Do. 21" do. ...	0 4 0	0 3 0	0 1 6	
	Do. 24" do. ...	0 6 0	0 4 0	0 2 0	
	Do. 27" do. ...	0 8 0	0 6 0	0 3 0	
	Do. 30" do. ...	0 12 0	0 8 0	0 4 0	
	Do. 33" do. ...	1 0 0	0 10 0	0 5 0	
	Do. 36" do. ...	1 4 0	0 12 0	0 6 0	
		Per cart load.			
Do.	Poles from 12" to 36" per cart load.	5 0 0	3 0 0	1 8 0	
	Pieces and stumps under 6' in length.	2 0 0	1 0 0	0 8 0	
		Per cubic feet.			
Do.	Rough squared timber 36" per cubic feet.	0 5 0	0 3 0	0 2 0	
		Per cart load.	Per animal load	Per head load.	Per hundred.
		Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Fuel	Firewood ...	0 3 0	0 1 0	0 0 3	...
	Charcoal ...	1 8 0	0 6 0	0 2 0	...
Bamboos	Bamboos per 100 ...	...	...	...	1 0 0
	Bamboo mats, baskets, &c... *	...	...	0 6 0*	...
Grass	Fodder and thatching grass.	0 4 0	0 1 0	0 3 0†	...
Minor forest produce.	Babair grass ...	1 4 0	0 6 0	0 1 6	...
	Chind and Mahul leaves ...	0 6 0	0 2 0	0 0 3	...
	Dhawra leaves ...	1 0 0	0 6 0	0 1 0	...
	Leaves of other kinds ...	0 8 0	0 3 0	0 0 6	...
	Barks, fibres, roots, &c ...	1 0 0	0 4 0	0 0 6	...
	Clay ...	0 4 0	0 1 0	0 0 3	1 0 0
	Moorum ...	...	...	...	0 1 0
	Kanker ...	0 1 0	...	...	0 5 0
	Stone for road metal ...	0 1 0	...	...	0 6 0
	Do. for building ...	0 2 0	...	...	0 10 0
	Do. for lime-making ...	0 2 0	...	...	0 10 0
		Special rates to agriculturists.	Standard rates.	Nomadic rates.	
		Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Grazing	Buffaloes ...	0 4 0	0 8 0	0 8 0	...
	Cows and oxen ...	0 1 0	0 5 0	0 5 0	...
	Ponies, horses, asses ...	0 5 0	0 5 0	0 5 0	...
	Goats ...	0 2 0	0 2 0	0 2 0	...
	Sheep ...	0 1 6	0 1 6	0 1 6	...
	Camels ...	1 0 0	1 0 0	1 0 0	...

*6 mats = 1 head load
12 baskets = 1 head load.
Jholi and Majhora
Rs. 0-8-0 per 100.
Maximum rates for
agriculturists are
Rs. 0-12-0 and
Rs. 0-4-0 per cent
for green and dry
bamboos res-
pectively.

† Maximum rates for
agriculturists are 1
pie per head load
and 3 annas per ton
of 27 maunds.

CHAPTER V.—MISCELLANEOUS FACTS.

ARTICLE I,—*The Forest Staff.*

25. There are no sub-ranges. The present staff of the Bori Range is as follows :—

1 Forest Ranger, 2 Range Assistants, 11 permanent and 3 temporary Forest Guards and 1 Range Muñarrir.

In accordance with the re-organization of the out-door establishment it has been suggested to increase this staff as follows :—

1 Forester on Rs. 20 per mensem

4 Forest Guards on Rs. 8 each per mensem.

Of the staff of the range besides the Range Officer the following staff will be almost continuously employed in the Bori Forest :—

1 Deputy Ranger or Forester and 4 Forest Guards.

ARTICLE 2.—*Labour-supply.*

26. Sufficient labour can be obtained from the neighbouring forest villages. The recently re-settled forest village of Bori should be encouraged as it is inconvenient to have no permanent supply of labour at hand in the centre of the forest. The working of the forest should make this possible in spite of the fact that the villagers can never expect much return from their crops.

PART II.

Future management discussed and prescribed.

CHAPTER I.—BASIS OF PROPOSALS.

ARTICLE I.—*Working circles how composed: reasons for their formation.*

27. The entire area, namely, old Bori is small and compact, constitutes a single charge, and has to meet the same demand for produce. Hence from all three points of view, silvicultural, administrative and economical, it should form only one working circle.

This working circle has been divided into two felling series—Jholi and Majhora.

ARTICLE 2.—*Compartments: Justification of the Sub-division adopted.*

28. The annual coupes and compartments remain the same as in the old working-plan. As coupes 1 to 5 had been worked over from 1895 to 1902 coupe 6 will now become coupe 1. There are 10 coupes in each block. Although some of the coupes contain little or no teak it is advisable to treat the whole area by improvement fellings with a view to subsequent application of the selection method.

ARTICLE 3.—*Analysis of the crop: method of valuation employed.*

29. In the appendix will be found the result of enumeration surveys carried out in 1904-05 by Mr. Dandekar, Forest Ranger, under the supervision of Mr. Caccia, Forest Divisional Officer, at the time. From these figures it will be seen that there are 5,300 sound teak trees of over 5 feet 6 inches in girth: probably about one-fourth of these or about 1,445 trees of 6 feet in girth will be cut during the next 10 years under the prescriptions of this working-plan. Of unsound teak there are 4,482, of which probably one-third will be cut giving a yield of 1,493 trees. In addition there are 1,478 dead teak: this number is constantly increasing. There will also be a certain yield from inferior species which, however, as a rule will not be marketable. In addition a considerable yield from bamboos may be expected.

CHAPTER II.—METHOD OF TREATMENT.

ARTICLE I.—*Objects sought to be attained and method of treatment.*

30. The objects sought to be attained are practically identical with those mentioned in the old working-plan the intention of which was excellent, but which only failed through not being observed. These objects can be summarised as follows. To prepare the forest for the introduction of a regular system of selection fellings under which teak of large size can be regularly put on the market. This object may, it is hoped, be attained by treating the forest to two periods of improvement fellings of 10 years each. Owing to the present irregular nature of

the crop, the number of climbers which require cutting, and the number of dead and dying trees, it is advisable to treat the forest to two short periods of improvement fellings of 10 years each rather than to one larger period of 20 years. The great majority of the promising teak trees are from $3\frac{1}{2}$ feet to $4\frac{1}{2}$ feet in girth, a large yield from selection fellings cannot therefore be expected for 40 years, but a considerable number of the larger trees will be mature in 20 years and a fair yield can then be expected. It is assumed that the exploitable girth limit will be taken at 6'.

ARTICLE 2.—*The exploitable age.*

31. This is a consideration which is at present not taken into account. Data should be collected and ring countings made to ascertain what is the true exploitable age. Full details as to what may be cut are given in the felling prescriptions.

CHAPTER III.—THE FELLINGS.

ARTICLE 1.—*The General Working Scheme.*

Calculation of the possibility.

32. The total area of the forest is 26,960 acres exclusive of 188 acres of the Bori forest village. For convenience of working the area has been divided into 2 felling series of 10 coupes each: thus the mean annual size of each coupe is 1,348 acres. The general working scheme is to go over the forest with improvement fellings which will include thinnings as well as the removal of over mature trees during 2 periods of 10 years each. The possibility is not defined except by the area of the annual coupe and the felling rules given in paragraph 36 below.

33. The sub-divisions of the coupes and the felling series have been retained as in the old working-plan, as for purposes of carrying out improvement fellings they are sufficient. These sub-divisions, however, could probably be altered when selection fellings are introduced. By that time also a fuller knowledge of the forest will have been obtained. The Dhain Block, 11,445 acres (new Bori), has been excluded entirely from the prescriptions of the working-plan although it was included in the old plan. This block lies to the west of the Sonbhadra River and with a few exceptions is similar in character to much of the Malni Block of the Bori Range to which properly speaking it belongs. The Sonbhadra River forms an excellent natural boundary.

ARTICLE 2.—*Period for which the fellings have been prescribed.*

34. The provisions of this plan extend to 10 years in which time the whole forest will have been treated to improvement felling. It will probably be thought advisable at the end of this period to subject the forest to another 10 years of the same treatment.

ARTICLE 3.—*Areas to be felled annually or periodically: order of allotment.*

35. The coupes have been retained as in the old working-plan with the exception that as coupes 1 to 5 were worked over coupe 6 now becomes coupe 1 and so on in sequence: paragraph 48 of the old plan gives the reasons for the order of allotment: it is quoted below:—

“The coupes will be annual. The first coupe in each felling series has been chosen on an export line and at its outlet, and the rest follow progressively away, but in such a manner that those with the smallest resources come last. This allotment of the coupes will also facilitate the economic construction of roads.”

Under a system of improvement fellings of so short a period it does not seem advisable to alter the above arrangement. But before selection fellings are introduced the order of allotment might possibly be changed owing to the introduction of that system, and in the light of more knowledge on the subject, which will have been obtained during the period covered by the improvement fellings.

ARTICLE 4.—*Nature and mode of executing the fellings: forecast of condition of crop at their conclusion.*

36. The improvement fellings will be made in the interest of teak; where no teak occurs the more important inferior species such as beja, shisham, tinsa, saj, tendu, lendia will be considered. Teak will be found at its best in such places where there is a fair admixture of these species.

The following felling prescriptions are given for guidance :—

- (1) Inferior material interfering with superior should be felled, girdled or lopped. By inferior material is meant inferior by reason of its species or its growth. This prescription must be intelligently applied and the operator must use his judgment when dealing with a well grown tree of inferior species suppressing a badly grown tree of superior species. In such a case it might well be preferable not to remove the dominant tree. The improvement of the forest as a whole must be looked to. In this connection it should also be borne in mind that it is of the utmost importance not to unduly interfere with the leaf canopy, but groups of poles which are interfering with each other may be thinned out.
- (2) No sound teak tree of less than 6 feet in girth may be cut. Sound teak trees of 6 feet in girth or over may be felled provided they are not required for silvicultural reasons, *i. e.*, seed or shelter.
- (3) Any dead tree of any species may be cut if marketable. Similarly any teak or other tree not capable of living to the end of the felling period may be cut. If any doubt exists regarding this prescription it is advisable to give the tree the benefit of the doubt.
- (4) All climbers should be cut. The effect of this operation should be carefully watched on the sides of the higher hills where no teak are found. It is probable that climbers in such places are important as a soil protection and this consideration may outweigh the danger of their spreading down to teak-bearing areas.
- (5) Bamboos interfering with teak may be cut. It will be found, however, that the teak can as a rule find its way through the bamboos from which species much danger need not be feared.
- (6) No one of less standing than a trained Ranger shall be permitted to

SLIP NO. 2.

Paragraph 36 (7), page 9.—Substitute the following :—

(7) Bamboos will be extracted from the areas north and south of the Dhain-Bori-Berghat road in alternate years. Coupe A, north of the road, to be worked in 1916-17.

fellings.

ARTICLE 5.—*Tabular statement of Fellings to be made.*

38. The following table shows the areas of the annual coupes and the years in which they shall be worked :—

Year of working.	No. of coupe.	Jholi Block, area of coupe.	Majhora Block, area of coupe.	Total area.
		Acres.	Acres.	Acres.
1909-10	1	2,118	1,087	3,205
1910-11	2	1,338	1,080	2,418
1911-12	3	1,631	1,116	2,747
1912-13	4	1,749	1,154	2,903
1913-14	5	1,394	1,328	2,722
1914-15	6	1,505	960	2,465
1915-16	7	1,685	1,110	2,795
1916-17	8	1,696	1,148	2,844
1917-18	9	1,469	1,045	2,514
1918-19	10	1,362	985	2,347
	Total	15,947	11,013	26,960

the crop, the number of climbers which require cutting, and the number of dead and dying trees, it is advisable to treat the forest to two short periods of improvement fellings of 10 years each rather than to one larger period of 20 years. The great majority of the promising teak trees are from $3\frac{1}{2}$ feet to $4\frac{1}{2}$ feet in girth, a large yield from selection fellings cannot therefore be expected for 40 years, but a considerable number of the larger trees will be mature in 20 years and a fair yield can then be expected. It is assumed that the exploitable girth limit will be taken at 6'.

ARTICLE 2.—*The exploitable age.*

31. This is a consideration which is at present not taken into account. Data should be collected and ring countings made to ascertain what is the true exploitable age. Full details as to what may be cut are given in the felling prescriptions.

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34
forest v
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same tr

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"The coupes will be annual. The first coupe in each felling series has been chosen on an export line and at its outlet, and the rest follow progressively away, but in such a manner that those with the smallest resources come last. This allotment of the coupes will also facilitate the economic construction of roads."

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ARTICLE 4.—*Nature and mode of executing the fellings: forecast of condition of crop at their conclusion.*

36. The improvement fellings will be made in the interest of teak; where no teak occurs the more important inferior species such as beja, shisham, tinsa, saj, tendu, lendia will be considered. Teak will be found at its best in such places where there is a fair admixture of these species.

The following felling prescriptions are given for guidance :—

- (1) Inferior material interfering with superior should be felled, girdled or lopped. By inferior material is meant inferior by reason of its species or its growth. This prescription must be intelligently applied and the operator must use his judgment when dealing with a well grown tree of inferior species suppressing a badly grown tree of superior species. In such a case it might well be preferable not to remove the dominant tree. The improvement of the forest as a whole must be looked to. In this connection it should also be borne in mind that it is of the utmost importance not to unduly interfere with the leaf canopy, but groups of poles which are interfering with each other may be thinned out.
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- (3) Any dead tree of any species may be cut if marketable. Similarly any teak or other tree not capable of living to the end of the felling period may be cut. If any doubt exists regarding this prescription it is advisable to give the tree the benefit of the doubt.
- (4) All climbers should be cut. The effect of this operation should be carefully watched on the sides of the higher hills where no teak are found. It is probable that climbers in such places are important as a soil protection and this consideration may outweigh the danger of their spreading down to teak-bearing areas.
- (5) Bamboos interfering with teak may be cut. It will be found, however, that the teak can as a rule find its way through the bamboos from which species much danger need not be feared.
- (6) No one of less standing than a trained Ranger shall be permitted to carry out markings and it is absolutely necessary that the Forest Divisional Officer himself shall exercise a strict supervision over the work.
- (7) Each felling series will be open to the cutting of bamboos in alternate years beginning with the Jholi Felling Series.

37. At the end of the 10 years the crop will possibly be sufficiently regular to admit of selection fellings, but the small number of large girth classes will probably make it advisable to treat the forest to another period of improvement fellings.

ARTICLE 5.—*Tabular statement of Fellings to be made.*

38. The following table shows the areas of the annual coupes and the years in which they shall be worked :—

Year of working.	No. of coupe.	Jholi Block, area of coupe.	Majhora Block, area of coupe.	Total area.
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1916-17	8	1,696	1,148	2,844
1917-18	9	1,469	1,045	2,514
1918-19	10	1,362	985	2,347
	Total	15,947	11,013	26,960

CHAPTER IV.—SUPPLEMENTARY REGULATIONS.

ARTICLE 1.—*Cleanings, thinnings or other improvement fellings.*

39. None are prescribed beyond those already given in the felling prescriptions.

ARTICLE 2.—*Regulation of grazing.*

40. Grazing will not be permitted except to cattle of forest villagers who live inside the forest.

ARTICLE 3.—*Works of artificial re-production.*

41. Self-sown seedlings are produced freely and, in places where teak are now found, natural re-production requires no aid from artificial methods. There are two areas, however, in which teak does not occur.

42. Firstly, low-lying grass lands in which grass and frost have hitherto effectually prevented both natural and artificial reproduction. It is not thought probable that any efforts to introduce teak into such areas, until some class of forest has established itself, are likely to produce any satisfactory results. Experiments might be tried, however, to introduce some inferior species under which if once established it might be possible to artificially introduce teak.

43. Secondly, there are certain areas on the higher hill tops, and on the slopes towards the east of the forest, in which teak are not found, without apparent reason. In such areas artificial reproduction of teak may be viewed more hopefully. In these areas there is often a dense forest of inferior species. Experiments on the following lines might be tried. A line in the forest 8 feet wide might be cleared and in the blank strip along the contour teak seed might be sown. Such lines should be about 15 yards apart to prevent undue interference with the leaf canopy.

ARTICLE 4.—*Improvements common to whole area.*

44. Protection from fire has hitherto been successful, and no great change need be made in the present arrangement. It may be advisable to protect certain of the cart roads when work is commenced.

45. The idea of water carriage along the Sonbhadra may be definitely abandoned and a good road should be constructed from Bori to Bagra instead. This road is now under construction, but it will take some years to complete. The construction of the Itarsi-Betul line now commenced may open up an alternative route from Mohawalaparo, a point on the road between Bagra and Bori. In this connection paragraph 59 of the old plan is quoted which applies even more to-day than the time at which it was written:—

“ From what has been said above in paragraph 33, it is evident that a more or less pucca road, with culverts to carry away the cross drainage, must be made, if the road is not to be more than an annual makeshift, as at present. Moreover, the approaches to the five or six of the largest streams would have to be carefully levelled and metalled over several chain lengths and provided with strong and resisting side drains to protect them from scouring. A pucca causeway would have to be built across the Sonbhadra and Denwa Rivers. At the crossing the latter river is nearly 300 feet wide, and an annually renewed wooden bridge supported on *crate piers* filled with boulders might prove cheaper than a pucca causeway. Thus the due improvement of the road would involve a capital outlay of not less than Rs. 20,000 with an annual expenditure of Rs. 1,000 on maintenance. At present it takes four days for a loaded cart to reach Sohagpur, and the cost of transport per cubic foot of timber is 4 annas; on the improved road, the number of days would be reduced to $2\frac{1}{2}$ and the cost of transport per cubic foot to perhaps $2\frac{1}{2}$ annas (certainly not less), supposing that the quantity of wood exported remains the same as at present.”

46. A number of feeder roads to the main road running to Bori will have to be made to the various coupes, and some of these at any rate should be maintained permanently. For the want of such roads and of bridle paths the forest is very difficult to inspect and thus requires to be opened up.

47. Two huts exist, one at Dhain just outside and another at Bori in the centre of the forest. These huts consist of one room and a verandah. They should be replaced by suitable rest-houses which would cost about Rs. 2,000 each. The huts could be converted either into Range Assistant's quarters or used by Range Officers as a rest-house. A rest-house is also required about 6 miles east of Bori as it is too far to inspect the forest properly in that direction with Bori as a centre. This would also cost about Rs. 2,000 and a well at Rs. 500 will also be required. A Range Assistant's quarters and three Forest Guards' huts will be required at Bori at a total cost of Rs. 1,000.

CHAPTER V.—MISCELLANEOUS.

ARTICLE 1.—*Minor forest produce.*

48. With the exception of bamboos, which have already been dealt with, the extraction of minor forest produce need not be considered. The staff will be fully occupied in treating the high forest. The resources of minor forest produce over large areas of other inferior forests are by no means fully developed.

49. In the next decade, during which period the forest will have been thoroughly opened up, the existing maps and table of girth classes should be thoroughly corrected and brought up to date.

ARTICLE 2.—*Changes proposed in the Staff.*

50. In a scheme already submitted for the re-organisation of the staff of the whole Division the probability of Bori being again worked was kept in view. No changes are therefore required.

ARTICLE 3.—*Financial results of the proposed working.*

51. Nothing but a guess can be made at the financial results, but it is estimated that the cost of working will be about Rs. 2 an acre or Rs. 2,706 annually, which should be recouped by the sale of the material cut. In addition about Rs. 2,000 may be expected from bamboos.

Increase of cost estimated is as follows :—

			Rs.
Buildings are estimated at	..	..	7,500
Roads are estimated at	...	...	20,000

It should be borne in mind, however, that the present expenditure on this splendid property will be amply repaid in future years and that the present working is for improvement of the forest and not for financial results.

52. The present revised working plan was written by the undersigned during the time he was the Divisional Forest Officer of the Division. There was, however, incurred an expenditure of Rs. 601-7-5 on its revision, being the pay and travelling allowance of a Ranger, Deputy Ranger and two Forest Guards as well as wages of some coolies engaged for some five months for the enumeration of trees carried out in 1904-05.

53. The following appendices are attached. This information was collected by Mr. Caccia during the period he was in charge of the Hoshangabad Division :—

- (1) List of chief species found in the forest.
- (2) Table of annual coupes and girth classes.
- (3) Area statement showing distribution of teak.
- (4) A brief description of compartments.
- (5) Concise summary of prescriptions.
- (6) Stock map.

A. A. DUNBAR-BRANDER,
Forest Divisional Officer,
Hoshangabad Division.

Appendix I.

The following is an alphabetical list of the chief species found in the forests of the Bori Range.

Vernacular Name.	Scientific Name.
Achar.	Puchanania latifolia.
Am.	Mangifera indica.
Amaltas.	Cassia Fistula.
Aonla.	Phyllanthus Emblica.
Bans.	Dendrocalamus strictus.
Ber.	Zizyphus Jujuba.
Bija.	Pterocarpus Marsupium.
Bhilawan.	Semecarpus Anacardium.
Chicholia	Albizzia Lebbek.
Dhamin.	Grewia tiliaefolia.
Dhaora.	Anogeissus latifolia.
Dhawai.	Woodfordia floribunda.
Dudhi.	Wrightia tinctoria.
Ghatbor.	Zizyphus xylopyra.
Ganior.	Cochlospermum Gossypium
Haldu.	Adina cordifolia.
Harra.	Terminalia Chebula.
Jamun.	Eugenia Jambolana.
Jamrasi.	Elæodendron Roxburghii.
Kahu.	Terminalia Arjuna.
Kaim.	Stephegyne parvifolia.
Kakai.	Flacourtia Ramontchi.
Karhai.	Sterculia urens.
Kari.	Saccopetolum tomentosum.
Kasai.	Briedelia retusa.
Khair.	Acacia Catechu.
Kumbhi.	Careya arborea.
Kusam.	Schleichera trijuga.
Lendia.	Lagerstramia parviflora.
Mahol.	Bauhinia Vahlia.
Marorphal.	Helicteres Isora.
Mohua.	Bassia latifolia.
Mokha.	Schrebera swietenoides.
Mohen.	Odina Wodier.
Padar or Pandar.	Stercospermum suaveolens.
Palas.	Butea frondosa.
Papra.	Gardenia turgida.
Phansi.	Dalbergia paniculata.
Rohen.	Soymida febrifuga.
Reunjha.	Acacia leucophloea.
Saj.	Terminalia tomentosa.
Salai.	Boswellia thurifera.
Sarai Sal.	Shorea robusta.
Semal.	Bombax malabaricum.
Siharu.	Nyctanthes Arbor-tristis.
Shisham.	Dalbergia latifolia.
Teak.	Tectona grandis.
Tendu.	Diospyros Melanoxylon.
Tinsa, tinas.	Ougeinia dalbergioides.

A. A. DUNBAR-BRANDER,

Forest Divisional Officer,

Hoshangabad Division.

Appendix II.

Statement giving results of enumeration survey of teak in the Jholi and Majhora Blocks, Bori Range.

Name of Block.	No. of coupe.	Number of trees measured and counted over 4'-6"						Dead.	Remarks.
		Sound teak.			Unsound teak.				
		4'-6" to 5'.	5' to 5'-6".	5'-6" and over.	4'-6" to 5'.	5' to 5'-6".	5'-6" and over.		
Jholi Block.	1	386	333	312	343	279	483	56	Large portion inaccessible and poor in teak.
	2	72	53	62	59	41	105	18	
	3	Mostly inaccessible and not surveyed.							
	4	340	266	308	148	137	245	154	
	5	649	519	499	322	232	306	299	
	6	88	55	72	52	60	69	16	
	7	116	72	95	51	50	85	44	
	8	724	534	687	291	270	456	279	
	9	495	448	529	315	291	461	96	
	10	307	258	379	161	155	219	66	
Total for Jholi		3,177	2,538	2,943	1,742	1,515	2,430	1,028	
Majhora Block.	1	254	251	330	236	239	306	90	
	2	328	335	453	241	246	358	102	
	3	127	109	173	187	93	163	40	
	4	...	...	...	..	...	...	...	
	5	188	157	248	135	132	212	62	
	6	112	65	102	45	38	121	...	
	7	167	107	211	32	37	130	...	
	8	322	281	377	204	205	347	73	
	9	302	293	339	233	247	304	61	
	10	95	93	124	76	67	111	22	
Total for Majhora		1,895	1,691	2,357	1,389	1,309	2,052	450	
GRAND TOTAL		5,072	4,229	5,300	3,131	2,824	4,482	1,478	

A. A. DUNBAR-BRANDER,

Forest Divisional Officer,

Hoshangabad Division.

Appendix III.

Statement showing areas under different types of forests in the Coupes of the Jholi and Majhora Blocks of the Bori Reserve.

Name of block.	Number of coupe.	Area under teak utmost pure.	Area under teak with bamboos or other species.	Other areas inaccessible or containing little or no teak; also blanks, &c. &c.	Total area of coupe.	Remarks.
Jholi.	1	130	510	1,478	2,118	Good, rather open.
	2	36	340	962	1,338	Large portion inaccessible or worthless.
	3	...	...	1,631	1,631	Inaccessible and not surveyed.
	4	170	330	1,249	1,749	Medium.
	5	155	880	359	1,394	Good.
	6	85	...	1,420	1,505	Worthless.
	7	45	75	1,565	1,685	Very few teak trees.
	8	245	1,451	...	1,696	Good, rather open.

Appendix III.

Jholi and Majhora coupes 10 and grand total. In the remarks column the following remark should be entered :—

“The separate areas in columns 3, 4, and 5 include Bori village area; in the totals that village area is excluded.

Majhora.	1	270	490	327	1,087	Very good.
	2	150	470	460	1,080	Do.
	3	..	280	836	1,116	Not very good.
	4	...	...	1,154	1,154	Inaccessible and not surveyed.
	5	430	858	40	1,328	Very good, but trees over 4½ rather few.
	6	145	235	580	960	Not good.
	7	40	250	820	1,110	Not very good.
	8	240	540	358	1,148	Good.
	9	160	620	265	1,045	Do.
	10	75	75	937	985	Worthless.
Total Majhora		...	1,510	3,818	5,787	11,013
GRAND TOTAL		...	2,731	8,084	16,333	26,960

A. A. DUNBAR-BRANDER,

Forest Divisional Officer,

Hoshangabad Division.

Appendix II.

Statement giving results of enumeration survey of teak in the Jholi and Majhora Blocks, Bori Range.

Name of Block.	No. of coupe.	Number of trees measured and counted over 4'-6"						Dead.	Remarks.
		Sound teak.			Unsound teak.				
		4'-6" to 5'.	5' to 5'-6".	5'-6" and over.	4'-6" to 5'.	5' to 5'-6".	5'-6" and over.		
Jholi Block.	1	386	333	312	343	279	483	56	Large portion inaccessible and poor in teak.
	2	72	53	62	59	41	105	18	
	3	Mostly inaccessible and not surveyed.							
	4	340	266	308	148	137	245	154	
	5	649	519	499	322	232	306	299	
	6	88	55	72	52	60	69	16	
Majhora Block.	1	254	251	330	236	239	306	90	
	2	328	335	453	241	246	358	102	
	3	127	109	173	187	98	163	40	
	4	...	...	...	...	...	...	...	
	5	188	157	248	135	132	212	62	
	6	112	65	102	45	38	121	...	
	7	167	107	211	32	37	130	...	
	8	322	281	377	204	205	347	73	
	9	302	293	339	233	247	304	61	
	10	95	93	124	76	67	111	22	
Total for Majhora		1,895	1,691	2,357	1,389	1,309	2,052	450	
GRAND TOTAL		5,072	4,229	5,300	3,131	2,824	4,482	1,478	

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Appendix III.

Statement showing areas under different types of forests in the Coupes of the Jholi and Majhora Blocks of the Bori Reserve.

Name of block.	Number of coupe.	Area under teak utmost pure.	Area under teak with bamboos or other species.	Other areas inaccessible or containing little or no teak; also blanks, &c. &c.	Total area of coupe.	Remarks.
Jholi.	1	130	510	1,478	2,118	Good, rather open.
	2	36	340	962	1,338	Large portion inaccessible or worthless.
	3	...	...	1,631	1,631	Inaccessible and not surveyed.
	4	170	330	1,249	1,749	Medium.
	5	155	880	359	1,394	Good.
	6	85	...	1,420	1,505	Worthless.
	7	45	75	1,565	1,685	Very few teak trees.
	8	245	1,451	...	1,696	Good, rather open.
	9	135	550	784	1,469	Do.
	10	220	130	1,098	1,362	Do.
Total Jholi ...		1,221	4,266	10,545	15,947	
Majhora.	1	270	490	327	1,087	Very good.
	2	150	470	460	1,080	Do.
	3	..	280	836	1,116	Not very good.
	4	...	...	1,154	1,154	Inaccessible and not surveyed.
	5	430	858	40	1,328	Very good, but trees over 4½ rather few.
	6	145	235	580	960	Not good.
	7	40	250	820	1,110	Not very good.
	8	240	540	358	1,148	Good.
	9	160	620	265	1,045	Do.
	10	75	75	937	985	Worthless.
Total Majhora ...		1,510	3,818	5,787	11,013	
GRAND TOTAL ...		2,731	8,084	16,333	26,960	

A. A. DUNBAR-BRANDER,

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Appendix IV.

Description of Compartments.

Name of block.	No. of compartment.	Area.	Convenient divisions of compartments for description.	Nature of soil, situation, etc.	Short description of each compartment giving composition, condition and density of the crop.	Remarks.
M a j - hora.	I	1087	<i>Short description of each compartment of Fholi and Majhora Blocks, Bori Reserve.</i>			
			(i) The D shaped area enclosed by the boundary line, the Nishanka Nala and another small nala.	More or less flat; soil rocky.	The whole of this area is a useless, stunted, open, mixed, forest of inferior species, the chief being Saj; the soil appears to be dry and shallow: at places rocky.	
			(ii) Remaining portion of the coupe.	Hilly: tops of hills flat with deep rich soil: slopes generally very steep with all aspects.	<p>All the steep slopes, without exception, are covered with bamboo and teak of all sizes: the proportion of teak in these places is good: the more or less flat southernly slope of the highest hill is covered with bamboo, a few teak and other inferior species, chief and important of which are Achar, Mahua, Tendu, Tinsa, Bel, Dhaman, &c.</p> <p>All flat tops of the hills: a large area is covered with pure young growth of teak generally of the lowest size, but the stocking is rather open compared with the previous coupes.</p> <p>The eastern flat portion of the area between the bend of the Cobra Nalla contains a big blank, fit for artificial stocking surrounded to a small width by a mixed forest.</p> <p>Tinsa is fairly abundant in this coupe with a good quantity of fairly sized trees: a few Tinsa measure over 4½' girth.</p> <p>A small blank with Ber trees shows the deserted Majhora village site.</p> <p>A large patch south-west of the Majhora Khara: contains very excellent teak, pure and mostly sound.</p> <p>On the whole the north half of this coupe may be taken as a more or less pure teak-bearing area: the soil is deep and moist: the sub-soil consists of boulders and is therefore well drained, a condition quite essential for the healthy growth of teak.</p>	A few dead teak below 4½' are noticed in this coupe.

Appendix IV.

Description of Compartments.—(Contd.)

Name of block.	No. of compartment.	Area.	Convenient divisions of compartments for description.	Nature of soil. situation, etc.	Short description of each compartment giving composition, condition and density of the crop.	Remarks.
<i>Short description of each compartment of Jholi and Majhora Blocks, Bori Reserve.—(Contd.)</i>						
Majhora. —(Contd.)	II	1080	(i) North-west flat topped hills about one-fourth of the whole coupe.	Gentle slopes and flat portions: soil good.	<p>A large number of mature teak trees can be taken out of this coupe, which is on the whole a first class teak forest.</p> <p>The whole of this portion of Coupe No. 7, which is more or less flat, is richly covered with teak, almost pure, although a small proportion of bamboos is found on the slopes.</p> <p>Many other inferior species are mixed with the teak, but their proportion is too small to be noted. Among these may be mentioned Tinsa (fairly abundant), Tendu Aonla, Saj, Dhaura, Amaltas, Achar, Mahua, Bel, etc.</p> <p>On the whole the forest is an excellent piece containing all classes mixed: the proportion of large sized sound trees is very large here: a few patches of young teak occur here also.</p>	<p>Stocking of the north-west portion is excellent.</p> <p>Elsewhere proportion of bamboos is rather large.</p> <p>Trees of upper class very numerous: lower classes well represented Tinsa fairly abundant.</p>
			(ii) The rest of the coupe.	West slope of the long ridge of the Lambi Tongi; slope very steep: soil good.	The rest of the coupe which are continuous, west-slope very steep and at places precipitous: the growth consists chiefly of teak and bamboo: the proportion of bamboos being very large, many good sized sound teak are scattered all over the area: the ground is thickly covered with <i>Strobilanthus</i> (flowering every fifth year) which will flower this year.	<p>Bamboos plentiful.</p> <p>Dead teak not much.</p>
			(iii) The lower flat portion between the foot of the hill and the Kabra nalla on both sides of the foot path to Buruth.	Flat, soil poor, shallow, rocky: rock coming to the surface at several places.	<p>Lower down on the flat portion along the bank of the Cobra nalla the growth is rather poor consisting chiefly of inferior species with a few teak not very promising. In this area large blanks are found on both sides of the foot path to Buruth, but the soil appears to be very shallow and rocky not fit for planting.</p> <p>As regards soundness and quantity of the upper sized stock this coupe stands first among the first seven.</p>	

Appendix IV.

Description of Compartments.—(Contd.)

Name of block.	No. of compartment.	Area.	Convenient divisions of compartments for description.	Nature of soil, situation, etc.	Short description of each compartment giving composition, condition and density of the crop.	Remarks.
Majhora. —(Contd.)	<i>Short description of each compartment of Jholi and Majhora Blocks, Bori Reserve.—(Contd.)</i>					
	III	1,116	(i) A narrow northern steep running east and west south of the river.	Steep slope: northern aspect: soil not very good.	Only a very small part of this coupe is accessible for the extraction of timber, viz., a narrow steep to the north of the Mandies and running east and west south of the Bori. The north-eastern portion contains a fair proportion of teak, but along the river bank the forest contains a very large proportion of other inferior species. Teak is found only mixed and never quite pure.	
			(ii) The eastern portion adjoining coupe No. 4, Majhora.	Slope eastern, steep-soil not very good.	The growth here consists chiefly of bamboos with a few teak and other species of inferior kind: the growth is rather open with many small blanks.	
			(iii) Area adjoining coupe No. 5.	Soil rather good: slope not very steep.	The growth of this portion is almost the same as that in Coupe No. 5, Majhora, consisting chiefly of teak pure, but of rather small size or mixed with bamboos: the soil here seems to be more favourable to teak. The rest of the coupe is inaccessible.	
	IV	1,154	...	...	Whole of the coupe is mostly inaccessible and is not therefore surveyed.	
	V	1,328	(i) Narrow steep north-south along the Lambi Tong ridge.	Slope steep; soil rich; suited for teak.	The whole of this steep which is in fact the continuation of Coupe No. 2 contains good growth of teak with a few bamboos. Teak is very good and big sized.	
			(ii) All the rest of the coupe except the big blanks near the old Khara.	Soil good; slopes; all aspect steep.	The whole of the area contains very excellent proportion of teak mixed here and there with a small proportion of bamboos except the big blanks near the two Kharas; but the proportion of the upper classes is rather small when compared with the total quantity of that species.	
					Most of the coupe although full of teak is very difficult to work: under the present condition therefore it will not be profitable to include this coupe, as the proportion of upper size class trees is small and the extraction of the produce almost impossible	

Appendix IV.

Description of Compartments.—(Contd.)

Name of block.	No. of compartment.	Area.	Convenient divisions of compartments for description.	Nature of soil, situation, etc.	Short description of each compartment giving composition, condition and density of the crop.	Remarks.
Majhora.—(Contd.)	V.—(Contd.)	<i>Short description of each compartment of Jholi and Majhora Blocks, Bori Reserve.—(Contd.)</i>				
					<p>under the existing circumstances and means of extractions. A small patch consisting of inferior species occurs towards the Phansikto Nala.</p> <p>Big blanks occur on this area, specially near the two deserted villages of Charni and Dhanmali Kharas.</p> <p>On the whole, the whole of the coupe may be taken as a teak-bearing area with teak almost pure though of small size.</p>	
		VI 960	<p>(i) The western one-fourth of the coupe between Sonbhadra, the Bori, Lama Nala and the foot of the hills.</p> <p>(ii) The eastern three-fourths of the coupe, between foot path, the Bori River, foot of hills and Nishanka Nala.</p>	<p>Flat: soil, rich.</p> <p>Hilly: soil fairly suited for teak growth.</p>	<p>Mostly mixed forest of inferior species with a few teak thinly scattered especially along the bank of Bori. Two small patches of young teak are found — one in the middle of the area at the foot of the hills, the other near the Lama Khera site. Bamboos very fine: Saj, Dhaura, Tendu, Ghot, Ber, Dhawra, Lendia and Koha are the chief species.</p> <p>Tinsa is totally absent.</p> <p>Except the lower portion of the south slope and the flat tops of the hills, consisting more or less of pure teak, the whole of the area is a mixed bamboo and teak forest; lower down towards the north along the bank of the Bori where the ground is flat, the forest takes the character of mixed inferior species forest.</p> <p>The lower portion of the southern slope, as said, contains pure teak, in which all size classes have been well represented. The flat tops of the hills have been covered with young teak mostly of the lowest below 1½' class showing that they have been very recently stocked. A large portion of the upper size trees is unsound, the angle of the Nishanka Nalla and the nalla forming the coupe.</p>	<p><i>Tinsa</i> entirely absent except in a very small patch not worth mentioning. <i>Bamboos</i> plentiful: teak is practically found mixed only with bamboos. It is almost pure on the flat tops of hills and in narrow steep on the lowest portion of the southern slope along eastern portion. Dead teak trees are not numerous.</p>

Appendix IV.

Description of Compartments.—(Contd.)

Name of block.	No. of compartment.	Area.	Convenient divisions of compartments for description.	Nature of soil, situation, etc.	Short description of each compartment giving composition, condition and density of the crop.	Remarks.
Majhora.— (Contd.)	Short description of each compartment of Jholi and Majhora Blocks, Bori Reserve.—(Contd.)					
	VI.— (Contd.)				Boundary of Nos. 2 and 3 is a blank fit for planting area below the foot of the hills: on the west is very open and for planting also the deserted village site of Lama-Khera may be artificially restocked.	
	VII	1,110	(i) Area western, between the Sonbhadra, Lama Nala, boundary line and the foot of the hills.	Flat; soil rich; at places rocky.	Similar to the corresponding area of coupe No. 6: this area is entirely a mixed forest of inferior species, the chief of which are Saj, Ber, Ghater, Dhawa, Tendu, a few Achar, Lendia, etc.	Tinsa not much or is almost absent. Bamboos plentiful. Teak mixed practically with bamboos only, except on flat tops of hills where it is pure.
			(ii) The remainder of the coupe, viz., area between boundary line, foot path and the small nalla forming the coupe boundary between Nos. 7 and 8.	Hilly: soil suits teak: flat top of hills with very good soil.	Bamboo is only found towards the boundary line. Teak is entirely absent; in short this is a worthless portion of Coupe No. 7. No blanks fit for planting exist in this area.	
	VIII	1,148	(i) All the western portion enclosed by: on the north foot path; on the east Pathakhara Nala; on the south boundary line and on the west small nala between Coupes 7 & 8.	Hilly: soil suited to teak: similar in all respects to area (ii) of Coupe No. 7, of which this is a natural continuation.	Similar to coupe No. 6: all the flat tops are covered with excellent young teak mostly below 1½': the western and the northern slopes of the hills consist of teak and bamboos with teak of all size classes: the proportion of teak on the slopes decreases as we go down. The southern slope facing the boundary line is also covered with teak and bamboo, and ends down towards the boundary line in mixed inferior species forest with a very few Tinsa. This coupe resembles in most respects Coupe No. 6, but the growth of teak in this is rather superior to that in Coupe No. 6.	Dead teak not much.
					This area is only a continuation (natural) of and is indented to area (ii) of Coupe No. 7. The growth and forests are the same as those of area (ii), Coupe No. VII, viz., all slopes are clad with bamboos and teak: the proportion of teak is somewhat greater: all size classes of teak are fairly well represented. Many good sized teak are present. On the eastern slope facing the Pathakhara Nala and a few chains from it the forest takes the	

Appendix IV.

Description of Compartments.—(Contd.)

Name of block.	No. of compartment.	Area.	Convenient divisions of compartments for description.	Nature of soil, situation, etc.	Short description of each compartment giving composition, condition and density of the crop.	Remarks.
Majhora.— (Contd.)	VIII.— (Contd.)	<i>Short description of each compartment of Jholi and Majhora Blocks, Bori Reserve.—(Contd.)</i>				
					nature of a mixed forest with inferior species in which Tinsa is fairly evenly scattered here and there: a similar strip of mixed forest is found towards the boundary line: all the tops and flat ridges of the hills are excellently well covered with healthy growth of teak, and although many good sized trees are found scattered all over these tops, the predominating size class of these successful natural plantations is below 1½'.	
	IX	1,045	(ii) Portion of Coupe No. 8, between Nishanka and Pathakhara Nalas.	Hilly: soil suited to teak growth.	The steep slopes facing the Pathakhara Nala are practically covered with bamboo only. Higher up on the flat tops the forest exist of bamboo and teak with a fair proportion of teak. Tinsa is found scattered here also: further eastwards the proportion of teak falls and that of bamboos rises on the gentler slopes facing the Nishanka Nalla: the forest is a mixed forest of inferior species with a few teak and bamboos towards the north: but towards the south, viz., the boundary line, this mixed forest of inferior species becomes very open and stunted.	
			(i) Area between the Pathakhara and Nishanka Nala.	Hilly: soil good.	The whole of this area is practically a mixed bamboo and teak forest, the proportion of teak being very small, except on the top of one hill. Teak is found almost pure. The long ridge separating the two big nalas consist of bamboo and teak very open and ending in the north in a large blank fit for planting. Along the banks of the nalas the forest is a mixed forest of inferior species in which Tinsa is scattered here and there as it is elsewhere in this coupe.	Dead teak below 4½' not numerous. Tinsa—fair. Teak—very good. Bamboo—plentiful.
			(ii) The remaining portion of the coupe north of the Nishanka.	Hilly with very steep slopes: soil suited to Sagwan.	From the foot of the hill to the top of it good proportion of teak with bamboo: on very steep slopes bamboo increases in proportion: almost all the flat tops of the hills, as elsewhere, are covered with teak as also are both sides of foot path; teak, pure, is found in a narrow strip from Nishanka Nala to Majhora.	Size—all size classes well represented.

Appendix IV.

Description of Compartments.—(Contd.)

Name of block.	No. of compartment.	Area.	Convenient divisions of compartments for description.	Nature of soil, situation, etc.	Short description of each compartment giving composition, condition and density of the crop.	Remarks.
<i>Short description of each compartment of Jholi and Majhora Blocks, Bori Reserve.—(Contd.)</i>						
Majhora.— (Concluded.)	IX.— (Concluded.)				In the deep valley of the small nala and the more or less flat banks of both Nishanka Nala and the Bori River the forest consist of mixed inferior species of which Dhawara, Saj, Lendia, Koha, Tinsa, Tendu, a few Achar, Mauha, &c., are the chief species. Tinsa is fairly well scattered throughout the coupe, but the number of large sized trees of this species is rather small. Teak—all the age classes are fairly well represented.	
	X	985	(i) The north-western hill on the bank of the Bori.	Flat top, steep towards the river, gentle on other sides: soil rich on tops, elsewhere shallow and poor.	The whole of this small hill is well stocked with teak, Tinsa and bamboos except on the steep western slope which is very dry and consists of open bamboo forests.	Quantity of teak very small.
			(ii) The western slope of the central ridge facing the Bori River.		The flat portion of the top of this hill contains a little teak mixed with bamboos, the proportion of teak being rather small lower down on the upper steep slope. Bamboo is the chief species on the gentler slopes: teak is again found mixed with bamboos: a few small patches of pure teak are found here, but their total area is very small: further towards the bank of the river teak is found mixed with other inferior species, but the proportion of teak is very small. The bank of the Bori is practically covered with mixed species of inferior kind with a few Tinsa scattered.	Size all age classes well represented: existing stock is mostly sound. Bamboos plentiful.
			(iii) The north flat portion below the hill and in the bend of the Bori (Gothania).	Soil rich: at places rocky.	This is a large blank of grass without a single tree bounded towards the river and the hill by mixed inferior forests. This blank contains two teak-sowing sample plots. The sowing is a failure.	
			(iv) The eastern slope facing the Kobra Nala.	Sloping: soil medium quality: aspect east.	The whole of this is a uniform slope and consists mostly of inferior forest with bamboos (and a little teak which is scarcely worth noting): except towards the south near the block line between 10 and 1 where a large patch of teak and bamboo occurs with a large proportion of teak.	

Appendix IV.

Description of Compartments.—(Contd.)

Name of block.	No. of compartment.	Area.	Convenient divisions of compartments for description.	Nature of soil, situation, etc.	Short description of each compartment giving composition, condition and density of the crop.	Remarks.
Majhora.— (Con- cld.)	X.— (Con- cld.)	<i>Short description of each compartment of Jholi and Majhora Blocks, Bori Reserve.—(Contd.)</i>				
		I 2,118	(i) All the flat portion below the foot of the hill and north of the Bori River.	Flat: soil shallow not suited to teak;	On the whole this is a very poor coupe as far as quantity of teak growth is concerned. All age classes are found and the little teak it contains is a very good quality: a few tinsa is found scattered all over the area.	
			(ii) The south slope.	Steep rather dry, but not unsuited to teak growth.	This slope being steep has slipped at any places: contains bamboos with a few teak and other mixed species.	
			(iii) The top and the flat north slope.	Soil rich: slope not very steep: suited to teak.	The whole of the top and the flat slope especially towards the north-east are well covered with teak and bamboo with a good proportion of teak which is at places almost pure.	
		II 1,338	(i) The southwestern corner of the flat topped main hill of this coupe.	Soil rather dry: flat with precipitous slope.	The whole of this corner is stocked with teak mostly pure though very thin and open.	
			(ii) The western and southern slopes of this hill along the Paratha Nala and Moti Nala from the water and all southwards.	Slope steep: aspect west and south: soil suited to teak.	Both these slopes although steep are covered with good growth of forest consisting of teak and bamboo mixed with a good proportion at a few places of teak: the lowest strip of these slopes along the nalas contains mixed inferior species.	
			(iii) All the remainder of the coupe.	Precipitous, steep and flat top: soil dry and open.	The whole of the remainder is unworkable on account of its inaccessibility and worst nature of growth.	
		III 1,631			The whole of the coupe is mostly inaccessible and is therefore not surveyed.	
Jholi.						

Appendix IV.

Description of Compartments.—(Contd.)

Name of block.	No. of compartment.	Area.	Convenient divisions of compartments for description.	Nature of soil, situation, etc.	Short description of each compartment giving composition, condition and density of the crop. ¹	Remarks.
Jholi.— (Contd.)	IV	1,749	<i>Short description of each compartment of Jholi and Majhora Blocks, Bori Reserve.—(Contd.)</i>			
			(i) The long narrow strip running east from Sonbhadra to the Bori below the foot of the hill and north of the Bori.	Mostly flat or with a gentle slope: soil shallow: towards the west good, and rich: in the middle, and contains dry boulders to the east.	The eastern portion wide, flat, consist of stunted growth of Saj and that too very little: the whole portion about a mile from the Sonbhadra is practically a blank with very shallow soil resting on a rock which comes to the surface at many places. Further east the vegetation consists of a mixture of inferior species with, at places, a fair proportion of teak mostly of small size.	Tinsa mostly absent. Most of the coupe workable.
			(ii) Southern slope of the long hill of Bamdeo. A long narrow strip running east and west.	Very steep below: precipitous above: soil very dry consists of big boulders not fit for teak: very dry south aspect.	Along the bank of the Bori the proportion of teak is good at places. Most of the upper class trees (which are very fine) are quite unsound and are those rejected by the contractors. Proceeding further west teak almost disappears and bamboo at places takes the place of teak. The whole strip may practically be taken as a forest of inferior species, from the west beginning with a blank followed for a short length by a few teak of lower classes ending to the east with a small proportion of bamboos in place of teak.	Stocking of the whole coupe is very poor except the lower flat long narrow strip. Proportion of teak very small, all classes represented.
			(iii) All the rest of the coupe, the north-east portion, north of the ridge and west to the Bori between the Bori Block and the cart track to Bori.	Slope from gentle to very steep: soil good: when flat dry: bamboos on steep slope.	Mixture of teak and bamboos varying from poor teak to pure bamboos, on flat portions teak is found pure and in small patches on gentle slopes there is mixture of teak and bamboo, and on the steep slopes, where the soil is very dry and consist of big boulders, nothing but poor or open growth of bamboos is found. On the whole the area under teak is very small and the growth of teak is not	Bamboo plentiful. Bamboos plentiful but not of good quality: forest very open.

Appendix IV.

Description of Compartments.—(Contd.)

Name of block.	No. of compartment.	Area.	Convenient divisions of compartments for description.	Nature of soil, situation, etc.	Short description of each compartment giving composition, condition and density of the crop.	Remarks.
Jholi.— (Con- td.)	<i>Short description of each compartment of Jholi and Majhora Blocks, Bori Reserve.—(Contd.)</i>					
	IV.— (Con- cld.)					
	V	1,394	(i) The south-west flat portion in the beat of the Sonbhadra near Phob village and the west slope of the hill.	Flat: soil shallow resting on solid rock which comes to the surface.	very good. Age of the existing stock is mixed, but the upper class sound trees are rather few: many dead teak but not worth removing are found above this area.	
			(ii) The rest of the coupe.	Flat tops of hills and from gentle to very steep slopes: soil on flat tops rich and suited to teak: the steeper the slopes the drier the soil, consisting of boulders.	The whole of the flat portion between the Sonbhadra and the foot of the hills is an unproductive blank containing a few stunted saj scattered very thinly here and there: east of this on the gentle lower slope of the hill the forests consist of mixture of inferior species extending as far up as the top of the hill where a few bamboos also appear in the mixture. The growth varies from pure teak on flat tops and gentle slopes to pure bamboo on very steep slopes where the soil is very dry and practically of boulders and between these two extremes every shade of mixture is found on the steep slope of the deep valley and at a few other places teak is found mixed with inferior species: the proportion of teak is on the whole large: all age classes are well represented: the density of the forest is not great, but on the whole this coupe is worth being worked: most of the area is valuable except the very steep slopes which scarcely contain any teak. Among the inferior species Tinsa is also found in many places though its proportion is very small. Very good pure teak patches are found in this coupe: there are many "Dhusar" tracks all over the area.	
	VI	1,505	...	...	The whole of the coupe, except a small patch of teak near Kajah Doh, consist of inferior forest of mixed species with bamboos and a few teak mostly unsound scattered here and there: the proportion of teak is too small to be taken notice of. It is therefore advisable to have this coupe off the present selection working: a few large blanks occur near the Jolikhara.	

Appendix IV.

Description of Compartments.—(Contd.)

Name of block.	No. of compartment.	Area.	Convenient divisions of compartments for description.	Nature of soil, situation, etc.	Short description of each compartment giving composition, condition and density of the crop.	Remarks.
Jholi.— (Contd.)	<i>Short description of each compartment of Jholi and Majhora Blocks, Bori Reserve.—(Contd.)</i>					
	VII	1,685	(i) Steep north slope along the road.	Soil shallow, rather dry: slope steep not very much suited to teak.	The whole of this slope contains teak and bamboo mixed, but lower down a few other species appear in place of bamboo: the soil on the slope is shallow and dry and not suited to the pure growth of teak.	
			(ii) A small patch north-west of Mahalmati.	Soil good: flat top.	The whole of this patch which is a flat top of a hill consists of teak with bamboos and other species mixed, but proportion of teak is so large that the whole may be considered as a poor teak patch.	
			(iii) The rest of the coupe.	Soil dry and shallow: rock solid: slopes not very steep.	The rest of the coupe is a worthless area consisting of mixed inferior species with little or no teak.	
	VIII	1,696	The whole coupe.	Slopes not very steep: all aspects fairly accessible: soil good, but rather dry for teak.	The whole of this coupe is more or less uniform in growth and consists chiefly of bamboo and teak mixed with a fair proportion of other species: the slopes are generally dry, flat, low-lying places are generally blanks with a few stunted saj; upper flat tops of hills or higher flat elevations are generally well covered with teak almost pure; all the age classes are generally well represented except perhaps the lowest, viz., the seedling class. This is one of the best coupes of the Jholi Block as will be seen from the number of trees above 4½ feet in the separate statement attached. Most of the coupe is fairly accessible and is situated along the Dhain-Bori Road.	
	IX	1,469	(i) The whole of the coupe except the inaccessible north portion.	Hilly, steep and gentler slopes all aspect: soil at places good: elsewhere rather dry.	The whole of this coupe is a mixed teak and bamboo forest and is almost the same as coupe No. 8: Jholi felling series: the proportion of teak is fair at places with two three patches of excellent pure teak.	

Appendix IV.

Description of Compartments.—(Concl'd.)

Name of block.	No. of compartment.	Area.	Convenient divisions of compartments for description.	Nature of soil, situation, etc.	Short description of each compartment giving composition, condition and density of the crop.	Remarks.
<i>Short description of each compartment of Jholi and Majnora Blocks, Bori Reserve.—(Concl'd.)</i>						
Jholi.— (Concl'd.)	IX.— (Concl'd.)				Area below the Molulmattu is more or less flat and is an open blank with a few stunted bamboo clumps. The growth along the nallas' bank is of mixed inferior species and steep slopes which are generally rather dry contain bamboo with teak, bamboos predominating and at places quite pure. On the whole the area although not much under pure teak contains a good deal of that species and the coupe on the whole is one of the best of Jholi felling series.	
			(ii) The north portion.	Hilly: dry south slope.	Towards the north the vegetation is purely of a mixed inferior kind with blanks which are not likely to be well stocked with any good growth on account of the shallowness of the soil resting directly on solid rock.	
	X	1,362	(i) All portion south and south-east and below the foot of the hill, i. e., the flat portion.	Flat: soil shallow resting on solid rock very poor.	This flat portion south-east of the foot of the hills and north of Bori consists of very poor dry shallow soil resting on a solid rock which at several places comes to the surface: the whole of the area is a perfect blank with, at places, very few stunted Saj trees scattered here and there: in short this is worthless area such as will in the near future be stocked with teak or even any other species except stunted Saj and stunted bamboos perhaps.	
			(ii) The central portion of the coupe.	Flat top of slope of the hill: aspect steep: soil on the flat excellent: on the slope rather dry.	This central portion which consists of a flat top of a hill and its slopes is an excellent piece of forest: the flat top is beautifully covered with very good teak and bamboos mixed with a fair proportion of teak: northwards teak diminishes and inferior species take its place. The whole of this area is a steep slope of the north ridge and contains mostly of inferior species with no teak.	
			(iii) North portion.	Mostly inaccessible: slope southerly: soil rocky.	There is a teak plantation along the Bori line between coupe 10 and 9 description of which is given in the working-plan. The plantation is a total failure.	

Appendix V.

Concise summary (by working circles) of prescriptions with paragraphs and pages :—

	Paragraphs.
(1) There is only one working circle, which has been divided into two felling series, <i>i. e.</i> , Jholi and Majhora.	27
(2) Each felling series has 10 coupes	28
(3) For the present the forest is to be worked under improvement fellings which will include thinnings as well as the removal of over-mature trees the object of these fellings being to prepare the forest for the introduction of a regular system of selection fellings.	30 & 32
(4) The provisions of this plan extend to 10 years, after which period it will probably be thought advisable to subject the forest to another 10 years of the present treatment though the crop may then possibly be sufficiently regular to admit of selection fellings.	34 to 37
(5) (i) Inferior material interfering with superior is to be felled, girdled or lopped.	36
(ii) Sound teak trees of 6 feet in girth or over may be felled provided they are not required for silvicultural reasons.	„
(iii) Any dead tree of any species, if marketable, and any teak or other tree not capable of living to the end of the felling period is to be cut.	„
(iv) All climbers are to be cut	„
(v) Bamboos interfering with teak are to be cut	„
(vi) Each felling series will be open to the cutting of bamboos in alternate years.	„
(6) Grazing is not permitted except to cattle of forest villagers who live inside the forest.	40
(7) Existing fire protection arrangements to be continued	44
(8) The Bori-Bagra Road, a portion of which is now under construction, is to be constructed and completed and feeder roads are also to be made and maintained permanently.	45 & 46
(9) Three rest houses at about Rs. 2,000 each, one well at Rs. 500, one Range Assistant's quarters and three Forest Guards huts at a total cost of Rs. 1,000 are to be constructed.	47

Appendix A

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increased

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the Bori forests in the
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