

REVIEW  
IN  
BRITISH INDIA

FOR THE YEAR

1897-98.

BY

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## CHAPTER I.

### EXTENSION AND ALTERATION OF THE FOREST AREA.

#### I.—ALTERATION IN AREA.

The alterations in area of Reserved forests during the year are shown in the following table:—

PROVINCE.	AREA OF RESERVED FORESTS, IN SQUARE MILES.				REMARKS.
	In 1896-97.	Added in 1897-98.	Excluded in 1897-98.	At close of 1897-98.	
Bengal . . . . .	5,876	4	(a)	5,880	(a) 160 acres.
North-Western Provinces and Oadh.	3,822	41	12	(b) 3,851	(b) Includes 153 square miles of <i>leased</i> forests.
Punjab . . . . .	1,681	607	5	(c) 2,283	(c) Includes 419½ square miles of <i>leased</i> forests.
Burma (Lower) . . . . .	7,250	157	34	(d) 7,373	(d) Includes 619 square miles of <i>taungya</i> areas.
Burma (Upper) . . . . .	6,808	624	117	(e) 7,333	(e) Includes 230 square miles of <i>taungya</i> areas.
Central Provinces . . . . .	19,258	127	179	19,206	
Assam . . . . .	3,681	1	92	3,590	
Coorg . . . . .	238	...	...	238	
Ajmer . . . . .	189	...	...	189	
Baluchistan . . . . .	170	...	...	170	
Andamans . . . . .	85	35	...	120	
<b>TOTAL</b> . . . . .	<b>49,008</b>	<b>1,614</b>	<b>439</b>	<b>50,183</b>	
Berar . . . . .	4,179	57	61	4,175	
Total Bengal Presidency	53,187	1,671	500	54,358	
Madras . . . . .	13,138	681	44	13,775	
Bombay . . . . .	(f) 12,986	420	125	(f) 13,281	(f) Includes the area of the <i>leased</i> forests in the Dangs, estimated at 679 square miles.
<b>GRAND TOTAL</b> . . . . .	<b>79,311</b>	<b>2,772</b>	<b>669</b>	<b>81,414</b>	

The area of new Reserves added during the year amounted to 2,772 square miles, while areas disforested or rectified by more correct computation caused a decrease of 669 square miles. The total increase was thus 2,103 square miles, bringing the total area at the close of the year to 81,414 square miles, as compared with 79,311 square miles at the close of 1896-97. The main additions took place in the Punjab, Upper Burma, Madras, and Bombay. Further large areas were under examination in Burma, where projects for the reservation of 4,300 square miles were pending at the close of the year.

The following statement gives the total area of all forest lands under the control of the Forest Department at the close of the year:—

PROVINCE.		FOREST AREA, IN SQUARE MILES.				Proportion of Forests to whole area of Province.	REMARKS.
Name.	Area, in square miles.	Reserved.	Protected.	Unclassed St.fo.	Total.		
						Per cent.	
Bengal . . . . .	152,148	5,880	3,460	4,034	13,374	8.73	(a) Includes 153 square miles of <i>leased</i> forests.
North-Western Provinces and Oudh.	106,149	(a) 3,851	94	43	3,988	3.73	(b) Includes 419½ square miles of <i>leased</i> forests, and excludes 122 square miles of Military Reserves and 3 square miles of Civil Reserves.
Punjab . . . . .	110,786	(b) 2,283	(c) 3,011	2,139	7,433	6.71	
Burma (Lower) . . . . .	83,557	(d) 7,373	(f)	...	7,373	8.82	
Burma (Upper) . . . . .	77,210	(e) 7,333	(f)	...	7,333	9.49	(c) Exclusive of 131 square miles under the Civil Authorities.
Central Provinces . . . . .	86,451	19,206	...	292	19,498	22.55	(d) Includes 619 square miles of <i>taungya</i> areas.
Assam . . . . .	41,380	3,590	...	15,683	19,273	46.57	(e) Includes 230 square miles of <i>taungya</i> areas.
Coorg . . . . .	1,582	238	649	...	887	56.06	(f) Chapter IV of the Burma Forest Act and of the Upper Burma Forest Regulation extends protection to certain trees and produce in unoccupied lands generally. The area of these undemarcated lands to which protection is afforded is not known.
Ajmer . . . . .	2,646	139	...	(g) 10	149	5.63	(g) Village lands managed by the Forest Department, but not yet brought under the Ajmere Forest Regulation.
Baluchistan . . . . .	...	170	...	...	170	...	(h) Baluchistan left out of account.
Andamans . . . . .	2,000	120	...	1,833	1,953	97.65	(i) Includes the area of the <i>leased</i> forests in the Dangs, estimated at 679 square miles.
<b>TOTAL</b>	<b>664,909</b>	<b>50,183</b>	<b>7,214</b>	<b>24,034</b>	<b>81,431</b>	<b>(h) 12.22</b>	
Berar . . . . .	17,707	4,175	...	...	4,175	23.56	
Total Bengal Presidency.	682,616	54,358	7,214	24,034	85,606	(h) 12.61	
Madras . . . . .	141,259	13,775	...	5,478	19,253	13.62	
Bombay . . . . .	123,048	(j) 13,281	1,631	...	14,912	12.11	
<b>GRAND TOTAL</b>	<b>946,923</b>	<b>81,414</b>	<b>8,845</b>	<b>29,512</b>	<b>119,771</b>	<b>(h) 12.63</b>	

At the close of 1896-97, the total area amounted to 113,917 square miles, and there has thus been an increase of 5,854 square miles. This has occurred chiefly in Assam, where a rectification of area has led to an increase in the estimated area of Unclassed forests of 4,439 square miles.

The details of the changes which took place in the various Provinces are given below.

*Bengal.*—Four square miles were added to the area of Reserved forests, by the reservation of the Tumohar, part of an island off the coast of Noakhali. To the Protected forests, the area of which is estimated at 3,460 square miles, 96 square miles were added by the demarcation of waste land in the Palamau and Manbhum districts, whilst 14 square miles of the Sundarbans Protected forests were given up for cultivation. The area of Unclassed forests remained unchanged.

*North-Western Provinces and Oudh.*—The Local Government remarks:—

"The areas of the different classes of forests at the commencement and close of the year were as follows:—

CIRCLE.	RESERVED FORESTS.		PROTECTED FORESTS.		DISTRICT PROTECTED FORESTS.		UNCLASSIFIED FORESTS.	
	1st July 1897.	30th June 1898.	1st July 1897.	30th June 1898.	1st July 1897.	30th June 1898.	1st July 1897.	30th June 1898.
	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.
Central . . . . .	1,703	1,737	94	94	9,223	9,177	30	30
Oudh . . . . .	1,244	1,244	...	...	...	...	...	...
School . . . . .	875	1870	...	...	...	...	13	13
<b>TOTAL</b>	<b>3,822</b>	<b>3,851</b>	<b>94</b>	<b>94</b>	<b>9,223</b>	<b>9,177</b>	<b>43</b>	<b>43</b>

\* Inclusive of 159 square miles leased forests.

† " " 153 " " "

In the Central Circle the increase is due mainly to the formation of new reserves in the Naini Tal Division from the district Protected forests of Almora, the area of which shows a corresponding decrease. In the School Circle the preparation of a working-plan for the leased forests enabled the area to be more accurately determined."

*Punjab.*—The principal changes during the year were—

In Kangra the area of undemarcated Protected forests was diminished by 65,744 acres owing to the transfer of a large area to Unclassified forests and to rectification of area figures.

In Kulu a more correct computation, based on the results of the survey, has increased the area of the forests by some 650 square miles.

In Lahore 56 square miles were given up for cultivation from the Unclassified forests.

In Shahpur 605 square miles were added to Reserved forests, the area of Protected and Unclassified forests being correspondingly reduced.

*Burma.*—Good progress was made in the reservation of forest areas, 157 square miles being added to Reserved forests in Lower Burma and 642 square miles in Upper Burma. Recomputation of area led to a decrease of 99 square miles in the Western Circle. The following statement shows the changes of the year in Lower and Upper Burma:—

PROVINCE.	Class of Forests.	AREA, IN SQUARE MILES.			
		At commencement of the year.	Added during the year.	Excluded during the year.	At close of the year.
Lower Burma . . . . .	Reserves . . . . .	6,631	157	34	6,754
	Taungya areas . . . . .	619	...	...	619
	(a) Protected forests . . . . .	...	...	...	...
	<b>TOTAL</b> . . . . .	<b>7,250</b>	<b>157</b>	<b>34</b>	<b>7,373</b>
Upper Burma . . . . .	Reserves . . . . .	6,581	628	106	7,103
	Taungya areas . . . . .	227	14	11	230
	(a) Protected forests . . . . .	...	...	...	...
	<b>TOTAL</b> . . . . .	<b>6,808</b>	<b>642</b>	<b>117</b>	<b>7,333</b>
Upper Burma and Lower Burma combined.	Reserves . . . . .	13,212	785	140	13,857
	Taungya areas . . . . .	846	14	11	849
	<b>GRAND TOTAL, BURMA.</b>	<b>14,058</b>	<b>799</b>	<b>151</b>	<b>14,706</b>

(a) Chapter IV of the Burma Forest Act and of the Upper Burma Forest Regulation extends protection to certain trees and produce in unoccupied lands generally. The area of these undemarcated lands to which protection is afforded is not known.

*Central Provinces.*—The Chief Commissioner thus reviews the results of the year :—

“ The following statement contrasts the areas and classification of the forests as they stood at the beginning and end of the year respectively :—

	AREA, IN SQUARE MILES.					
	SOUTHERN CIRCLE.		NORTHERN CIRCLE.		TOTAL.	
	June 1897.	June 1898.	June 1897.	June 1898.	June 1897.	June 1898.
A . . . . .	7,311	7,384	5,293	5,316	12,604	12,700
B-1 . . . . .	1,192	1,159	1,856	1,704	2,988	2,863
B-2 . . . . .	1,142	1,127	2,523	2,516	3,665	3,643
Unclassed . . . . .	337	275	16	17	353	292
TOTAL . . . . .	9,922	9,945	9,688	9,553	19,610	19,498

The increase in area of 23 square miles in the Southern Circle is due to the correction of areas by forest survey (89 square miles), and an addition of 7 square miles of Unclassed forest; against which must be set off the excision of 69 square miles for *ryotwari* cultivation, and the disforestation of 4 square miles transferred to *malguzars* to rectify the boundaries of the forest.

In the Northern Circle the decrease of 135 square miles is due to disforestation of areas required for *ryotwari* settlement, which had been selected in past years as suitable for cultivation.”

*Assam.*—The area of Reserved forests decreased by 91 square miles, and at the close of the year stood at 3,590 square miles. Further attempts at calculating the area of Unclassed State forests resulted in an increase of 4,439 square miles, bringing the estimated area of these forests to 15,633 square miles. This is liable to change and, moreover, does not include the area of forests in the Naga hills, for which no data are available.

*Coorg.*—The area of Reserved forests was unchanged; 608 acres of *paisaris* Protected forest were excluded, chiefly for cultivation.

*Ajmer.*—The Commissioner remarks—

“ The area of the Reserved State forests controlled by the Forest Department remained unchanged, *vis.*, 139 square miles. The slight changes that occurred, owing to the rectification of the boundary line and demarcation of the cultivated plots situated within the forest tracts, cannot be shown until the survey of these forests, started during the year, is completed and areas are computed.

The areas of Village Reserves and of Protected forests were 6,803 and 1107 acres respectively on the 30th June 1898, being the same as at the end of the preceding year.”

*Baluchistan.*—There was no change in the area under the Department, which remained as before at 170 square miles.

*Andamans.*—The area of Reserved forests was increased by 35 square miles; 15 square miles at Shoal Bay and 19 square miles at Port Meadows, whilst a small area was reserved at Hope Town, bringing the area of Reserved forests to 120 square miles.

*Berar.*—There were numerous changes and transfers from one class of State forest to another, with the net result of a decrease in area of 4 square miles; 706 acres in the Amraoti Division and 2,391 acres in the Wun Division were disforested for cultivation purposes, and 2,106 acres to form an “ *Izara* ” under the orders of the Government of India. It is reported that there is believed to be a considerable amount of land in the Wun Districts which has been included in Reserved forest, but which is much more suitable for cultivation.

*Madras.*—The Madras Government in their Resolution on the Report of Forest Administration remarks—

“ The following abstract compares the areas of Reserved forests and Reserved lands at the beginning and at the end of the year under review :—

	Area on 1st July 1897.	Area added during 1897-98.	Area excluded during 1897-98.	Net increase or decrease.	Area on 30th June 1898.
	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.
Reserved forest . . . . .	13,138	681	44	+ 637	13,775
Do. lands . . . . .	5,739	524	815	—291	5,478
TOTAL . . . . .	18,907	1,205	859	+ 346	19,253

It will be seen that the net result is an addition of 637 square miles of Reserved forests and a deduction of 291 square miles of Reserved lands from the area under the control of the Department. The corresponding figures for the preceding year were an addition of 750 square miles of Reserved forests and a deduction of 921 square miles of Reserved lands. The percentages on the 30th June 1898 of the Reserved area to the total unoccupied area, excluding zamindari and whole inam villages and minor inams in Government villages, varied from 74.53 per cent. in the Nilgiris to 25½ per cent. in Tanjore and averaged 87.21 per cent. for the whole Presidency."

*Bombay.*—The following statement, extracted from the Bombay Government's Resolution in the Forest Report of the year, clearly shows the changes of the year :—

CIRCLE.	AREA ON 1ST JULY 1897.			ADDED.		EXCLUDED.		AREA ON 30TH JUNE 1898.		
	Reserved.	Protected.	Total Forest Area.	Reserved.	Protected.	Reserved.	Protected.	Reserved.	Protected.	Total Forest Area.
	Sq. miles.	Sq. miles.	Sq. miles.	Sq. miles.	Sq. miles.	Sq. miles.	Sq. miles.	Sq. miles.	Sq. miles.	Sq. miles.
Northern Circle	*1,191½	434½	*1,625½	106½	...	134½	96½	*1,284½	338½	*1,623½
Central Circle	6,362½	12½	6,364½	1½	...	103½	...	6,240½	12½	6,261½
Southern Circle	8,708½	1,879½	5,273½	311½	1½	21½	299½	4,008½	1,279½	5,288½
Sindh Circle	†1,064½	½	†1,064½	2½	...	7½	...	1,058½	½	1,059½
TOTAL	12,308½	2,025½	14,333½	421½	1½	126½	394½	12,602½	1,631½	14,233½

\* Excluding the area of leased forests in the Dangs, which is given as 678½ square miles.

† Exclusive of an area of 8½ square miles of Unclassed forest.

In the Northern Circle, 1,187 acres were excluded owing to settlement operations in Thana. In the Central Circle, rectification of areas resulted in a decrease of 103 square miles. In the Southern Circle, 300 square miles were transferred from Protected to Reserved forests in Kanara, and in Sindh there was a decrease of 9 square miles, which was mostly disforested for cultivation.

The net result for the Presidency is a decrease in the area under forest of 99 square miles.

## II.—FOREST SETTLEMENTS.

Notwithstanding the unfavourable conditions of the year, considerable progress was made in forest settlement operations, resulting in the addition to Reserved forests of 2,103 square miles, as against 2,829 square miles in the previous year. In Bengal, settlement work in the Unclassed forests of Chittagong was well advanced, and it is expected that considerable areas there will shortly be formed into Reserves. In the Punjab, the completion of the settlement of the rakhs of the Khusháb Tahsil of the Shahpur District resulted in an addition of 605 square miles to Reserved forests. Much good work was done in Burma, where 798 square miles of new Reserves were formed, and in addition proposals dealing with no less than 4,300 square miles were pending at the close of the year. In Lower Burma, reservation is reported to be nearly complete, but in Upper Burma there are still large and valuable tracts waiting to be dealt with. In Madras, 652 square miles of new reserves were notified, and settlement operations were in progress over an area of 3,827 square miles. The balance of reserved lands in Madras which have still to be brought under settlement stood at 1,651 square miles at the close of the year, and it is probable that settlement operations will not be completed for another 8 or 9 years. In Bombay, 420 square miles of new Reserves were formed and 1,625 square miles were undergoing settlement at the close of the year.

The total area undergoing settlement in all provinces at the close of the year stood at 9,175 square miles; the area still to be taken in hand is estimated at 34,400 square miles, a figure which does not, however, include considerable areas as yet unexamined in Burma.



The following table shows the changes in area which took place during the year in the various provinces :—

PROVINCE.	ALTERATIONS IN AREA, IN SQUARE MILES, DURING 1897-98.								REMARKS.
	RESERVED FORESTS.		PROTECTED FORESTS.		UNCLASSIFIED STATE FORESTS.		TOTAL.		
	Increase.	Decrease.	Increase.	Decrease.	Increase.	Decrease.	Increase.	Decrease.	
Bengal . . . . .	4	(a)...	95	13	...	...	99	13	(a) 160 acres excluded. (b) 96 acres obtained by rectification of previous area figures.
North-Western Provinces and Oudh.	(b)41	(c)12	...	...	...	...	41	12	(c) 9 square miles and 301 acres due to rectification of previous area figures.
Punjab . . . . .	607	5	(d)777	(e)643	(f)167	(g)286	1,551	934	(d) Obtained by correction of previous area figures. (e) 150 square miles due to correction of previous area figures.
Burma (Lower)	(f)157	(h)34	...	...	...	...	157	34	(f) 98 square miles obtained by rectification of previous area figures.
Burma (Upper)	642	(i)117	...	...	...	...	642	117	(g) 3 square miles due to correction of previous area figures.
Central Provinces	(h)127	(j)179	...	...	9	69	136	248	(h) 126 square miles obtained by survey re-measurement and rectification of previous area figures.
Assam . . . . .	(m)1	(n)192	...	...	(o)4,792	353	4,793	445	(i) 37 square miles lost by survey re-measurement and rectification of previous area figures.
Coorg . . . . .	...	...	...	1	...	...	...	1	(j) One square mile obtained by correction of previous area figures.
Ajmer . . . . .	...	...	...	...	...	...	...	...	(k) 26 square miles due to correction of previous area figures.
Baluchistan . . . . .	...	...	...	...	...	(p)	...	...	(l) 99 square miles due to correction of previous area figures.
Andamans . . . . .	35	...	...	...	...	35	35	35	(m) Obtained by rectification of previous area figures.
Net Total Increase or Decrease.	1,175	...	215	...	4,225	...	5,615	...	(n) 87 square miles due to rectification of previous area figures. (o) 4,315 square miles obtained by rectification of previous area figures.
Berar . . . . .	57	61	...	...	...	...	57	61	(p) 3 acres. (q) 29 square miles obtained by rectification of previous area figures.
Net Total Increase or Decrease, Bengal Presidency.	1,171	...	215	...	4,225	...	5,611	...	(r) 31 square miles due to rectification of previous area figures.
Madras . . . . .	(q)681	(r)44	...	...	(s)524	(t)815	1,205	859	(s) 43 square miles obtained by rectification of previous area figures.
Bombay . . . . .	(u)420	(v)125	1	(w)399	...	...	421	524	(t) 9 square miles due to rectification of previous area figures. (u) 39 acres obtained by rectification of previous area figures.
GRAND NET TOTAL INCREASE OR DECREASE.	2,103	...	...	183	3,934	...	5,854	...	(v) 106 acres due to rectification of previous area figures. (w) 20 acres due to rectification of previous area figures.

The details of work done in the various provinces is as follows:—

*Bengal.*—Good progress was made in settlement work, and the Paglajhora forest was practically finished by the close of the year. In Chittagong the settlement of large areas is in progress. The work was so far advanced that it was intended to demarcate 842 square miles of proposed reserves during the following year. The practice of “*jhuming*” continues to cause much destruction in the Chittagong Unclassed forests, and the Government of India point out the necessity of selecting and reserving all areas which it is intended to manage as permanent forest estates with as little delay as possible.

*North-Western Provinces and Oudh.*—The Government of India remark:—

“The most important settlement work pending at the close of the year was in the Central Circle, where an area of 225 square miles is shown as undergoing settlement. Of this, however, it appears that the settlement of 103 square miles has been completed, and that the final notification reserving this area has been issued since the close of the year. The settlement of the 5 khair blocks has been from various causes greatly delayed, and the Government of India trust that steps will be taken to shortly bring this work to a completion. The progress made in the settlement of the sub-montane sal-bearing areas is noticed with satisfaction. In Oudh an area of 44 square miles, being the land proposed to be taken in exchange from the Khairagarh estate in Kheri, remains unsettled. This has been long outstanding, and under the orders issued by His Honour the Lieutenant-Governor will doubtless be now shortly concluded. It would seem that there will be but little more forest settlement work to be done in the North-Western Provinces and Oudh, with the exception of such portions of the Garhwal and Almora district forests which it may seem desirable from time to time to set aside as permanent timber-producing estates. At the present time there is but little demand on these forests, but in case it is found practicable to institute impregnation works it is very possible that a market may be found for the less valuable pines and spruces which are present in considerable quantity in many of the forests. In this case the necessity for reserving the more valuable portions will have to be considered; and under these circumstances the Government of India observe with satisfaction that it is intended to demarcate the more important timber-producing areas.”

*Punjab.*—The forest settlement of the rakhs in the Khushab Tahsil of the Shahpur District was completed and an area of 605 square miles was added to Reserved forests. The only settlement work now pending is that of the Shahpur-Kandi tract in the Gurdaspur District. Forty-nine thousand acres of Unclassed forest was given up for cultivation.

*Burma.*—Much good work was done in settling the forests and forming them into reserves. In addition to the new reserves formed (157 square miles in Lower Burma and 642 square miles in Upper Burma) enquiries were completed by Forest Settlement Officers over 793 square miles, and projects for reservation of 4,300 square miles were pending at the close of the year. In Lower Burma reservation is reported to be nearly complete, but in Upper Burma large tracts remain to be examined and dealt with. Much useful work in this direction was accomplished during the year.

*Central Provinces.*—In the Northern Circle, disforestation of areas required for ryotwari settlement caused a decrease in the area of B. I. and B. II. forests of 135 square miles. In the Southern Circle the work of examination and classification of the forests into areas for permanent retention as forests, or as suitable for cultivation, is nearly completed, except in Sironcha. In the Northern Circle, only in Mandla has any progress been made in this direction.

*Assam.*—No areas were finally settled during the year. The settlement of the Langting Mahur and the Barail proposed reserves (area 200 square miles) in the Cachar District was still under consideration. In Goalpara a proposal for the reservation of 1,181 acres in the vicinity of the Bengtol reserve was before Government, and in Kamrup proposals to reserve four small patches of good sal forests are being considered. In Darrang, the forests west of the Belsiri river were examined, and proposals for the reservation of about 20 square miles were submitted to Government as an addition to the Charduar reserve. In the Garo Hills proposals to reserve 40,400 acres are under preparation. These areas are stated to be the most valuable forests in the division outside existing reserves.

*Coorg.*—The area of Reserved forests underwent no change. No practical progress was made in regard to the settlement of the Protected forests, but it has since been arranged to depute a special officer for the settlement of the Ghât forests, and to disforest most of the other Protected forests, forming the more valuable portions of them into Reserved forests.

*Ajmer.*—The revised record-of-rights was under consideration, and has since been generally approved of by the Government of India. The villagers exhibited a dislike to allow their forests to be formed into village reserves, and a more simple set of rules was under preparation, which will, it is hoped, remove any cause of discontent. There were no changes of area.

*Baluchistan.*—No fresh areas were formed into State forests during the year, but various proposals for reserving areas were under consideration. It is proposed to reserve certain sections of the chilgoza forest in Zhob. It was decided that an area of 8,142 acres in Mazar

and Central Zarghun, and 22,000 acres, being the Gadibar forest at Anambar should be constituted Reserved forest. Further areas in Batsjeri, Klumak, and Ghairgi await examination.

*Andamans.*—The following areas were notified reserves :—

Hope Town forest area . . . . .	0.65 square miles.
Shoal Bay . . . . .	15.20 "
Port Meadows . . . . .	19.00 "
	34.85 "

This brings the area of Reserved forests to 120 square miles. A further area of 36.58 square miles was under settlement and has been notified Reserved forest since the close of the year.

*Barar.*—There were no forest settlements in progress during the year.

*Madras.*—The Madras Government thus records the work done during the year :—

"The work of forest settlement did not make quite as much progress as was to be desired. One hundred and thirty-two blocks with an extent of 652 square miles were finally constituted Reserved forests during the year, as against of 136 blocks of 845 square miles in the previous year; and there remained at the end of the year, 477 blocks, comprising an area of 3,827 square miles finally to be constituted Reserved forests. The following statement exhibits the areas finally constituted as Reserved forest during the past five years :—

	1894-95.		1895-96.		1896-97.		1897-98.	
	Number of blocks.	Area, in square miles.	Number of blocks.	Area, in square miles.	Number of blocks.	Area, in square miles.	Number of blocks.	Area, in square miles.
Finally constituted Reserved forests . . . . .	225	680	185	858	136	845	132	652 "

The results achieved were thus somewhat less than in previous years, but a satisfactory feature of the year's work was the completion of several long-pending blocks in Ganjam, Godavari, Cuddapah, Nellore, and South Canara. At the close of the year an area of 3,827 square miles was undergoing settlement, and the balance of Reserved lands which remains to be brought under settlement stood at 1,651 square miles.

*Bombay.*—Forest settlement work resulted in an increase to the area of Reserved forests of 420 square miles.

In the Northern Circle, the settlement reports of the Dahau and Murbad Talukas were sanctioned. In the Central Circle, various areas were acquired on payment of compensation at rates which the Bombay Government consider to be too high. In the Southern Circle, settlement proposals for the talukas of Honavar and Sirsi, and the petha of Bhatkal in Kanara were sanctioned, and one taluka only remained to be dealt with. In Kolaba proposals for the Madraí villages were awaited; elsewhere the work is almost complete. In Sindh there is but little progress to record, and 24,685 acres remained for settlement. The total area undergoing settlement at the close of the year amounted to 1,625 square miles, and the area still to be taken in hand is estimated at 590 square miles.

### III.—DEMARCATON.

In Madras and Bombay, where important forest settlements are still in progress, excellent progress was made during the year both in laying down new boundaries and in re-clearing old boundary lines. In Madras 1,964 miles, and in Bombay 1,261 miles, of new boundaries were laid down in a permanent manner. Compared with these figures, work in other provinces has been insignificant, but good work has been done in putting down new boundaries in Burma and the Central Provinces. Elsewhere work has consisted in keeping existing boundaries in proper repair. The chief work remaining in the provinces of the Bengal Presidency is the demarcation of the Kangra forests of the Punjab.

The number of miles of boundary artificially demarcated at the close of the year stood at 93,067 miles, and the total expenditure during the year amounted to Rs98,367.

The following table shows the detail of the boundaries in the various provinces at the close of the year 1897-98:—

Province.	Circle.	Length of boundaries artificially demarcated during the year.	Length of previously existing boundaries repaired.	Length of previously existing boundaries not repaired.	Total length of artificially marked boundaries at the close of the year.	Length of boundaries not demarcated at the close of the year.	Length of natural boundaries not requiring artificial marks.	Total length of boundaries at the close of the year.	EXPENDITURE ON DEMARCATION DURING THE YEAR.	
									On new work.	On repairs.
		Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Rs.	Rs.
Bengal	.....	1	2,041	232	2,274	20	1,717	4,011	...	8,612
North Western Provinces and Oudh	Central Circle	33	435	1,962	2,430	35	647	3,112	1,391	1,608
	Oudh "	27	188	981	1,196	4	332	1,532	72	2,558
	School "	24	249	390	663	108	359	1,130	401	1,012
	Total	84	872	3,333	4,289	147	1,338	5,774	1,864	5,178
Punjab	.....	108	2,031	7,937	10,076	4,772	1,196	16,044	1,124	4,385
Lower Burma	Pegu Circle	92	537	1,143	1,772	37	987	2,776	1,057	760
	Tenasserim Circle	16	531	1,776	2,323	10	641	2,974	134	1,209
	Total	108	1,068	2,919	4,095	47	1,608	5,750	1,191	1,969
Upper Burma	Eastern Circle	404	526	1,036	1,966	104	75	2,145	3,711	2,502
	Western "	175	47	1,180	1,402	671	1,355	3,428	1,388	238
	Total	579	573	2,216	3,368	775	1,420	5,573	5,099	2,740
Central Provinces.	Northern Circle	189	7,374	3,207	10,770	819	1,333	12,922	1,116	1,093
	Southern "	154	10,293	1,165	11,612	136	1,123	12,871	318	4,120
	Total	343	17,667	4,372	22,382	955	2,456	25,793	1,434	5,213
Assam	.....	3	1,124	...	1,127	...	1,349	2,476	294	2,746
Coorg	.....	...	23	240	263	...	11	274	1,205	450
Ajmer	.....	53	92	91	236	...	156	392	384	119
Andamans	.....	10	13	21	44	16	94	154	25	10
Baluchistan	.....	...	45	227	272	...	49	321	...	...
Berar	.....	12½	957½	303½	1,273½	74	180	1,527½	191	833
Total Bengal Presidency	.....	1,301½	26,506½	21,891½	49,699½	6,806	11,584	68,089½	12,811	32,255
Madras Presidency	Northern Circle	595	1,106	4,039	5,740	1,109	662	7,511	8,986	2,479
	Central "	1,021	1,001	9,659	11,681	1,273	191	13,145	10,181	3,549
	Southern "	343	697	4,926	5,971	412	741	7,124	2,864	4,581
	Total	1,961	2,804	18,624	23,392	2,794	1,594	27,780	22,031	10,609
Bombay Presidency	Northern Circle	520	765½	1,442½	2,728½	1,334½	32½	4,890½	6,778	589
	Central "	679	1,452	13,162	15,293	6,648	860	22,801	6,262	3,848
	Southern "	24	...	11	35	14,466	636	15,137	2,335	527
	Sindh "	38	1,476	406	1,920	35	551	2,506	12	10
	Total	1,261	3,693½	15,021½	19,976½	22,983½	2,375½	45,334½	15,387	5,274
GRAND TOTAL	.....	4,526½	33,004	55,537½	93,067½	32,533½	15,553½	141,204½	50,229	48,138

N. B.—Boundaries include, besides the outer perimeter, the limits of enclosures of private and other lands within the forests, but not the limits of subdivisions, such as blocks, compartments and coupes.

*Bengal.*—Owing to various small changes, the length of boundaries was increased by 22 miles and now stands at 4,011 miles. Only one mile of new demarcation was found necessary, but a large amount of work was done in the Protected forests of the Singhbhum Division in rendering permanent and clear boundaries which had been insufficiently laid down at time of settlement. A total expenditure of Rs,612 was incurred against Rs,573 in the previous year.

*North-Western Provinces and Oudh.*—In the Central Circle, boundaries were kept in order at a cost of Rs,608. The new reserves of Binsar and Siabi Devi were demarcated, and the demarcation of village lands inside reserved forests was completed in the Garhwal Division. In Oudh the re-demarcation of the forests by monoliths was pushed on, and 934 miles were completed. This important work will now shortly be finished and will give the Oudh Circle probably the best system of demarcation in India. In the School Circle 24 miles of new boundaries were laid down, and a total expenditure of Rs,413 was incurred chiefly on repairs. There remains 108 miles in the Jaunsar Division which require demarcation.

*Punjab.*—One hundred and eight miles of new boundaries were laid down, and existing boundaries were kept in order at a cost of Rs,509. In Chamba good work was done in the reconstruction and numbering of pillars, but there still remains a great deal of work to be done in Kangra, where 3,834 miles remain to be demarcated.

*Burma.*—The Local Government in their review of Forest administration remark :—

“The demarcation of 108 miles of reserve boundaries was carried out in Lower Burma at a cost of Rs,191, and an outlay of Rs,969 was incurred on repairs to and renewal of boundary marks. In Upper Burma 579 miles of boundary were demarcated at a cost of Rs,099, and Rs,740 were spent on repairs to existing marks. The total length of boundary still remaining to be demarcated is 822 miles, of which 775 are in Upper and 47 in Lower Burma. The work of demarcation in the Western Circle had to be postponed, as the time of all officers was fully occupied in carrying out the valuation surveys of the forests. Special efforts should now be made to overtake the arrears which have accumulated.”

*Central Provinces.*—In the Southern Circle the length of existing boundaries was reduced by 34 miles, owing to excisions in Chamba and Chhindwara. One hundred and fifty-four miles of new boundaries were demarcated, and 10,293 miles of existing boundaries were kept in repair at a total expenditure of Rs,438. In the Northern Circle 189 miles of new boundaries were laid down, and 7,374 miles were repaired at a total cost of Rs,209. There still remain 955 miles to be demarcated, chiefly in the Northern Circle.

*Assam.*—The demarcation of all reserved forests is complete, and the number of miles artificially demarcated stands at 1,127, of which 3 miles were laid down during the year. A total expenditure of Rs,040 was incurred.

*Coorg.*—With the exception of the ghât forests, demarcation of the reserved forests in Coorg may be said to be complete. A good deal of useful work was done in clearing lines and repairing pillars, and a commencement was made towards the effectual demarcation of the western boundary line of the ghât forests adjoining the Malabar District and private forests. A total expenditure of Rs,655 was incurred.

*Ajmer.*—Much good work was done and 53 miles of new boundaries were laid down; 1,205 new pillars were erected at a cost of Rs384. Form No. 40 shows that the demarcation of the forests is completed, but from the annual report it would seem that there remains a good deal of work, particularly in the demarcation of village lands inside State forests.

*Andamans.*—Boundary lines were cleared over 12½ miles. The demarcation of the Dhani Khari reserve and of the Hope Town reserve was completed, 10 miles in all. Sixteen miles of boundary remain undemarcated.

*Baluchistan.*—Existing boundary lines and pillars were kept in repair. No new work was found necessary. Demarcation of the State forests is complete.

*Berar.*—The only fresh work of the year has been the demarcation of forest land allotted for cultivation in the Bairagarh reserve. The boundaries of State forests A. and B. are in good order. Seventy-four miles of Class B. forests remain to be demarcated. The boundaries of Class C. forests are not in good order. A total expenditure of Rs,024 was incurred.

*Madräs.*—Great progress has been made in laying down the boundaries of settled forests, particularly in the Central Circle, where no less than 1,021 miles of new boundaries have been permanently laid down. Important work has also been done in the Northern and Southern Circles. The cost of the permanent demarcation amounted to Rs22,031, or a little more than Rs11 a mile. Besides the permanent new demarcation work, 2,804 miles of old lines were re-cleared at a cost of Rs-12 a mile. The total expenditure on demarcation work during the year amounted to Rs2,640.

*Bombay.*—The work of the year is thus fully reviewed by the Bombay Government :—

\* The following statement compares the length of boundary demarcated and the cost with the figures of previous years :—

Circles.	1896-97.		1897-98.		AVERAGE FOR FIVE YEARS ENDING 1895-96.		REMARKS.
	Length in miles of boundary lines cleared.	Cost.	Length in miles of boundary lines cleared.	Cost.	Length in miles of boundary lines cleared.	Cost.	
	Miles.	₹	Miles.	₹	Miles.	₹	
Northern Circle . . .	260	4,814	520	6,778	246	3,019	*1895-96 only.
Central Circle . . .	2,746	16,917	679	6,362	1,073	8,759	
Southern Circle . . .	20	3,888	23	2,335	108	2,750	
Sindh Circle . . .	81	240	38	12	*176	*929	
<b>TOTAL</b> . . .	<b>3,107</b>	<b>25,859</b>	<b>1,260</b>	<b>15,387</b>	<b>1,603</b>	<b>15,457</b>	

In the Northern Circle demarcation work was carried on with greater rapidity and economy than in the previous year; 256 miles were marked with cairns, and 264 miles cleared, against 224 and 36 miles, respectively, and the rate per mile fell from ₹16 and ₹33 to ₹14-9-0 and ₹13-4-0. In South Thana alone the cost increased from ₹19 to ₹31, and the necessity for erecting, in a locality where stones are alleged to be scarce and the labour bill high, cairns 'three times the volume' of those found sufficient elsewhere, should be carefully examined by the Conservator. The results of the experiments in the production of a cheaper form of boundary mark undertaken in North Thana should be reported for the information of Government.

In the Central Circle the abnormal outturn in 1896-97 was due to the employment of famine labour, and the reduction in 1897-98 necessarily followed upon the cessation of relief.

In the Southern Circle the demarcation of all the external boundaries of forest by the Revenue Survey was completed, and the Forest Department began to supplement this work by the erection of their special marks. The whole area is therefore entered in Form No. 48 as still requiring demarcation. It is observed that in the districts of Belgaum and Bijapur, while 25,490 stone pillars have been prepared in two years, only 1,811 have been placed in position. It is hoped that progress has been made during the current year in the erection of the pillars. It is satisfactory that in North Kanara compartment lines once cleared are kept free of re-growth by the forest guards without additional expense to Government, and the same system should be enforced in the Western Division.

In Sindh progress was slow, 20½ miles only, according to paragraph 34(a) of the report, being demarcated; out of 120,000 acres notified as forests during the last six years, approximately one-third remained to be dealt with. The demarcation of the lands afforested previous to 1892 is understood to be complete."

#### IV.—SURVEYS.

Forest survey operations during 1897-98 were conducted in Madras, Bombay, and Burma by four parties of the Survey of India Department, and small areas in the Himalayas were also surveyed by No. 18 Party. The Forest Survey Branch was employed in the Central Provinces, the Punjab, and Burma, and a small detachment was employed in Oudh. Since the close of the year No. 20 Party, which was working in Burma, has been brought under the administrative charge of the Superintendent of Forest Surveys. The total forest area topographically surveyed, on various scales, by the above agency, amounted to 4,334 square miles, of which 1,937 were surveyed by the Forest Survey Branch, and 2,397 square miles were done by the Survey of India Department. In addition to the above, the Forest Survey Branch completed an area of 200 square miles on the 1-inch scale for topographical purposes in the Chamba State. The outturn by the Forest Survey Branch, of areas surveyed for forest purposes, is 174 square miles in excess of the previous year, whilst the outturn of the Parties of the Survey of India Department is less by 863 square miles. The decrease in area surveyed by the latter agency is attributed to the conversion of No. 14 Party, hitherto employed on forest surveys, into a topographical party.

PRESIDENCY OR PROVINCE.		AREAS SURVEYED AND COST RATES PER SQUARE MILE.																								TOTAL TOPOGRAPHICAL SURVEYS.		TOTAL EXPENDITURE, 1897-98.				
		TRIANGULATION.		TRAVELLING.		DETAIL SURVEY AND PREPARATION OF MAPS OF SCALES OF—																										
						1"=1 mile.				2"=1 mile.				4"=1 mile.				8"=1 mile.				16"=1 mile.										
		1897-98.		1898-97.		1897-98.		1898-97.		1897-98.		1898-97.		1897-98.		1898-97.		1897-98.		1898-97.		1897-98.		1898-97.						1897-98.		1898-97.
Sq. m.	R.	Sq. m.	R.	Sq. m.	R.	Sq. m.	R.	Sq. m.	R.	Sq. m.	R.	Sq. m.	R.	Sq. m.	R.	Sq. m.	R.	Sq. m.	R.	Sq. m.	R.	Sq. m.	R.	Sq. m.	R.	Sq. m.	R.					
North-Western Provinces and Oudh.	...	...	...	...	(d) 184	7	...	...	...	...	...	...	...	...	...	77	39	...	...	...	...	...	...	...	...	77	...	(a) 9,394	...			
Punjab	580	9	...	...	...	...	...	200	20	802	9	...	...	...	...	52	51	87	30	...	...	...	...	...	...	252	889	(b) 12,258	...			
Central Provinces	146	12	191	30	...	...	...	...	...	...	...	...	...	...	...	146	108	191	93	...	...	...	...	...	...	146	191	...	17,520			
	1,233	7	227	9	...	...	(d) 35	10	...	...	...	...	...	...	902	41	1,002	43	...	...	...	...	...	...	236	(e) 41	266	(e) 43	1,138	1,208	(c) 63,207	...
Burma	...	...	1,770	7	...	...	(d) 408	8	...	...	...	...	...	...	...	697	71	...	...	...	...	...	...	...	...	...	697	...	...	...		
	804	17	2,235	8	(d) 211	36	(d) 357	35	...	...	...	...	...	...	470	91	266	103	...	...	...	...	...	...	...	470	268	64,152	...			
	...	...	...	...	773	56	512	82	...	...	...	118	81	106	51	406	193	395	170	...	...	...	...	...	...	524	501	...	1,31,267			
Madras	...	...	1,450	25	...	...	(d) 524	...	...	...	...	...	...	...	...	121	324	...	...	...	...	...	...	...	...	...	...	...	...	...		
	3,331	14	...	...	(d) 712	27	...	...	...	...	...	...	...	...	1,057	78	...	...	...	...	...	...	...	...	...	1,050	1,148	...	1,29,293			
Bombay	...	...	1,000	17	...	...	(d) 728	...	...	...	...	...	...	...	...	1,027	65	...	...	...	...	...	...	...	...	...	...	...	...	...		
	718	8	1,376	7	(d) 164	17	244	8	...	...	...	...	...	...	444	60	522	78	204	179	168	136	29	155	33	156	677	723	...	76,107		
Forest Survey, Bengal Presidency.	2,617	...	2,562	...	395	...	392	...	200	...	802	...	...	...	1,501	...	1,357	...	...	...	...	...	...	236	...	206	...	1,937	2,365	1,49,011	...	
Total	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Survey of India Department.	4,195	...	5,787	...	1,649	...	2,416	...	...	...	...	118	...	106	...	4,046	...	2,953	...	204	...	168	...	29	...	33	...	2,397	3,260	...	3,54,187	
GRAND TOTAL	6,812	...	8,349	...	2,044	...	2,808	...	200	...	802	...	118	...	106	...	3,547	...	4,316	...	204	...	168	...	265	...	239	...	4,334	5,625	5,03,198	

\* Surveys executed by the Forest Surveys, Bengal Presidency, the topographical cost-rates of which include expenditure in classification of forests and soils. The other surveys are by the Survey of India Department.  
(a) Includes Rs 653 on account of drawing and publishing Kheri, Guna, Gorakhpur and Bahraich maps.  
(b) Includes Rs 794 on account of drawing and publishing 4" and 1" maps of Bahar.  
(c) Includes Rs 2,993 on account of drawing and publishing maps of Jubbulpore, Narsingpur, Raipur, Bhandara and Balaghat and Rs 4,831 for levelling operations.  
(d) 1 linear mile.  
(e) Average cost of both 4" and 16" surveys.

The following tabular statement shows the details and areas on different scales, as well as the cost-rates, of the several branches of the survey operations:—

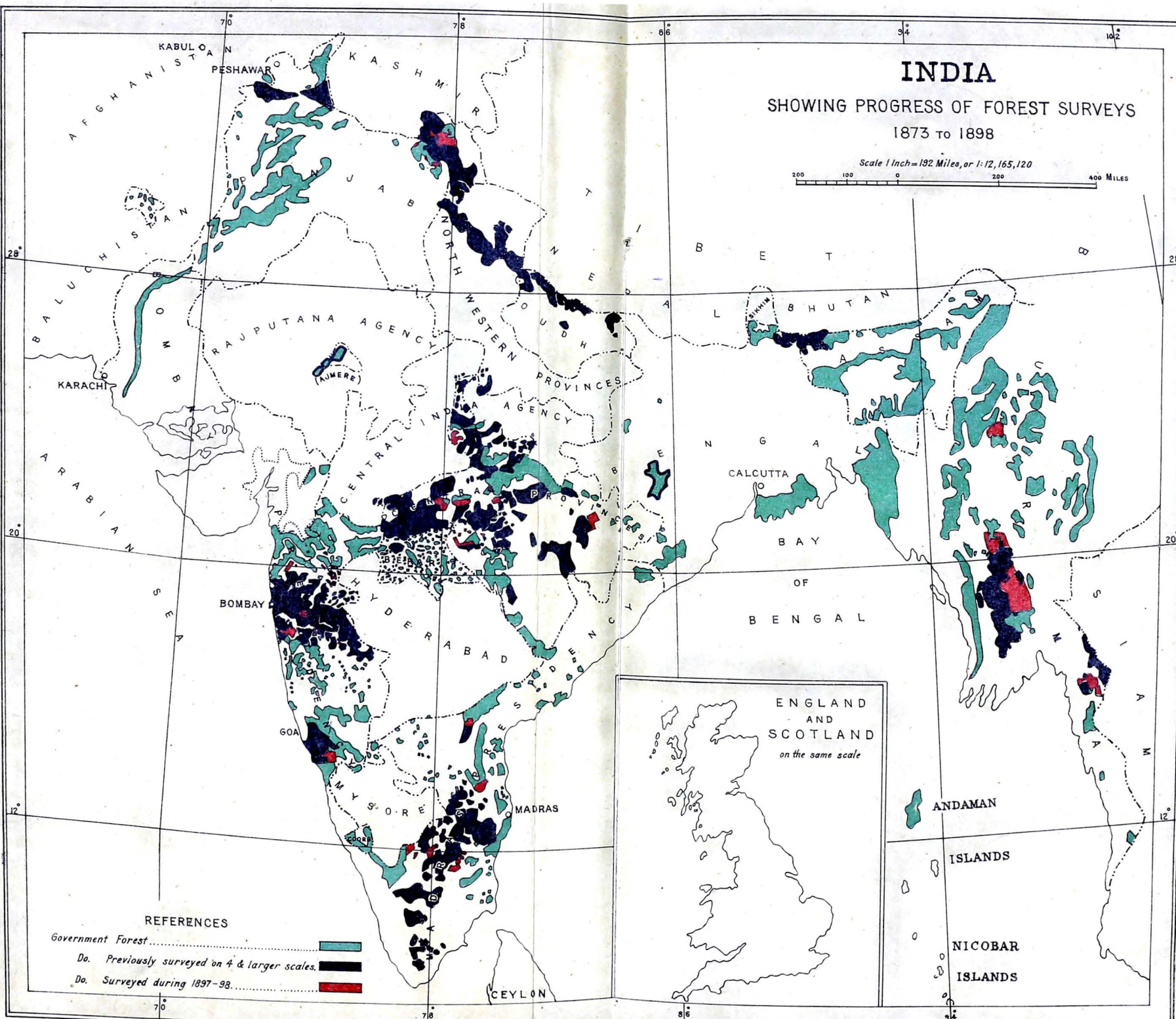


# INDIA

SHOWING PROGRESS OF FOREST SURVEYS  
1873 TO 1898

Scale 1 Inch = 132 Miles, or 1:12,165,120

200 100 0 200 400 MILES





The total expenditure incurred on account of forest surveys in India was, as shown in the foregoing statement, R5,03,198 against R6,11,472 in the previous year of 1896-97. The decrease is due to No. 14 Party having been withdrawn from forest survey work.

The following statement shows the areas completed topographically by professional agency since 1873 and up to the close of the year under review, and the map of India which is attached illustrates the progress of the survey work :—

BY YEAR.	BENGAL.		NORTH-WESTERN PROVINCES AND OUDH.				PUNJAB.		CENTRAL PROVINCES.		BURMA.		ASSAM.		BHWAR.		MADRAS.	BOMBAY.			By Forest Surveys, Bengal Presidency.	By Survey of India, Department.	Total.
	Scale.		Scale.				Scale.		Scale.		Scale.		Scale.		Scale.		Scale.	Scale.					
	4"	2"	12"	8"	4"	2"	4"	1"	16"	4"	4"	2"	4"	2"	4"	2"	4"	16"	8"	4"			
1896-97	115	...	3	...	4,411	208	1,559	3,742	1,029	5,672	1,101	7	613	936	1,221	...	...	...	...	20,704	...	44,722	
	537	215	...	215	494	...	1,198	...	...	4,831	5,346	1,263	...	...	...	...	6,366	240	8,371	3,042	...	24,019	
1897	...	...	...	...	77	...	52	200	236	902	470	...	...	...	...	...	...	...	...	...	1,937	...	4,354
	...	...	...	...	...	...	146	...	...	...	406	118	...	...	...	...	1,060	29	204	444	...	2,307	
TOTAL	652	215	3	215	4,982	208	3,955	3,942	(a)	12,655	11,405	5,418	1,388	613	936	1,221	7,316	269	2,575	3,480	22,641	26,415	49,056
	897				5,405		6,897			12,670		6,601		613	2,167		7,316		6,350				

\* Surveys executed by the Forest Surveys, Bengal Presidency, the other surveys are by the Survey of India Department, and the areas have been taken from a statement furnished by the Surveyor General and from annual reports of the Survey of India Department. (a) Includes an area of 3,942 square miles on the 1" scale for topographical purposes.

Excluding the area of 3,942 square miles which was surveyed on the 1-inch scale for topographical purposes, the above statement shows that, up to the end of 1896-97, a total aggregate area of 45,114 square miles have been surveyed, on various scales, for forest purposes.

Work done in the various provinces during the year was as follows :—

*Bengal.*—Some minor surveys were carried out by departmental agency in connection with the laying down of coupes in the Darjeeling Division; and a few roads and minor details in other divisions were also surveyed. Some boundary surveys in the Palamau and Singbhum divisions are also recorded as having been done by Amins, but the Conservator does not consider these to be reliable in detail. Of the reserved forests, there still remains an area of 3,045 square miles to be brought under survey and about 1,300 square miles of protected forests are still unsurveyed. Much of this area does not require immediate survey, but arrangements are being made to take up the mapping of the more important forests, and a commencement will be made shortly with the Singbhum reserves.

*North-Western Provinces and Oudh.*—No surveys were undertaken by professional agency in either the Central or School Circle. In the Oudh Circle, the survey of the re-aligned Nepal river boundary touching on the Kheri District was completed. In the Central Circle 39 square miles of new reserves remain to be surveyed and in the School Circle 66 square miles of leased *chir* forests remain to be mapped. In the District protected forests of Garhwal, Almora and Naini Tal possibly the areas which may be set aside as permanent timber supplying estates may have to be surveyed.

*Punjab.*—Good progress has been made in the survey of the Chamba State including the leased forests in that State. A detachment of the Forest Survey Branch was employed upon this work during the summer months, in continuation of the previous season's operations, and an area of 200 square miles was completed on the 1-inch scale and 52 square miles of leased forests were surveyed on the 4-inch scale. The cost of the detail survey on the 4-inch scale was R51 per square mile and the smaller scale cost R20 per square mile. In Kulu, Kangra and Sirmur, No. 18 Party turned out an area of 146 square miles on the 4-inch scale at an average cost-rate of R108 per square mile. Of this area only 11 square miles comprise reserved forests under the control of the Forest Department, and the balance is made up of forest blocks situated in the Sirmur State.

*Burma.*—The survey of the reserved forests in Burma is being continued under a regular programme, and the operations will in future be carried on by the establishments of the Forest Surveys of the Bengal Presidency, with which No. 20 Party of the Survey of India has been

amalgamated, and the administrative charge of the Burma Forest Surveys will be in the hands of the Superintendent of Forest Surveys. During the year under review three detachments of the Forest Survey Branch were at work in Burma, *viz.*—

I.—In the Salween-Attaran Division in Lower Burma.

II.—In the Pynmana Division in Upper Burma.

III.—In the Ruby Mines Division in Upper Burma.

The total area topographically surveyed on the 4-inch scale by these three detachments was 470 square miles, at an average cost of R91 per square mile, which compares favourably with the previous season's work.

No. 20 Party of the Survey of India Department was employed in the Pegu and Shwegyin Divisions and completed an area of 406 square miles on the 4-inch scale in these Divisions, as well as an area of 118 square miles on the 2-inch scale on the Yenwe river adjoining Shwegyin. The cost-rate of the 4-inch topographical work was R193 per square mile and the 2-inch detail survey cost R31 per square mile, both rates being higher than in the previous year. A large amount of survey work was also done by local Forest officers which comprised for the most part linear or boundary surveys.

*Central Provinces.*—In continuation of previous season's operations, survey work was confined to the Saugor Division in the Northern Circle, and to Chindwara, Bilaspore, Nagpore-Wardah and Seoni in the Southern Circle, and some levelling was done in the Raipore Division to complete the forest maps. The total area topographically surveyed on the 4 and 16-inch scales was 1,133 square miles, of which 923 square miles were completed in the Southern and 215 in the Northern Circle. The average cost-rate of the 4-inch surveys was R41 per square mile, as compared with R43 in the previous year and the Local Government remarks that "the maps submitted have been of excellent quality." There still remains a forest area of about 6,000 square miles to be mapped, and this will occupy the present strength of the survey establishment about five or six years to complete, provided the present rate of progress is continued.

*Assam.*—No professional surveys were done, but some minor boundary surveys were carried out departmentally at a cost of R631. Regular surveys exist only for 524 square miles of reserves, but in view of the fact that the present demand for forest produce from the reserves is much less than the supply, there appears to be no urgent need of further survey operations.

*Coorg.*—There is little to record under this head; the only work done was a survey by departmental agency of the Bambucadu sandal plantation in South Coorg and 21½ miles of chain and compass traverse of a portion of the Arkeri forest boundary.

*Ajmer.*—An area of about 20 square miles, comprising the forests of Chang, Borwar, Kotra, Seliberi, Anspahar, and Beliawas, was surveyed by a surveyor of the Forest Survey Branch and mapped on the scale of 4-inch to a mile. The work was done under the supervision of the local Forest officer, at a total expenditure of R470 or R24 per square mile.

*Baluchistan.*—Beyond the survey of some village forests, done under the orders of the Revenue Commissioner to ascertain whether it was necessary to extend to the villages the right to building timber from the State forests, nothing in the way of surveys was done in Baluchistan.

*Andamans.*—There is nothing to record under this head.

*Berar.*—No professional surveys were done, but some minor surveys of new roads and areas allotted for cultivation in forest villages of the Ellichpur Division were done departmentally, and an area of 11 square miles of the Amdari reserve in the Buldana Division was also surveyed locally.

The Conservator remarks that the 1-inch Taluk maps, which are being prepared in the office of the Superintendent of the Forest Surveys, are urgently required. The preparation of these maps, 40 sheets in all, has been a most troublesome undertaking owing to the many changes that are constantly taking place in the forest areas and the frequent references that have had to be made to the Conservator. During the year under report it is stated that of the Taluk maps, 2 were published, 16 were in the press and 16 sheets were in progress. It is satisfactory to note, however, that the 16 sheets that were in progress have, since the close of the year, gone to the press, and the Conservator should soon be in possession of printed copies of the whole series of 1-inch Taluk maps.

*Madras.*—In the Madras Presidency two full parties of the Survey of India Department were employed, but, owing to unforeseen difficulties, the expected increase in the area of detail survey completed was not realized. Survey operations were confined to five districts, *viz.*—Kurnool, Cuddapah, South Arcot, Salem and Coimbatore, and the year's outturn of topographical work amounted to 1,050 square miles on the 4-inch scale.

The actual expense incurred, including cost of instruments for the survey year ending 31st August 1898, is Rs 1,29,293, or an average of Rs 119 per square mile, which is made up as follows:—

	Rs
Triangulation . . . . .	14 per square mile.
Traversing . . . . .	27 " "
Topography 4" . . . . .	78 " "
TOTAL . . . . .	<u>119</u>

The cost of the detail survey is higher than the cost rate of the previous year, which is attributed to the work in Kurnool and Coimbatore being carried on under the most unfavourable conditions, the ground being difficult and the climate unhealthy.

*Bombay.*—In the Bombay Presidency an area of 677 square miles was surveyed by No. 17 Party of the Survey of India Department, *vis.*:—

In Kanara . . . . .	444 square miles on the 4-inch scale.		
" Thana . . . . .	204	" "	8 "
" Nasik . . . . .	29	" "	16 "
" Ahmednagar . . . . .	29	" "	16 "
" Nasik . . . . .	29	" "	16 "
TOTAL . . . . .	<u>677</u>		

The cost-rate of the detail survey on the several different scales was as follows:—

	Rs
4-inch scale . . . . .	60 per square mile.
8-inch " . . . . .	179 " "
16-inch " . . . . .	155 " "

Compared with the previous year's figures, the cost-rate of the 4-inch work shows a decrease, the cost of the 16-inch work is about the same, but the cost-rate for the 8-inch survey shows a considerable increase. The latter is attributed to several causes, but principally to the death of several trained and experienced surveyors since last field season.

*Sindh.*—There is nothing to record under the head of surveys.

#### V.—WORKING-PLANS.

During the year, in the provinces of the Bengal Presidency, 17 plans, dealing with an area of 2,964 square miles, were sanctioned by Local Governments, as against 21 plans, and an area of 3,479 square miles, in the previous year. The Central Provinces easily head the list with completed plans for 1,537 square miles in the Northern Circle, and for 3,455 square miles in the Southern Circle—a rate of progress which is very satisfactory.

In North-Western Provinces and Oudh, the forests are practically all worked under sanctioned plans, and new work will consist of revision of existing plans as may be necessary. In Bengal a plan for the Tista Division was completed and sanctioned, but nearly 9,000 square miles remain to be taken in hand.

In other provinces there is but little progress to record as far as completed plans are concerned, but the fact that at the close of the year plans were under preparation and in many cases nearing completion for more than 14,000 square miles in the Bengal Presidency shows that due attention has been paid to this branch of forest administration. Much good work was done in the Punjab, in the Central Provinces, and in Burma where some important valuation surveys were carried out in the Western Circle. Out of a total forest area in the Bengal Presidency of 85,000 square miles, plans have been completed and sanctioned for 16,000 square miles, or

19 per cent., and it is probable that by the close of another year the area under working-plans will be more than 20,000 square miles.

In Madras three working-plans for 17 square miles were sanctioned, and there are still nearly 18,000 square miles for which plans have still to be compiled. The provisions of existing plans are in many cases reported to be unsuitable and the plans to be consequently not worked up to.

In Bombay much work has been done in laying down working-plan coupes. In the Northern Circle, three plans for 112 square miles were sanctioned by Government and a further area of 266 square miles was being dealt with. In the Central Circle, Form No. 50 shows an area of 1,164 square miles under completed working-plans. These plans have not, however, been sanctioned by Government, and it is not known how far these areas have been placed under scientific schemes of working.

As regards the provisions of existing working-plans, it is satisfactory to record that in the Bengal Presidency, for which alone control forms are submitted, they have been very well worked up to.

The following tables show for the Bengal Presidency :—

## (A)

*Areas brought under the control of sanctioned working-plans up to 30th June 1898 in the Provinces of the Bengal Presidency.*

PROVINCE.	FOREST AREA, IN SQUARE MILES.				Area for which Working-Plans prepared and sanctioned up to 30th June.	Proportion of Forest area under sanctioned Working-Plans.
	Reserved.	Protected.	Unclassed State.	TOTAL.		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
					Square miles.	Per cent.
Bengal . . . . .	5,880	3,460	4,034	13,374	(a) 4,448	33
North-Western Provinces and Oudh.	3,851	94	43	3,988.	(b) 3,308	83
Punjab . . . . .	2,283	3,011	2,139	7,433	(c) 694	9
Burma (Lower) . . . . .	7,373	...	...	7,373	1,543	21
Burma (Upper) . . . . .	7,333	...	...	7,333	37	1
Central Provinces . . . . .	19,206	...	292	19,498	(d) 4,992	26
Assam . . . . .	3,590	...	15,683	19,273	533	3
Coorg . . . . .	238	649	...	887	116	13
Ajmer . . . . .	139	...	10	149	139	93
Baluchistan . . . . .	170	...	...	170	...	...
Andamans . . . . .	120	...	1,833	1,953	...	...
Berar . . . . .	4,175	...	...	4,175	726	18
TOTAL . . . . .	54,358	7,214	24,034	85,606	16,536	19

*N. B.*—For explanation of the figures in columns 2 to 5, please see the remarks column of the area statement on page 3.

(a) On 1st July 1897 this stood at 4,250, during the year it was reduced by 14 square miles which were transferred for cultivation = 4,236, and 212 square miles were added for new areas = 4,448.

(b) Includes 78 square miles of closed forests dealt with in the Pilibhit plan for which a new plan is under preparation.

(c) Last year this was shown as 698, and in 1897-98 it was reduced to 689 by transfer and rectification. During the year plans for 117 square miles were sanctioned, but this included 111 square miles (Upper Ravi plan) of old areas now revised and already accounted for. The total therefore comes to 688+6=694.

(d) In 1896-97 this figure was 2,441; during 1897-98 it was reduced to 2,409 by rectification and transfer and increased by 2,593 (= 4,992 square miles) for newly sanctioned plans.

(B)

*Progress made in working-plans in the provinces of the Bengal Presidency during 1897-98.*

PROVINCE.	PRELIMINARY PROPOSALS SUBMITTED TO THE INSPECTOR-GENERAL OF FORESTS FOR WORKING-PLANS.		COMPLETED PLANS SUBMITTED FOR OPINION AND REMARKS OF INSPECTOR-GENERAL OF FORESTS.		PLANS FINALLY SANCTIONED BY LOCAL GOVERNMENTS ON RECOMMENDATION OF THE INSPECTOR-GENERAL OF FORESTS.	
	No.	Area for which prepared.	No.	Area for which prepared.	No.	Area for which prepared.
		Square miles.		Square miles.		Square miles.
Bengal . . . . .	...	...	...	...	1	213
North-Western Provinces and Oudh . . . . .	4	(a) 360	2	(b) 87	1	7
Punjab . . . . .	1	90	1	1,811	3	(c) 117
Burma (Lower) . . . . .	1	169	1	40	1	40
Burma (Upper) . . . . .	1	207	1	79	...	...
Central Provinces . . . . .	1	63	6	1,333	10	2,583
Berar . . . . .	...	...	...	...	1	5
Coorg . . . . .	...	...	3	61	...	...
<b>TOTAL</b> . . . . .	<b>8</b>	<b>889</b>	<b>14</b>	<b>3,411</b>	<b>17</b>	<b>(d) 2,964</b>

(a) Includes 106 square miles of old working-plan areas now being revised.

(b) Includes 80 square miles of old working-plan areas now being revised.

(c) Includes 111 square miles of old working-plan areas now being revised.

(d) See (c). The actual progress for new areas is 2,964-111=2,853 square miles.

(C)

## Comparative Statement of progress made in Working-Plans during 1897-98.

PROVINCE.	AREAS FOR WHICH WORKING-PLANS HAVE BEEN COMPLETED AND SANCTIONED.		AREAS FOR WHICH WORKING-PLANS ARE BEING COMPLETED.		Areas for which Working-Plans have still to be taken in hand.	Total forest area, as in Form No. 46.	REMARKS.	
	At commencement of the year.	During the year.	At commencement of the year.	Taken in hand during the year.				
1	2	3	4	5	6	7	8	
	Sq. m.	Sq. m.	Sq. m.	Sq. m.	Sq. m.	Sq. m.		
Bengal . . . . .	(a) 4,236	212	195	...	8,371	13,374	(a) Last year the area was 4,260 square miles, of which 14 square miles were transferred to the Civil Department for cultivation.	
North-Western Provinces and Oudh.	Central Circle . . . . .	1,470	(b) 7	(d) 60	...	(c) 324	1,861	
	Oudh " . . . . .	(e) 1,106	...	...	(f) 138	...	1,244	(b) Banikhet Cantonment Working-Plan.
	School " . . . . .	725	...	...	145	13	883	(c) This should really be 351 square miles, because Working-Plans for 27 square miles included in columns 2 and 3 are for district and cantonment forests not included in column 7 (Part of Bebar plan, 19; Naini Tal Cantonment, 1; and Banikhet Cantonment, 7).
Punjab . . . . .	(g) 688	(h) 6	2,842	17	3,880	7,433		
Burma (Lower)	Pegu Circle . . . . .	1,023	...	...	...	(i) 3,236	4,256	(d) Excluding old areas now being revised and already included in column 2.
	Tenasserim Circle . . . . .	480	40	110	97	3,410	(j) 4,187	
Burma (Upper)	Eastern Circle . . . . .	37	...	66	207	2,348	(k) 2,658	(e) Includes 78 square miles of closed forests dealt with in the Pilibhit Working-Plan for which a new plan is under preparation.
	Western " . . . . .	...	...	...	...	4,675	(l) 4,675	(f) Excluding (e).
Central Provinces	Northern Circle . . . . .	...	1,537	5,159	1,404	(m) 1,453	9,553	(g) According to last year's statement this should be 696; it has now been reduced by 8 square miles by transfer and rectification of area (Bashahr 1 and Changa Manga 7).
	Southern " . . . . .	(n) 2,409	1,046	2,588	979	(o) 2,923	9,945	
Assam . . . . .	533	...	...	...	(p) 18,740	19,273	(h) Excluding 111 square miles (revised Upper Khasi plan) sanctioned during the year, but already included in column 2.	
Berar . . . . .	721	5	...	...	3,449	4,175		
Coorg . . . . .	116	...	84	...	687	887	(i) These are reserved areas only and exclude 10,301, 11,619, 14,307 and 16,334 square miles, respectively, of forests which have been afforded protection under the regulations as a preliminary to being reserved.	
Baluchistan . . . . .	...	...	...	...	170	170		
Andamans . . . . .	...	...	...	...	1,953	1,953	(j) Marked out for disforestation: require no working-plans.	
Ajmer . . . . .	139	...	...	...	10	149	(k) According to last year's statement this should be 2,441, but during 1897-98 it was reduced by 32 square miles owing to rectification and transfer of lands for cultivation.	
Total Bengal Presidency . . . . .	(m) 13,683	(n) 2,853	11,104	2,987	54,979	85,606	(l) No plans are required for 2,450 square miles which have been excised for cultivation.	
Madras Presidency.†	Northern Circle . . . . .	52	...	718	101	6,034	6,905	(m) Includes 15,683 square miles of unclassified forests for which working-plans are not required at present.
	Central " . . . . .	42	...	143	96	6,546	6,827	(n) According to last year's statement, this should be 13,737, but during 1897-98, it was reduced 64 square miles by transfers, etc., see (a), (g) and (k).
	Southern " . . . . .	90	17	36	7	5,371	5,521	(o) Excluding (l).
TOTAL . . . . .	184	17	897	204	17,951	19,253	(p) Includes 26 square miles of pasture reserves not to be organised.	
Bombay Presidency.†	Northern Circle . . . . .	526	112	...	266	1,401	2,305	
	Southern " . . . . .	682	...	312	61	(o) 4,234	5,289	
	Central " . . . . .	888	276	1,578	1,111	2,409	6,262	
	Sindh " . . . . .	...	...	...	186	872	1,058	

\* Not a single working-plan has as yet been sanctioned by Government; forest-blocks which have been divided into their 40 compartments and which are being worked under provisional working-plans are entered in columns 2 and 3.  
† N. B.—For Madras and Bombay the figures in columns 2 and 3 have been taken from the statements given in the annual reports, but it is not known what areas have been actually sanctioned.

Details of work done in the various provinces are as follows:—

*Bengal.*—The working-plan for the Tista Division, dealing with an area of 212 square miles, was completed and sanctioned during the year. A plan for the Tista valley forests (area 12 square miles) and that for the Jalpaiguri Division forests (area 183 square miles) were under preparation at the close of the year. In this Circle there remain 8,731 square miles still to be dealt with, which is the largest area left in any province except Assam.

*North-Western Provinces and Oudh.*—The forests in these provinces, which are managed by the Forest Department, are now practically all worked under the provisions of sanctioned plans. The exception is the Bundelkhand Division, where it has been decided that for the present no plan is required. During the year a plan for the Ranikhet Cantonment forests was sanctioned, and plans for the forests of Naini Tal and of the Ranikhet Sub-division were under preparation and nearing completion. In Oudh, a plan for the Gonda forests was under preparation, and a commencement was made for the preparation of a plan for the open forests of Pilibhit. In the School Circle work was commenced on the plan for the Jaunsar Division.

*Punjab.*—Although no new plans for Government forests were sanctioned during the year, a considerable amount of progress is recorded. The existing plan for the Upper Ravi forests was revised, and plans dealing with an area of 2,359 square miles were under preparation at the close of the year. The plan for the Kulu forests (area 1,811 square miles) was practically completed and has since been sanctioned.

*Burma.*—In Burma, a working-plan for the Kyaukmasin forest in the Tenasserim Circle was the only one sanctioned during the year. A considerable amount of preparatory work was done in the Tenasserim Circle and in the Western Circle of Upper Burma, where important linear valuation surveys were carried out over 67 square miles of the most valuable teak-bearing forests. In Burma the huge area of 12,000 square miles of reserved forests remains for which working-plans have still to be taken in hand.

*Central Provinces.*—The Local Government reviewing the year's work says:—

7. "Good progress has been made during the year in the preparation of working-plans in both Circles. In the Southern Circle nine plans, dealing with 1,640 square miles, were sanctioned during the year, bringing the total area under definite working-plans up to 4,049 square miles or 54 per cent. of the total area of 7,484 square miles eventually to be so treated. Plans for over 2,973 square miles are in preparation, and a considerable portion is already in print. Every forest of present importance is now worked under the prescription of a sanctioned plan, while of the area for which plans are at present needed, only 462 square miles are still without them, and the whole of this area is of minor importance.

In the Northern Circle working-plans have been prepared for 1,537 square miles, and plans for the remaining area of 6,563 square miles for which plans are required are in hand. In the Mandla Division, owing to delay in survey, only preliminary working-plans will be possible for the present, but it is believed that, when the next working season opens, every forest in the Circle will be worked under a regular working-plan. The Chief Commissioner hopes that this anticipation will be fulfilled. If it is, the state of the province in this respect will be most satisfactory."

*Assam.*—The only work under this head was the preparation of a supplement to the Goalpara plan, under which the hitherto unregulated fellings of trees other than sâl were systematized. The Goalpara working-plan for sâl trees has so far not been worked up to, and there is at present an available balance of some 22,000 sâl trees standing in the coupes.

*Berar.*—A working-plan for the babul forests of Akola was sanctioned, and the area now under working-plans in Berar stands at 726 square miles. The large area of 3,449 square miles still appears for which working-plans still require to be taken in hand. Of this area 2,326 square miles are treated under so-called "Provisional Working-Plans", which will, it is hoped, be elaborated in the near future into regular working-plans.

*Coorg.*—Plans for the Devamashi and Arkeri forests were revised during the year, and that for the Dubari forest was taken in hand. The principal work remaining is a plan for the sandal-bearing area throughout the Division, for which a preliminary report was submitted. For the Ghat forests, plans are not at present required.

*Baluchistan.*—There are no working-plans.

*Andamans.*—No progress is recorded.

*Ajmer.*—The provisions of the existing working-plan were carried out as far as possible, but it remains to lay out the working-plan compartments on the ground.

*Madras.*—Working-plans were sanctioned for an area of 17 square miles in the Tinnevely district, and plans for an area of 1,101 square miles are shown as under preparation, chiefly in the Northern Circle. A perusal of the reports, however, seems to show that in very many cases the provisions of existing plans are not carried out, and the fact remains that over an area of nearly 18,000 square miles of forests, no plans of any kind are in force.

*Bombay.*—In the Northern Circle good progress is reported, and plans dealing with an area of 112 square miles were sanctioned by Government during the year. A further area of 266 square miles was also being dealt with. A good deal of useful work was also done in laying out the working-plan coupes on the ground.

In the Central Circle Form No. 50 shows that over a large area efforts are being made to introduce systematized working, and it would appear that plans have been completed for 1,164 square miles. These plans, however, have not been sanctioned by Government, and the division of a forest into 40 blocks cannot be accepted as a working-plan for it. The Form is therefore misleading.

In the Southern Circle no plans were sanctioned during the year, but plans dealing with 373 square miles were under preparation.

In Sindh fair progress was made in the Hyderabad Division.

In the Bombay Presidency the large area of nearly 9,000 square miles remains to be taken in hand, and of the plans shown as completed or under preparation in the Central Circle, it would seem that many of them consist in the simple division of a track into 40 compartments.

#### VI.—COMMUNICATIONS AND BUILDINGS.

On roads and bridges a total expenditure of nearly R1,73,000 was incurred, which is slightly higher than in the previous year. The increase, amounting to R8,000, occurred almost entirely in the North-Western Provinces and Oudh, which is responsible for more than one-fourth of the total expenditure. Good work was again done in Madras in opening out the forests, and R23,000 were spent in the construction of 105 miles of forest roads. The average rate per mile (R219) is somewhat high as compared with that prevailing in the Bengal Presidency, where 527 miles of roads were constructed for R51,740 or for an average rate of R98 per mile. In Bengal and Berar good work was also done, 67 miles of new roads were constructed in the former province and 87 miles in the latter, where famine relief work often took the form of useful roads. The total expenditure on buildings amounted to nearly R2,64,000, which is much the same as in the previous year. The largest expenditure took place in the North-Western Provinces and Oudh (R49,000), Burma (R54,000) and in Madras (R44,000) where repairs to existing buildings cost R23,000. Much good work has been done in most provinces in providing the officers of the subordinate establishment with suitable accommodation. The following statement shows the expenditure on roads and buildings in the various Provinces under "New Work" and "Repairs".

PROVINCE.	NEW WORK.		REPAIRS.		TOTAL.
	Buildings.	Roads.	Buildings.	Roads.	
	R	R	R	R	R
Bengal . . . . .	21,568	11,592	11,341	10,745	55,246
North-Western Provinces and Oudh . . . . .	33,935	20,470	15,701	34,617	1,04,723
Punjab . . . . .	9,332	3,651	3,802	3,213	20,048
Burma (Lower) . . . . .	9,794	3,265	5,980	6,139	25,178
Burma (Upper) . . . . .	33,408	732	5,162	492	39,794
Central Provinces . . . . .	7,880	2,087	6,425	3,061	19,453
Assam . . . . .	14,567	1,807	8,605	1,940	26,419
Coorg . . . . .	1,392	606	1,161	2,567	5,728
Ajmer . . . . .	...	605	141	30	776
Baluchistan . . . . .	...	...	104	...	104
Andamans . . . . .	517	80	78	722	1,397
Berar . . . . .	3,354	7,345	2,999	7,293	20,991
<b>TOTAL BENGAL PRESIDENCY</b>	<b>1,35,797</b>	<b>51,740</b>	<b>61,499</b>	<b>70,819</b>	<b>3,19,855</b>
Madras . . . . .	21,169	23,335	23,036	16,137	63,677
Bombay . . . . .	16,664	5,498	5,959	5,431	33,552
<b>GRAND TOTAL</b>	<b>1,73,630</b>	<b>80,573</b>	<b>90,494</b>	<b>92,387</b>	<b>4,37,084</b>



Details of work done in the various provinces are as follows :—

*Bengal.*—An inspection bungalow was erected in the Mim block of the Darjeeling Division. Rest-houses were completed at Sivoke (₹1,427) in Kurseong, at Kuntimari (₹900) in Jalpaiguri and at Buxa Duars; the head-quarters bungalow, which had been destroyed by the earthquake, was reconstructed at a cost of ₹3,458. Houses were also constructed at Banki, Tulka and at Derras. At Khulna, the head-quarters of the Sundarbans Division, a bungalow was commenced and ₹1,500 spent on it during the year. Sixty-seven miles of new roads and paths were made, as against 72 miles in the previous year. The chief expenditure was in the Darjeeling Division where ₹10,151 were spent out of the total expenditure of ₹21,852. A useful cart-road is being made from the Tista-Bridge road to the Torchu by the Political Officer of Sikkim, and in Singhbhum the cart-road from Gailkora to Kulipiri was completed. The following statement compares the expenditure of the year with that of the previous year 1896-97 :—

NATURE OF WORK.	BUILDINGS.		ROADS AND BRIDGES.		TOTAL.	
	1896-97.	1897-98.	1896-97.	1897-98.	1896-97.	1897-98.
	₹	₹	₹	₹	₹	₹
New construction . . . . .	12,407	21,568	10,480	11,592	22,887	33,160
Repairs . . . . .	10,132	11,341	14,226	10,745	24,358	22,086
Unapportioned . . . . .	664	1,395	441	120	1,105	1,515
<b>TOTAL</b> . . . . .	<b>23,203</b>	<b>34,304</b>	<b>25,147</b>	<b>22,457</b>	<b>48,350</b>	<b>56,761</b>

*North-Western Provinces and Oudh.*—The Local Government thus reviews the work of the year.

“During the year 131 miles of new roads were constructed and 3,626 miles were repaired, the Central Circle showing the greatest outturn of work of each kind. The following table shows the expenditure incurred :—

CIRCLE.	ROADS AND BRIDGES.		BUILDINGS.		Other works.	Total.	Percentage on gross expenditure.
	New works.	Repairs.	New works.	Repairs.			
	₹	₹	₹	₹	₹	₹	
Central . . . . .	4,182	20,267	9,933	4,098	1,758	40,218	12.71
Oudh . . . . .	4,787	6,761	13,202	4,543	2,168	31,461	11.58
School . . . . .	11,521	7,569	9,541	6,151	1,404	36,206	10.45
<b>TOTAL</b> . . . . .	<b>20,470</b>	<b>34,617</b>	<b>32,676</b>	<b>14,792</b>	<b>5,330</b>	<b>1,07,885</b>	<b>11.54</b>
Total, 1897-98 . . . . .	55,087		47,468		5,330	1,07,885	11.54
Total, 1896-97 . . . . .	48,309		36,792		7,556	92,657	10.60
Total, 1895-96 . . . . .	54,158		47,787		6,356	1,08,301	11.62

\* The amount debited to the accounts of 1897-98 was ₹7,056, but of this sum ₹2,504 was shown in 1896-97.

The total expenditure rose again almost to the level of that incurred in 1895-96, exceeding that of 1896-97 by more than ₹15,000. The increase occurred chiefly in the School Circle under roads and bridges, where the floods of August 1897 had done great damage in the Jaunsar Division; and in the Oudh Circle under new buildings, where, among other works, three rest-houses and a set of range-quarters were built. In the Central Circle, the construction of the new Forest office in Naini Tal, which has been sanctioned by the Government of India, is awaiting the settlement of a reference to that Government in regard to the apportionment of the funds required for it, in the event of the construction being undertaken, as is desirable, by the Public Works Department.”

The expenditure on repairs to roads is far heavier in the North-Western Provinces and Oudh than in any other province. The heaviest expenditure is incurred in the Central Circle, where 1,900 miles of roads which are many of them rendered impassable in the rains

have to be annually renewed at a cost of some R20,000 before the produce of the forests can be placed on the markets.

*Punjab.*—The expenditure on roads and buildings, as compared with that of the previous year, was as follows:—

NATURE OF WORK.	ROADS AND BRIDGES.		BUILDINGS.	
	1896-97.	1897-98.	1896-97.	1897-98.
	R	R	R	R
New work . . . . .	1,271	3,651	13,004	9,382
Repairs . . . . .	2,346	3,213	4,771	3,802
Total . . . . .	3,617	6,864	17,775	13,184

The increased expenditure under roads was due to more extensive repairs and to the construction of roads and paths in Kangra, Rawalpindi and Chamba. One hundred miles of new roads were constructed and 526 miles were repaired. The work is chiefly confined to the hill Divisions where more roads are required for opening out the forests.

Good progress was made in the construction of rest-houses and range-quarters, but there is still much to be done in this direction.

*Burma.*—In Tenasserim a rest-house was built at Tabet-Kwe and another at Kamam-aung in the Kado Division, and much good work was done in constructing quarters for the subordinate staff. In Pegu no important building work was done; small rest-houses were built at Thayetmyo and Prome, and others were being constructed at Henzada and Pegu. Existing buildings were kept in repair for R4,175. In the Eastern Circle R14,702 were spent on new works, the chief work being the dismantling and reconstruction of the bungalow and out-houses at Maymyo.

In the Southern Shan States the divisional forest bungalow is approaching completion, and R7,186 were spent on it during the year. In the Western Circle R18,736 were spent on new buildings, a head-quarters house at M6nywa (R9,690) being the most important.

Under communications R2,465 were spent in Tenasserim in clearing rivers by blasting. In Pegu  $\frac{1}{4}$  mile of metalled road was made for R800, and R6,096 was expended on repairs to roads. In the Eastern Circle, the only important work was done by the Bombay-Burma Trading Corporation, Limited, who constructed 83 miles of export roads at a cost of R3,393 and spent R10,000 on bridges and clearing creeks, etc., in the Pyinmana forests. In the Western Circle two bridges were constructed over streams in the Yu reserve, and R379 only were expended on road works.

*Central Provinces.*—Owing to the unsatisfactory financial condition the expenditure on roads and buildings was kept as low as possible, and shows a great reduction on that of the years 1894-95 and 1895-96.

The following shows the expenditure, compared with that of the previous year:—

YEAR.	BUILDINGS.			ROADS.		
	New work.	Repairs.	Total.	New work.	Repairs.	Total.
	R	R	R	R	R	R
1896-97 . . . . .	9,838	4,580	14,418	1,192	2,748	3,940
1897-98 . . . . .	7,780	6,425	14,205	2,087	3,061	5,148

In the Southern Circle a new range head-quarters was constructed at Bhandara, and range-quarters were built at Dhamtari, Balod and North and South Sibawa, a checking post was built at Seoni and several sub-range quarters were constructed. Thirty-one miles of new roads were made at a cost of R884, and 609 miles of cart-roads were kept in order for R2,041.

In the Northern Circle a number of small buildings were made for subordinates at a cost of R5,316, and repairs to 332 buildings cost R2,729. Thirty-one and-a-half miles of new roads were constructed and 148 miles of roads were repaired, the total expenditure being R2,223.

*Assam.*—The following compares the expenditure with that of the previous year :—

Nature of work.	Roads.	Buildings.	Other works.	TOTAL.
	R	R	R	R
New works . . . . .	1,307	14,567	..	15,874
Repairs . . . . .	1,940	8,605	1,512	12,057
Grand Total, 1897-98 . . . . .	3,247	23,172	1,512	27,931
Grand Total, 1896-97 . . . . .	2,698	11,123	1,389	15,210

The most important building works were an inspection bungalow at Gauhati, head-quarter bungalow at Tezpur and out-houses, on which R4,004 were spent during the year. A large amount of repairs and reconstruction to buildings was entailed by the damage done by the earthquake of 1897. There were no important road works undertaken.

*Coorg.*—The expenditure of the year contrasted with that of the previous year was :—

Nature of work.	Roads.		Buildings.		Other works.		TOTAL.	
	1896-97.	1897-98.	1896-97.	1897-98.	1896-97.	1897-98.	1896-97.	1897-98.
	R	R	R	R	R	R	R	R
New works . . . . .	609	606	2,580	1,392	...	...	3,189	1,998
Repairs . . . . .	1,886	2,576	647	1,161	79	269	2,612	4,006

No large building works were undertaken, the expenditure on new work being incurred on the erection of quarters for foresters and guards: 8½ miles of new roads were constructed and 99 miles repaired.

*Ajmer.*—The old barracks of Beawar Cantonment were repaired and made suitable for a range office. The house on the Nagpahar hill was repaired, and forest chowkies kept in order. Nearly 18 miles of new roads were completed at a cost of R605, whilst R30 were spent on repairs.

*Baluchistan.*—Repairs to existing buildings cost R104. There was no expenditure on roads, inspection paths in plantations being made by the Forest establishment without extra cost.

*Andamans.*—Five new barracks were constructed at a cost of R400. Two elephant sheds were built, and an inspection bungalow was commenced at Jirkatang. Including repairs, a total expenditure of R595 was incurred. Under communications the chief item was R722 on the upkeep of 6½ miles of tramline.

*Berar.*—The Commissioner in his review remarks :—

“ In the Ellichpur Division 17 miles of road were constructed at a cost of R4,684 and 3 in the Amraoti Division costing R1,503, and R602 were spent in the Akola and Basim Divisions on 21 miles of cart-tracks.

Very good work was done by Mr. Williamson, the Deputy Conservator of the Ellichpur Division, in constructing wells under the scheme for the improvement of the water-supply of the Melghat. Twenty-seven were finished during the year, and altogether 80 have now been built; and the importance of the boon that in this way has been conferred on the *Korku* population cannot be doubted.”

*Madras.*—The expenditure of the two years 1896-97 and 1897-98 was as follows :—

	1896-97.	1897-98.
	R	R
Roads and bridges . . . . .	47,268	33,689
Buildings . . . . .	48,342	44,205
Other works . . . . .	4,223	5,763

In the Northern Circle R11,649 were spent on roads, chiefly in Kistna, Godavari, and Kurnool. In the Central Circle R7,010 were spent, chiefly in Cuddapah and Salem, whilst in the Southern Circle R15,030 were spent, chiefly in the Nilgiris, Coimbatore, and Tinnevely districts. Altogether 105 miles of new roads were constructed at a cost of R23,335.

Under buildings the most important work in the Northern Circle was the construction of six range camps in Kistna. Considerable expense was incurred on repairs to buildings in the same district, and to the range and head-quarters bungalows in Kurnool. In the Central Circle most work was at Chingleput, where a rest-house and a forest-guard's hut were constructed. In the Southern Circle several range-quarters were constructed in South Malabar. In the Nilgiris the Benne station was reconstructed and an inspection lodge built at Susigundi. A rest-house was commenced at Tamarakarai in North Coimbatore, and in South Coimbatore, foresters' quarters were re-built at Anaipadi, the saw-mill building and the tramline to the workshop were completed. The tramway for Nellore was worked to a considerably larger extent than in the previous year, while the tramways to Cuddapah and South Coimbatore were less used.

*Bombay.*—The Bombay Government in their review of forest administration of the year remark :—

“ Good progress was made in opening up the forests in the difficult country in the Point and Igatpuri talukas of Nasik at a cost of R19,518. Attention was paid to improving the communications in Kanara in the Southern Circle and in Surat in the Northern. In Sindh, eight sluices were constructed to permit of irrigation through the river protective embankments. No buildings of importance were constructed, but the provision of houses for subordinates was proceeded with. The total expenditure on communications amounted to R30,446 and on buildings to R30,118.”

## CHAPTER II.

### PROTECTION AND IMPROVEMENT.

#### I.—GENERAL PROTECTION.

There has been an increase of some 900 in the number of cases of breaches of forest rules disposed of before the Courts, the increase occurring chiefly in Madras and Bombay. Of the total number of cases in the Bengal Presidency, Madras and Bombay, convictions were obtained in 82 per cent., which may be regarded as very satisfactory. The number of cases compounded under section 67 of the Indian Forest Act, and the corresponding sections of other Forest Acts, also show a considerable increase again, chiefly in Madras and Bombay, where the increasing area of the reserved forests year by year naturally leads to an increased number of cases. The following table gives the number of cases tried by the Courts and compounded during the two years 1896-97 and 1897-98 in the various provinces:—

PROVINCE.	Number of cases disposed of by the Courts.		Number of cases compounded.		TOTAL.		Proportion of convictions to the total number of cases decided by the Courts.	
	1897-98.	1896-97.	1897-98.	1896-97.	1897-98.	1896-97.	1897-98.	1896-97.
							Per cent.	Per cent.
Bengal . . . . .	350	279	1,631	1,158	1,981	1,437	89.4	87.8
North-Western Provinces and Oudh. . . . .	125	134	411	481	536	615	80.0	76.8
Punjab . . . . .	1,005	1,009	2,017	2,393	3,022	3,402	74.0	79.2
Burma (Lower) . . . . .	322	301	2,084	1,890	2,406	2,191	80.4	82.4
Burma (Upper) . . . . .	201	180	320	413	521	593	79.6	80.6
Central Provinces . . . . .	275	346	4,184	4,156	4,459	4,512	77.8	80.6
Assam . . . . .	77	93	198	249	273	342	77.9	86.0
Coorg . . . . .	17	10	14	100	31	110	76.5	90.0
Ajmer . . . . .	112	81	148	129	260	210	94.6	97.5
Baluchistan . . . . .	38	40	242	246	280	286	76.3	65.0
Andamans . . . . .	5	5	...	...	5	5	60.0	100
<b>TOTAL</b> . . . . .	<b>2,527</b>	<b>2,478</b>	<b>11,247</b>	<b>11,215</b>	<b>13,774</b>	<b>13,693</b>	<b>79.2</b>	<b>81.4</b>
Berar . . . . .	182	148	816	743	998	891	79.6	80.4
Total Bengal Presidency . . . . .	2,709	2,626	12,063	11,958	14,772	14,584	79.2	81.4
Madras . . . . .	4,474	4,025	7,694	5,793	12,168	9,818	85.4	83.3
Bombay . . . . .	2,461	2,127	6,918	5,198	9,379	7,325	79.2	75.8
<b>GRAND TOTAL</b> . . . . .	<b>9,644</b>	<b>8,778</b>	<b>26,675</b>	<b>22,949</b>	<b>36,319</b>	<b>31,727</b>	<b>82.1</b>	<b>80.9</b>

In the following table the offences are classified in accordance with their character:—

PROVINCE.	CASES TAKEN INTO COURT.				COMPOUNDED CASES.				CASES IN WHICH THE OFFENCES REMAINED UNDETECTED.				TOTALS OF EACH CLASS OF OFFENCE.				GRAND TOTAL OF CASES.
	Injury to fire-protected forests by fire.	Unauthorized felling or appropriation of wood and minor forest produce.	Grazing without permission in tracts in which grazing is prohibited.	Other offences.	Injury to fire-protected forests by fire.	Unauthorized felling or appropriation of wood and minor forest produce.	Grazing without permission in tracts in which grazing is prohibited.	Other offences.	Injury to fire-protected forests by fire.	Unauthorized felling or appropriation of wood and minor forest produce.	Grazing without permission in tracts in which grazing is prohibited.	Other offences.	Injury to fire-protected forests by fire.	Unauthorized felling or appropriation of wood and minor forest produce.	Grazing without permission in tracts in which grazing is prohibited.	Other offences.	
North-Western Provinces and Oudh. . . . .	40	256	31	62	965	551	130	173	12	12	12	12	218	1,251	573	169	2,250
Punjab . . . . .	9	84	27	19	156	134	110	65	6	6	6	6	72	205	161	151	569
Burma (Lower) . . . . .	57	878	269	90	894	1,099	27	199	47	10	10	5	261	1,519	1,395	151	3,306
Burma (Upper) . . . . .	28	175	1	59	1,726	12	891	9	16	6	1	1	40	1,015	19	451	2,019
Central Provinces . . . . .	4	378	3	31	221	25	91	11	6	6	1	6	19	403	28	115	608
Assam . . . . .	107	49	37	84	2,735	1,205	83	200	155	3	3	3	410	2,937	1,242	117	4,755
Coorg . . . . .	6	49	1	17	100	6	29	23	2	2	2	2	60	111	1	46	269
Ajmer . . . . .	3	80	17	3	100	41	7	1	1	1	1	1	3	17	6	10	36
Baluchistan . . . . .	2	31	8	4	85	105	3	3	3	3	3	3	6	60	6	10	166
Andamans . . . . .	5	5	5	44	537	68	187	24	19	19	19	19	47	677	73	231	1,028
<b>TOTAL</b> . . . . .	<b>263</b>	<b>1,648</b>	<b>418</b>	<b>390</b>	<b>7,533</b>	<b>5,233</b>	<b>1,060</b>	<b>676</b>	<b>279</b>	<b>11</b>	<b>17</b>	<b>17</b>	<b>1,104</b>	<b>9,455</b>	<b>3,663</b>	<b>1,445</b>	<b>15,897</b>
Bengal Presidency . . . . .	44	2,470	1,790	441	3	4,200	3,279	367	145	616	874	371	193	7,653	5,812	1,179	14,775
Madras . . . . .	137	1,341	653	343	69	2,071	5,903	419	1,937	1,635	1,141	51	2,157	5,547	5,597	648	14,143
<b>GRAND TOTAL</b> . . . . .	<b>444</b>	<b>5,420</b>	<b>2,771</b>	<b>1,163</b>	<b>251</b>	<b>14,404</b>	<b>10,314</b>	<b>1,846</b>	<b>2,766</b>	<b>2,790</b>	<b>3,025</b>	<b>469</b>	<b>3,453</b>	<b>23,554</b>	<b>15,111</b>	<b>3,467</b>	<b>44,565</b>

It is thus seen that by far the greatest number of offences were those of unauthorized felling or appropriation of forest produce. Many of these were of a petty character, and 70 per cent. of them were properly disposed of by compounding. The number of cases of injury to forest by fire was 3,453, of which no less than 2,758 remained undetected. Of these 676 occurred in the Bengal Presidency, 145 in Madras and the remainder in Bombay, where out of a total of 2,157 cases of injury of the forests by fire, 137 cases were brought before the Courts and 83 cases were compounded, leaving 89 per cent. of the cases undetected. In the Bengal Presidency 61 per cent. of the cases of injury by fire remained undetected.

## II.—PROTECTION FROM FIRE.

During the year under review the area of forest over which special protective measures were in force was increased by 815 square miles and at the close of the year stood at 31,704 square miles.

Of this area 91 per cent. was saved from fire at a cost of ₹3,03,623; and this though not so good as in the previous year must be considered a satisfactory result. The North-Western Provinces and Oudh have the best record, inasmuch that 75 per cent. of the reserved forests are now under special fire-protection, and that of the area attempted to be saved from fire, only 2.79 per cent. was burnt. Fire-protection was also successful in the Central Provinces, Lower Burma, Assam, Ajmer and Madras; whilst in Bombay, though the percentage of failure is high (13 per cent.), a far larger area of forest was actually saved from fire than in any other Province.

The following table shows the results of fire-protection in the various Provinces:—

PROVINCE.	AREA, IN SQUARE MILES.				Proportion of failures to area attempted.		COST.				Proportion of area under fire-protection to total area of Reserves (Leased Forests included).	
	Attempted.		Protected.				Per square mile protected.		Per acre protected.			
	1897-98.	1896-97.	1897-98.	1896-97.	1897-98.	1896-97.	1897-98.	1896-97.	1897-98.	1896-97.	1897-98.	1896-97.
Bengal . . . . .	1,953	1,957	1,424	1,695	27.09	3.16	7½	5½	2.3	1.7	14.60	14.78
North-Western Provinces and Oudh . . . . .	3,020	(a)3,004	2,936	(a)2,918	2.79	(a)3.03	21½	(a)21½	6.4	(a)6.4	75.73	(a)75.90
Punjab . . . . .	400	538	371	531	7.25	1.30	13	19½	3.9	5.8	5.38	7.89
Burma (Lower) . . . . .	1,064	1,056	1,019	(a)932	4.23	7.12	43	55½	14.1	16.5	14.43	14.56
Burma (Upper) . . . . .	1,000	767	737	324	26.50	57.75	19½	29	5.9	2.5	13.63	11.26
Central Provinces . . . . .	5,948	5,961	5,712	5,728	3.95	3.85	9½	9½	3.0	3.0	30.50	30.40
Assam . . . . .	1,204	1,202	1,134	1,135	5.81	0.50	9	7	2.3	2.1	6.24	8.05
Cpoing . . . . .	204	204	177	204	13.25	...	48½	40½	13.6	12.1	19.95	22.97
Ajmer . . . . .	139	139	137	139	1.42	...	3½	3½	1.0	0.9	93.28	93.28
<b>TOTAL</b> . . . . .	<b>14,932</b>	<b>14,823</b>	<b>13,647</b>	<b>13,911</b>	<b>2.60</b>	<b>6.18</b>	<b>15½</b>	<b>15½</b>	<b>4.7</b>	<b>4.7</b>	<b>(c)18.83</b>	<b>(c)20.12</b>
Eoran . . . . .	1,444	1,429	1,434	1,393	0.69	2.17	9½	9½	2.9	2.8	84.53	33.13
Total, Bengal Presidency . . . . .	16,376	16,257	15,081	15,369	7.90	5.83	15½	15½	4.5	4.5	(c)19.61	(c)20.67
Madras . . . . .	5,321	5,362	4,935	5,287	4.31	1.39	7½	7½	2.0	2.0	27.63	28.41
Bombay . . . . .	10,007	9,270	8,697	8,760	13.03	5.50	3½	3½	1.1	1.1	67.11	61.74
<b>GRAND TOTAL</b> . . . . .	<b>31,704</b>	<b>30,889</b>	<b>28,763</b>	<b>29,356</b>	<b>2.27</b>	<b>4.96</b>	<b>10½</b>	<b>10½</b>	<b>3.1</b>	<b>3.1</b>	<b>(c)26.94</b>	<b>(c)27.63</b>

(a) Figures differ from those given in the 1896-97 Review, owing to revised figures having been furnished by the Central Circle Conservator in the 1897-98 Report.

(b) Erroneously shown as 981 square miles in the Conservator's Report for 1896-97.

(c) Baluchistan and Andamans left out of account, as no special measures were taken for protection from fire.

The subjoined table analyzes the origin of the fires reported:—

PROVINCE.	(C.) FIRES COMMENCING INSIDE THE RESERVE OR FIRE-TRACED AREA, CAUSED—																						TOTAL OF (A), (B) AND (C).	
	(A.)		(B.)		BY INTENTIONAL FIRING.										Causes unknown.									
	Fires caused by accident, or through carelessness in burning fire-lice.		Fires entering the forests by crossing exterior fire-traces.		By workmen employed in the forests, by purchasers of forest-produce and by saw-cutters, either accidentally or through carelessness.		By villagers, travellers, etc., passing through the forests, either accidentally or through carelessness.		By Railway engines.		By lightning, or by fire-balloons.		In order to obtain New grass.		In order to turn-out game, or to reduce cover.		Maliciously.		Total.		No.			Area burnt, in acres.
No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	
Bengal	7	5,403	19	16,333	3	570	41	66,699	1	2,560	1	...	22	46,448	30	68,800	10	25,575	62	171,823	81	112,730	215	376,118
North-Western Provinces and Oudh.	4	77	13	25,510	6	150	10	773	2	296	2	611	2	4,287	...	...	2	1,099	4	5,386	18	1,921	51	34,724
	7	2,668	8	2,925	...	...	2	114	...	...	2	4	3	404	...	...	3	2,607	12	3,011	9	272	40	8,989
	4	217	5	920	2	18	4	629	...	...	13	5,120	1	1,260	2	337	...	...	3	1,597	10	2,958	41	11,459
	15	2,957	26	29,358	8	168	16	1,516	2	296	17	5,736	6	5,951	2	337	11	3,706	19	9,994	29	5,151	132	55,172
Punjab	7	241	20	1,921	23	1,065	71	9,501	...	...	2	700	182	30,054	...	...	2	28	184	30,662	59	4,440	366	47,950
Lower Burma	10	585	28	18,340	6	303	11	6,570	1	8	...	...	...	...	1	113	2	1,727	3	1,840	...	...	57	27,644
	...	...	3	232	2	45	3	84	...	...	...	...	...	...	...	...	1	344	2	344	2	403	11	1,108
	10	585	29	18,572	8	348	14	6,654	1	6	...	...	...	...	1	113	3	2,071	4	2,184	2	403	68	29,752
Upper Burma	1	46	4	1,374	1	73	6	694	...	...	...	...	...	...	2	8,000	1	8	9	8,008	15	44,213	30	54,337
	1	600	9	47,840	...	...	2	1,200	...	...	...	...	...	...	...	...	1	1,000	1	1,000	15	63,328	28	113,966
	2	646	13	49,214	1	73	8	1,824	...	...	...	...	...	...	2	8,000	2	1,008	4	9,008	30	107,539	58	168,303
Central Provinces	35	17,496	146	123,680	33	71,389	55	35,695	10	1,259	2	98	3	14,292	4	810	7	3,373	14	18,175	64	123,370	356	391,150
	2	320	15	7,433	...	...	10	1,780	...	...	1	8	...	...	1	4	2	321	2	825	25	12,995	66	22,761
	37	17,706	161	131,113	33	71,389	65	37,475	10	1,259	3	104	3	14,292	5	614	9	3,694	17	18,500	90	136,365	422	413,911
Assam	4	8	14	649	6	240	4	43,652	...	...	...	...	...	2	34	...	...	2	34	4	37	34	4	44,618
Coorg	5	1,375	10	4,083	...	...	9	5,687	...	...	...	...	2	45	2	1,415	11	4,707	25	6,167	...	...	39	17,292
Ajmer	1	88	1	60	2	1,306	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	5	5	1,469
Deccan	2	1,288	...	...	3	1,163	5	2,624	...	...	3	131	...	...	1	600	5	648	3	1,748	...	...	20	6,452
Madras	1	10	6	885	...	...	10	1,231	1	70	...	...	5	610	3	905	2	18,280	15	14,795	43	24,858	76	41,849
	8	1,147	26	8,098	5	161	11	1,171	3	1,501	...	...	28	5,334	...	...	13	1,176	41	6,210	98	36,824	192	53,132
	2	302	41	60,548	18	774	13	3,915	3	83	5	1,146	15	1,882	5	314	37	14,732	57	16,928	94	17,363	223	101,109
	11	1,459	73	67,631	23	955	34	6,317	7	1,604	5	1,146	48	7,526	13	1,219	52	20,188	113	37,933	225	79,045	491	196,090
Bombay	39	2,114	95	17,738	7	332	156	22,111	16	872	...	...	...	...	51	7,888	28	5,005	79	13,893	302	47,325	694	104,385
	42	3,372	78	91,381	4	177	326	42,523	16	372	...	...	1	176	22	5,180	33	1,612	66	6,978	198	121,324	712	266,107
	5	737	123	32,719	5	190	207	22,466	21	730	33	1,371	5	61	18	2,042	5	2,804	28	4,907	324	23,841	746	66,961
	...	...	6	277	...	...	23	380	3	18	...	...	15	780	...	...	2	89	17	869	...	...	49	1,544
	86	6,223	300	122,065	16	699	712	87,480	56	1,992	33	1,371	21	1,017	91	15,120	68	10,510	180	26,647	818	192,490	2,201	438,997
<b>GRAND TOTAL</b>	<b>188</b>	<b>37,984</b>	<b>666</b>	<b>441,026</b>	<b>126</b>	<b>77,976</b>	<b>979</b>	<b>269,409</b>	<b>77</b>	<b>7,717</b>	<b>64</b>	<b>9,187</b>	<b>284</b>	<b>105,338</b>	<b>149</b>	<b>126,152</b>	<b>173</b>	<b>82,135</b>	<b>606</b>	<b>313,620</b>	<b>1,345</b>	<b>6,38,205</b>	<b>4,051</b>	<b>1,795,124</b>

From this table it will be observed that the total number of fires reported was 4,051; of these 188, or 4.6 per cent., occurred from carelessness or accident when burning fire-lines, and that 666 or 16.4 per cent. crossed exterior fire-traces, generally, it may be presumed, before these had been cleared. In 1,345 cases the causes of the fires remained undiscovered, and 606 fires were caused maliciously, or intentionally, to obtain new grass or to turn out game. The total number of fires reported was 1,388 more than in the previous year.

In continuation of the remarks made in the review for the year 1896-97 regarding the beneficial influence of fire-protection, the following remarks recorded by Mr. Hearle, then in charge of the Naini Tal Forest Division, are worthy of being placed on record:—

“The following are the actual figures of an enumeration-survey made in Jaunsar in 1887:—

	{ Chattri block } { Karail do. }	5th-class chir trees (6" to 6" diameter). Number per acre.	4th-class chir trees (6" to 12" diameter). Number per acre.
Burnt over yearly . . .	Rausa do. . . . .	4.9	7.9
Protected from fire . . .	Rausa do. . . . .	28.5	8.3

The enormous preponderance of fifth-class chir poles in the Rausa block may be safely taken as being mostly due to its successful fire-protection during the previous 15 years. To come nearer home to Mr. Gracey's own district, the following figures were obtained from enumeration-surveys made in 1881 and during the present year (1898). They are facts and cannot be controverted.

In all the successfully fire-protected blocks around Banikhet there were, in 1881, 374,836 chir poles of from 6" to 1½" in girth, but in 1898 the number was found to be 573,612, which is equivalent to an increase of 53 per cent. in less than 20 years, and this in spite of the enormous number of chir poles granted away yearly to the right-holders. The efficacy of fire-protection should therefore be quite outside the pale of discussion, as it is indeed with everyone who has studied the question seriously."

Observations comparing the growth of trees in areas protected from fires with that in areas annually burnt continued to be made and will after some years give valuable data on this interesting subject. The observations made tend to show that the growth of trees in fire-protected areas is considerably more rapid than that of trees in areas exposed to fires.

### III.—REGULATION OF GRAZING.

The following table shows the area closed against grazing to all animals and to browsers only:—

PROVINCE.	RESERVED FORESTS.			PROTECTED FORESTS.			UNCLASSIFIED FORESTS.			ALL CLASSES OF FORESTS.		
	Total area.	Area closed to all animals.	Area closed to browsers only.	Total area.	Area closed to all animals.	Area closed to browsers only.	Total area.	Area closed to all animals.	Area closed to browsers only.	Total area.	Area closed to all animals.	Area closed to browsers only.
Bengal	Sq. ms. 5,880	Sq. ms. 5,289	Sq. ms. 20	Sq. ms. 3,460	Sq. ms. 2,106	Sq. ms. 11	Sq. ms. 4,064	Sq. ms. 1	Sq. ms. 30	Sq. ms. 13,374	Sq. ms. 7,396	Sq. ms. 31
North-Western Provinces and Oudh	3,851	1,782	551	84	17	4	43	1	30	3,984	1,800	555
Punjab	2,283	682	453	3,011	72	69	2,139	12	178	7,433	768	700
Burma (Lower)	7,373	6,889	...	...	...	...	(a)	2	...	7,371	6,691	...
Burma (Upper)	7,333	6,967	...	...	...	...	(a)	...	...	7,333	6,937	...
Central Provinces	19,206	2,391	7,019	...	...	...	292	...	20	19,498	2,391	7,039
Assam	3,590	2,646	928	...	...	...	15,683	...	...	19,273	2,616	928
Coorg	238	191	...	649	...	...	...	...	...	887	151	...
Ajmer	120	97	139	...	...	...	10	...	10	149	47	149
Madrass	170	116	...	...	...	...	...	...	...	170	116	...
Andamans	120	...	...	...	...	...	1,833	...	...	1,953	...	...
Bihar	4,175	1,184	103½	...	...	...	...	...	...	4,175	1,184	103½
<b>Total Bengal Presidency</b>	<b>54,358</b>	<b>27,144</b>	<b>9,213½</b>	<b>7,214</b>	<b>2,197</b>	<b>84</b>	<b>24,034</b>	<b>16</b>	<b>238</b>	<b>85,606</b>	<b>29,357</b>	<b>9,535½</b>
Madras	13,775	Details not reported	...	...	...	...	5,478	Details not reported	...	19,253	1,792	13,029
Bombay	13,281	Dicto	...	1,631	Details not reported	...	...	...	...	14,912	2,589	5,582
<b>GRAND TOTAL</b>	<b>81,414</b>	<b>...</b>	<b>...</b>	<b>8,845</b>	<b>...</b>	<b>...</b>	<b>29,512</b>	<b>...</b>	<b>...</b>	<b>119,771</b>	<b>33,738</b>	<b>28,146½</b>

(a) Chapter IV of the Burma Forest Act and of the Upper Burma Forest Regulation extends protection to certain trees and produce in unoccupied land generally. The area of these undemarcated lands to which protection is afforded is not known.

The following table shows the number of cattle of the various kinds grazing during the year in Government forests, at full and at privileged rates, as well as those grazing free of dues. The number of cattle grazing at full rates and at privileged rates fell off considerably, due it is thought to great mortality amongst the cattle owing to scarcity of fodder:—



The following table shows, so far as the information is available, the incidence of grazing in open forests:—

PROVINCE.	Circle.	GRAZED ON PAYMENT. NUMBER OF ANIMALS.										GRAZED FREE. NUMBER OF ANIMALS.										
		AT FULL RATES.					AT PRIVILEGED RATES.					BY RIGHT UNDER SETTLEMENT.					DURING PLEASURE OF GOVERNMENT, OR OTHERWISE THAN UNDER SETTLEMENT.					
		Buffaloes.	Cows and Bullocks.	Goats and Sheep.	Camels.	Other animals.	Buffaloes.	Cows and Bullocks.	Goats and Sheep.	Camels.	Other animals.	Buffaloes.	Cows and Bullocks.	Goats and Sheep.	Camels.	Other animals.	Buffaloes.	Cows and Bullocks.	Goats and Sheep.	Camels.	Other animals.	
Punjab	...	7,553	17,634	3,582	...	22	15,713	178,145	12,515	...	538	48,941	152,035	49,041	...	...	67	277	110	...	5	
	N.W. P. and Oudh.	Central	22,569	68,369	2,454	31	1,019	6,154	3,076	55,585	...	144	16,196	75,981	11,596	...	545	2,863	12,172	60	...	13
		Oudh	17,495	60,624	4,338	...	40	17,644	91,148	1,324	...	32	2,831	18,015	...	...	...	1,226	3,873	624	...	55
		School	7,705	32,338	10,842	...	5,669	1,206	8,485	123	...	...	181	12,238	47,932	...	...	...	1,398	...	...	...
	TOTAL	47,769	161,331	17,634	2,630	6,926	25,004	102,709	57,032	...	178	19,208	106,234	59,528	...	545	4,094	17,443	584	...	68	
Burma (Lower)	...	38,988	115,095	449,885	5,580	1,609	2,216	13,399	214,718	84	66	145,620	624,601	567,280	265	10,181	2,143	3,318	63	...	35	
	Pegu	...	667	1,345	...	...	1	...	...	...	...	245	1,520	...	...	...	...	...	...	...	...	
		Tenasserim	...	...	...	...	...	...	...	...	...	3,834	232	36	...	5	...	...	...	...	...	
	TOTAL	667	1,345	...	...	1	...	...	...	...	3,579	1,752	36	...	5	...	...	...	...	...		
Burma (Upper)	...	55	370	1	...	22	...	...	...	...	...	10,321	...	...	...	...	4,499	...	...	...	593	
	Eastern	...	40	...	...	...	...	...	...	...	...	7,913	...	...	...	...	...	...	...	...	...	
		Western	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	TOTAL	95	370	1	...	22	...	...	...	...	...	18,234	...	...	...	...	4,499	...	...	...	593	
Central Provinces.	...	119,866	604,782	44,427	6	971	668	2,775	567	...	31	...	...	...	...	...	17,050	63,994	2,111	...	...	
	Northern	...	109,799	602,444	163,137	...	190	5	117	1	...	62	...	...	...	...	...	10,878	98,816	3,649	...	...
		Southern	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	TOTAL	229,665	1,507,226	210,564	6	1,161	673	2,892	568	...	93	...	...	...	...	...	27,928	162,810	5,760	...	128	
Assam	...	1,072	11,377	3,069	...	85	...	...	...	...	...	...	...	...	...	...	54,214	137,033	9,952	...	205	
	Coorg	463	5,075	...	...	...	...	...	...	...	...	1,750	...	...	...	...	...	4,618	...	...	...	
	Ajmer	300	9,462	209	48	1,486	868	6,314	...	...	...	616	2,269	...	...	...	304	1,583	...	...	...	
Baluchistan	...	...	986	1,144	...	...	...	...	...	...	...	751	16,652	1	224	...	...	...	...	...		
	Andamans	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
	Bebar	91,198	515,627	245,290	46	1,773	2,862	30,063	11,510	...	23	495	90,704	1,003	...	44	100	4,060	...	...	...	
	TOTAL BENGAL PRESIDENCY.	437,770	2,345,582	930,378	8,310	13,177	47,336	333,522	296,343	84	898	218,459	998,930	693,540	266	10,999	93,349	336,137	16,469	...	1,034	
Madras Presidency.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
	Northern	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
		Central	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	TOTAL	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Bombay Presidency.	...	1,782	9,484	...	...	...	780	5,748	...	...	...	3,040	7,905	...	...	...	58,425	303,449	3,077	...	...	
	Northern	...	4,154	51,167	295,562	...	14,946	23,773	155,182	91,511	2	2,672	...	...	...	...	...	47,630	332,059	4,456	...	805
		Central	...	5,590	13,240	49,650	...	21	81,187	225,259	58,678	...	2	...	...	...	...	36,087	124,901	...	...	...
		Sindh	51,617	64,132	313,195	10,014	460	11,185	28,396	38,524	681	84	4,671	19,442	...	609	191	929	913	104	...	1,020
	TOTAL	63,143	138,023	658,407	10,014	15,427	116,925	414,585	188,713	683	2,758	7,711	27,347	...	609	142,283	761,338	8,446	104	...	1,825	

From this table it will be observed that the total number of fires reported was 4,051; of these 188, or 4.6 per cent., occurred from carelessness or accident when burning fire-lines, and that 666 or 16.4 per cent. crossed exterior fire-traces, generally, it may be presumed, before these had been cleared. In 1,345 cases the causes of the fires remained undiscovered, and 606 fires were caused maliciously, or intentionally, to obtain new grass or to turn out game. The total number of fires reported was 1,338 more than in the previous year.

In continuation of the remarks made in the review for the year 1896-97 regarding the beneficial influence of fire-protection, the following remarks recorded by Mr. Hearle, then in charge of the Naini-Tal Forest Division, are worthy of being placed on record:—

“The following are the actual figures of an enumeration-survey made in Jaunsar in 1887:—

		5th-class chir trees (3" to 6" diameter). Number per acre.	4th-class chir trees (6" to 12" diameter). Number per acre.
Burnt over yearly	{ Chattri block }	49	79
Protected from fire	{ Karali do. }		
	{ Rausa do. }	285	85

The enormous preponderance of fifth-class chir poles in the Rausa block may be safely taken as being mostly due to its successful fire-protection during the previous 15 years. To come nearer home to Mr. Gracey's own district, the following figures were obtained from enumeration-surveys made in 1881 and during the present year (1898). They are facts and cannot be controverted.

In all the successfully fire-protected blocks around Ranikhet there were, in 1881, 374,836 chir poles of from 6" to 1½" in girth, but in 1898 the number was found to be 573,612, which is equivalent to an increase of 53 per cent. in less than 20 years, and this in spite of the enormous number of chir poles granted away yearly to the right-holders. The efficacy of fire-protection should therefore be quite outside the pale of discussion, as it is indeed with everyone who has studied the question seriously."

Observations comparing the growth of trees in areas protected from fires with that in areas annually burnt continued to be made and will after some years give valuable data on this interesting subject. The observations made tend to show that the growth of trees in fire-protected areas is considerably more rapid than that of trees in areas exposed to fires.

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	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.
Bengal	5,880	5,289	20	3,460	2,106	11	4,034	1	30	13,374	7,396	31
North-Western Provinces and Oudh	3,851	1,782	551	94	17	4	43	30	3,989	1,800	585	
Punjab	2,283	682	453	3,011	74	69	2,139	12	178	7,433	768	700
Burma (Lower)	7,373	6,889	...	...	...	...	...	...	...	7,373	6,891	...
Burma (Upper)	7,333	5,967	...	...	...	...	...	...	...	7,333	5,957	...
Central Provinces	19,206	2,391	7,019	...	...	...	292	...	20	19,498	2,391	7,059
Assam	2,500	2,686	926	...	...	...	15,683	...	...	19,273	2,616	926
Ceorg	120	151	...	649	...	...	...	...	...	837	151	...
Ajmer	120	47	139	...	...	...	10	...	10	149	47	149
Madrass	170	116	...	...	...	...	...	...	...	170	116	...
Andamans	120	...	...	...	...	...	1,833	...	...	1,953	...	...
Bihar	4,175	1,184	1031	...	...	...	...	...	...	4,175	1,184	1031
<b>Total Bengal Presidency</b>	<b>54,358</b>	<b>27,144</b>	<b>9,213</b>	<b>7,214</b>	<b>2,197</b>	<b>84</b>	<b>24,034</b>	<b>16</b>	<b>238</b>	<b>85,605</b>	<b>29,357</b>	<b>9,531</b>
<b>Madras</b>	<b>13,775</b>	Details not reported		...	...	...	<b>5,478</b>	Details not reported		<b>19,253</b>	<b>1,792</b>	<b>13,029</b>
<b>Bombay</b>	<b>13,281</b>	Ditto		<b>1,631</b>	Details not reported		...	...	...	<b>14,912</b>	<b>2,589</b>	<b>5,582</b>
<b>GRAND TOTAL</b>	<b>81,414</b>	...	...	<b>8,845</b>	...	...	<b>29,512</b>	...	...	<b>119,771</b>	<b>33,738</b>	<b>28,146</b>

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		Buffaloes.	Cows and Bullocks.	Goats and Sheep.	Camels.	Other animals.	Buffaloes.	Cows and Bullocks.	Goats and Sheep.	Camels.	Other animals.	Buffaloes.	Cows and Bullocks.	Goats and Sheep.	Camels.	Other animals.	Buffaloes.	Cows and Bullocks.	Goats and Sheep.	Camels.	Other animals.
Pengal N.W. P. and Oudh.	Central	7,553	17,634	3,582	...	22	15,713	178,145	12,515	...	538	48,941	152,035	49,041	...	...	67	277	110	...	5
	Oudh	22,569	68,369	2,454	31	1,019	6,154	3,078	55,585	...	148	16,196	75,981	11,596	...	545	2,868	12,172	60	...	13
	School	17,495	60,624	4,338	...	40	17,644	91,148	1,324	...	82	2,831	18,015	...	...	...	1,226	3,878	524	...	55
		7,705	32,338	10,842	2,599	5,669	1,206	8,485	123	...	...	181	12,238	47,932	...	...	...	1,398	...	...	...
	TOTAL	47,769	161,331	17,634	2,630	6,928	25,004	102,709	57,032	...	178	19,208	106,234	59,528	...	545	4,094	17,443	584	...	69
Punjab Burma (Lower)	Pegu	38,988	115,095	449,885	5,580	1,699	2,216	13,399	214,718	64	66	145,620	624,601	567,280	265	10,161	2,143	8,316	68	...	35
	Tenasserim	667	1,345	...	...	1	...	...	...	...	...	245	1,520	...	...	...	...	...	...	...	...
		...	...	...	...	...	...	...	...	...	...	3,334	232	36	...	5	...	...	...	...	...
	TOTAL	667	1,345	...	...	1	...	...	...	...	3,579	1,752	36	...	5	...	...	...	...	...	
Burma (Upper)	Eastern	55	370	1	...	22	...	...	...	...	...	10,321	...	...	...	...	4,499	...	...	593	
	Western	40	...	...	...	...	...	...	...	...	...	7,913	...	...	...	...	...	...	...	...	
		TOTAL	95	370	1	...	22	...	...	...	...	...	18,234	...	...	...	...	4,499	...	...	593
Central Prov- inces.	Northern	119,868	604,782	42,427	6	971	668	2,775	567	...	31	...	...	...	...	...	17,050	63,994	2,111	...	...
	Southern	109,799	902,444	168,137	...	190	5	117	1	...	82	...	...	...	...	...	10,878	98,816	3,649	...	128
		TOTAL	229,665	1,507,226	210,564	6	1,161	673	2,892	568	...	93	...	...	...	...	...	27,928	162,810	5,760	...
Assam Coorg Ajmer Baluchistan Andamans Berar	...	1,072	11,377	2,069	...	85	...	...	...	...	...	...	...	...	...	...	54,214	137,033	9,952	...	205
	...	453	5,075	...	...	...	...	...	...	...	...	1,750	...	...	...	...	...	4,613	...	...	...
	...	300	9,462	209	48	1,486	868	6,314	...	...	...	616	2,269	...	...	...	304	1,583	...	...	...
	...	...	986	1,144	...	...	...	...	...	...	...	751	16,652	1	224	...	...	...	...	...	...
	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	...	91,198	515,627	245,290	46	1,773	2,882	30,063	11,510	...	23	495	90,704	1,003	...	44	100	4,060	...	...	...
		TOTAL BENGAL PRESIDENCY.	437,770	2,345,582	930,378	8,310	13,177	47,336	333,522	296,343	84	898	218,459	998,930	693,540	266	10,999	93,349	336,137	16,469	...
Madras Presi- dency:	Northern	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Central	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Southern	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	TOTAL	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bombay Presi- dency.	Northern	1,782	9,484	...	...	...	780	5,748	...	...	...	3,040	7,905	...	...	...	58,425	308,449	3,077	...	...
	Central	4,154	51,187	295,562	...	14,946	23,773	155,182	91,511	2	2,672	...	...	...	...	...	47,630	332,059	4,456	...	805
	Southern	5,590	13,240	49,650	...	21	81,187	225,259	58,678	...	2	...	...	...	...	...	36,037	124,901	...	...	...
	Sindh	51,617	64,132	313,195	10,014	460	11,185	28,396	38,524	681	84	4,671	19,442	...	609	191	929	913	104	...	1,030
	TOTAL	63,143	138,023	658,407	10,014	15,427	116,925	414,585	188,713	683	2,758	7,711	27,847	...	...	609	143,283	761,398	8,446	104	1,825

In the following table the amount of revenue realized from grazing dues is contrasted with that foregone on account of free grazing allowed by right or privilege. The value of free grazing remained much the same as in the previous year. But the amount realized from grazing fees fell off by more than a lakh of rupees, the decrease occurring almost entirely in Bombay, particularly in the Central Circle.

Province.	Circle.	Amount realized.	Amount foregone.
		₹	₹
Bengal . . . . .	...	22,142	93,100
	Central . . . . .	20,353	30,200
	Oudh . . . . .	85,057	17,600
North-Western Provinces and Oudh . . . . .	Schhol . . . . .	15,565	7,900
	TOTAL	70,975	55,700
	Punjab . . . . .	86,126	2,38,700
Lower Burma . . . . .	Péga . . . . .	1,071	700
	Tenasserim . . . . .	...	3,200
	TOTAL	1,071	3,900
Upper Burma . . . . .	Eastern . . . . .	473	9,600
	Western . . . . .	20	1,500
	TOTAL	493	11,100
Central Provinces . . . . .	Northern . . . . .	1,51,149	15,200
	Southern . . . . .	1,54,679	15,800
	TOTAL	3,05,828	31,000
Assam . . . . .	...	14,483	63,900
Coorg . . . . .	...	2,005	...
Ajmer . . . . .	...	1,030	1,400
Baluchistan . . . . .	...	267	9,900
Andamans . . . . .	...	...	...
Berar . . . . .	...	1,77,335	30,200
Total Bengal Presidency . . . . .	...	6,81,755	5,83,900
Madras Presidency . . . . .	Northern . . . . .	1,10,480	1,000
	Central . . . . .	1,77,021	300
	Southern . . . . .	76,404	600
TOTAL	3,63,905	1,900	
Bombay Presidency . . . . .	Northern . . . . .	6,355	3,13,000
	Central . . . . .	1,42,579	2,71,800
	Southern . . . . .	80,960	3,04,700
	Sindh . . . . .	53,085	36,000
TOTAL	2,82,979	9,25,500	
GRAND TOTAL . . . . .	...	13,28,639	14,61,300

## IV.—REPRODUCTION AND SYLVICULTURE.

The following tables show the increase in the areas of plantations, the money spent thereon in the various provinces, and the expenditure on cultural operations:—

PROVINCE.	AREA, IN ACRES.											
	AT COMMENCEMENT OF THE YEAR.			ADDED DURING THE YEAR.			EXCLUDED DURING THE YEAR.			BALANCE AT THE CLOSE OF THE YEAR.		
	Regular Plantations.	Tanngyas.	TOTAL.	Regular Plantations.	Tanngyas.	TOTAL.	Regular plantations.	Tanngyas.	TOTAL.	Regular Plantations.	Tanngyas.	TOTAL.
Bengal . . . . .	3,178	..	3,178	3	..	3	309	..	309	2,872	..	2,872
N.-W. P. and Oudh . . . . .	3,119	..	3,119	..	..	..	..	..	..	3,119	..	3,119
Punjab . . . . .	696	..	696	140	..	140	140	..	140	696	..	696
Burma (Lower) . . . . .	3,536	47,154	50,690	..	3,789	3,789	..	..	..	3,536	50,943	54,479
Burma (Upper) . . . . .	249	855	1,104	19	309	328	136	18	154	133	1,146	1,278
Central Provinces . . . . .	..	..	..	..	..	..	..	..	..	..	..	..
Assam . . . . .	2,034	..	2,034	41	..	41	..	..	..	2,075	..	2,075
Coorg . . . . .	2,115	(a)267	2,382	99	129	228	..	..	..	2,214	396	2,610
Ajmer . . . . .	..	..	..	..	..	..	..	..	..	..	..	..
Baluchistan . . . . .	22	..	22	3	..	3	..	..	..	25	..	25
Andamans . . . . .	87	..	87	98	..	98	..	..	..	185	..	185
<b>TOTAL</b> . . . . .	<b>15,036</b>	<b>48,276</b>	<b>63,312</b>	<b>403</b>	<b>4,227</b>	<b>4,630</b>	<b>595</b>	<b>18</b>	<b>603</b>	<b>14,854</b>	<b>52,485</b>	<b>67,339</b>
Berar . . . . .	655	..	655	..	..	..	..	..	..	655	..	655
Total Bengal Presidency . . . . .	15,691	48,276	63,967	403	4,227	4,630	595	18	603	15,509	52,485	67,994
Madras . . . . .	33,863	..	33,863	2,446	..	2,446	4,063	..	4,063	32,226	..	36,289
Bombay . . . . .	11,407	..	11,407	1,333	..	1,333	768	..	768	11,972	..	12,972
<b>GRAND TOTAL</b> . . . . .	<b>60,961</b>	<b>48,276</b>	<b>109,237</b>	<b>4,182</b>	<b>4,272</b>	<b>8,454</b>	<b>5,438</b>	<b>18</b>	<b>5,456</b>	<b>59,707</b>	<b>52,485</b>	<b>112,192</b>

(a) Erroneously shown as 396 in the Report for 1896-97.  
 (b) Includes 12,424 acres of Topes.

Bengal . . . . .	R	215	Coorg . . . . .	R	2,440
N.-W. P. and Oudh . . . . .	1,877	Ajmer . . . . .	..	..	..
Punjab . . . . .	879	Baluchistan . . . . .	..	..	41
Lower Burma . . . . .	80,913	Andamans . . . . .	..	..	62
Upper Burma . . . . .	5,172	Berar . . . . .	..	..	..
Central Provinces . . . . .	..	Madras . . . . .	..	..	25,145
Assam . . . . .	6,899	Bombay . . . . .	..	..	6,393

Total R1,81,036

Bengal . . . . .	R	10,973	Coorg . . . . .	R	822
N.-W. P. and Oudh . . . . .	4,728	Ajmer . . . . .	..	..	917
Punjab . . . . .	3,140	Baluchistan . . . . .	..	..	9
Lower Burma . . . . .	6,197	Andamans . . . . .	..	..	101
Upper Burma . . . . .	1,432	Berar . . . . .	..	..	1,234
Central Provinces . . . . .	302	Madras . . . . .	..	..	9,853
Assam . . . . .	153	Bombay . . . . .	..	..	15,714

Total R55,475

## CHAPTER III.

## WORKING AND OUTTURN.

The total outturn of all forests under the control of the Forest Department in timber and fuel bamboos and minor forest produce, with the average outturn per square mile, is exhibited in the following table:—

PROVINCE.	RESERVED FORESTS.			PROTECTED FORESTS.			UNCLASSIFIED FORESTS.			AVERAGE OUTTURN PER SQUARE MILE.								
	Timber and fuel.	Bamboos.	Minor produce.	Timber and fuel.	Bamboos.	Minor produce.	Timber and fuel.	Bamboos.	Minor produce.	RESERVED FORESTS.		PROTECTED FORESTS.		UNCLASSIFIED FORESTS.				
										C. ft.	No.	R	C. ft.	No.	R	C. ft.	No.	R
Bengal	16,751,148	8,765,297	1,13,186	17,966,329	4,122,089	1,54,384	316,360	6,939,928	7,036	2,949	1,491	19	5,192	1,191	44	78	1,720	
North-Western Provinces and Oudh.	9,458,601	8,592,757	2,10,826	1,833,545	152,415	14,704	25,300	19,375	1,890	2,456	2,231	55	19,506	1,621	166	591	45	
Punjab	4,908,083	688,901	1,66,687	16,881,934	117,656	3,30,432	10,853,620	41,939	1,35,694	2,149	301	72	5,607	39	110	5,074	19	
Burma (Lower)	1,966,312	5,632,632	13,582	...	...	...	16,724,297	21,247,880	27,835	291	834	2	...	...	...	(b)	(b)	
Burma (Upper)	8,688,239	3,992,667	18,770	...	...	...	30,707,973	126,222,000	2,76,307	1,223	562	24	...	...	...	(b)	(b)	
Central Provinces	14,203,461	14,585,464	4,89,529	...	...	...	11,905	880	1,471	739	759	25	...	...	...	41	3	
Assam	1,355,450	1,974,191	14,265	...	...	...	15,361,892	19,569,386	3,37,588	377	549	3	...	...	...	979	1,247	
Coorg	221,786	185,256	4,480	158,022	14,175	13,809	...	...	...	932	778	18	243	22	21	...	...	
Ajmer	442,878	19,258	47,771	505	...	97	1,760	749	1,110	3,186	139	344	(c)	(c)	(c)	178	75	
Baluchistan	17,107	...	11,262	...	...	...	360,430	...	...	3	100	...	66	...	...	(d)	120,143	
Andamans	940,773	141,127	223	...	...	...	815,109	567,568	3,990	482	72	...	...	...	...	...	417	291
Berar	1,500,918	1,938,731	2,41,776	...	...	...	...	...	...	359	464	58	...	...	...	...	...	...
Madras (e)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bombay (f)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

(a) Excludes removals by purchasers from lands leased out for cultivation in the Sundarbans, and removals in drift from the Gandak river.

(b) Chapter IV of the Burma Forest Act and of the Upper Burma Forest Regulation extends protection to certain trees and produce in unoccupied lands generally. The area of these undemarcated lands, to which protection is afforded, is not known.

(c) Outturn per acre.

(d) Outturn per acre.

(e) The forests of the Madras Presidency yielded 14,543,921 cubic feet of timber and fuel, 29,317,049 bamboos, and Rs. 98,993 worth of minor produce. Dividing these figures by the 19,253 square miles of forests under the control of the Madras Forest Department, the average outturn per square mile was 755 cubic feet of timber and fuel, 1,522 bamboos and Rs. 51 worth of minor produce.

(f) The forests of the Bombay Presidency yielded 45,541,182 cubic feet of timber and fuel, 8,304,714 bamboos, and Rs. 27,373 worth of minor produce. Dividing these figures by the 14,913 square miles of forests under the control of the Bombay Forest Department, the average outturn per square mile was 3,030 cubic feet of timber and fuel, 667 bamboos and Rs. 186 worth of minor produce.

(g) Excludes outturn from lands given out for cultivation, estimated at 3,330,257 cubic feet, as against 1,324,311 cubic feet in 1890-97.

(h) Excludes Rs. 1,09,638, as against Rs. 1,06,349 in 1890-97, estimated value of grass and grazing under concessions.

The amounts of forest produce removed by Government agency, contrasted with the amount removed by purchasers, were as follows:—

PROVINCE.	TIMBER.		FUEL.		BAMBOOS.		MINOR PRODUCE (INCLUDING GRASS AND GRAZING).	
	Removed by Government.	Removed by Purchasers.	Removed by Government.	Removed by Purchasers.	Removed by Government.	Removed by Purchasers.	Removed by Government.	Removed by Purchasers.
	C. ft.	C. ft.	C. ft.	C. ft.	No.	No.	R	R
Bengal	150,829	4,521,156	122,392	14,220,015	14,628	15,040,494	87	1,41,569
North-Western Provinces and Oudh.	642,364	2,357,876	1,506,649	2,981,235	223,846	8,258,722	13,803	1,40,620
Punjab	1,125,134	609,908	2,685,693	985,734	695,475	153,021	1,119	2,96,219
Burma (Lower)	2,004,194	8,793,690	...	7,752,123	...	26,516,647	4,801	32,025
Burma (Upper)	1,281,209	16,287,734	...	4,282,694	...	20,776,559	2,491	1,49,154
Central Provinces	284,479	1,460,895	859,907	10,008,865	56,125	13,496,625	6,197	4,20,449
Assam	77,055	5,429,008	19,335	5,846,142	1,215	18,281,636	2,232	54,687
Coorg	96,923	158,049	...	112,995	...	190,031	2,300	14,516
Ajmer	224	4,789	1,024	430,814	1,700	18,307	720	8,755
Baluchistan	1,170	8,804	10,654	354,819	...	...	...	1,181
Andamans	252,006	9,197	939,662	6,430	...	94,000	2,432	8,755
Berar	...	352,938	...	1,144,160	...	1,931,781	...	2,40,814
Total Bengal Presidency	5,921,587	39,903,444	6,146,216	47,626,126	992,989	104,757,713	36,382	14,89,967
Madras	412,399	2,142,931	2,086,473	9,573,202	258,738	28,833,424	50,921	9,05,800
Bombay	1,211,621	2,991,275	6,256,377	17,444,452	143,481	5,856,185	1,48,641	4,70,762
GRAND TOTAL	7,545,807	45,037,650	14,489,066	74,643,780	1,395,208	139,447,922	2,35,844	28,66,561

These figures compare with those of the previous year as follows :—

Agency by which produce was removed.	Timber.		Fuel.		Bamboos.		Minor-produce (including grass and grazing).	
	1897-98.	1896-97.	1897-98.	1896-97.	1897-98.	1896-97.	1897-98.	1896-97.
	C. ft.	C. ft.	C. ft.	C. ft.	No.	No.	R	R
Government	7,545,907	7,449,433	14,489,066	13,962,489	1,395,208	910,909	2,35,844	2,29,781
Purchasers	45,037,650	39,577,542	74,643,780	85,875,357	139,447,322	133,979,895	28,66,561	29,87,069
<b>TOTAL</b>	<b>52,583,457</b>	<b>47,026,975</b>	<b>89,132,846</b>	<b>99,837,846</b>	<b>140,842,530</b>	<b>134,890,804</b>	<b>31,02,405</b>	<b>32,16,850</b>

The total amount of timber exported rose by 5,556,000 cubic feet, the increase being entirely due to increased removals by purchasers, more particularly in Upper Burma, where the approaching termination of the lease of the Pyinmana forest caused increased efforts to extract as much timber as possible before the hitherto existing favourable terms are modified. The total outturn of timber exported reached the large figure of 52,583,000 cubic feet, of which more than half came from the forests of Burma. The amount of teak extracted from the Burma forests was 318,620 tons, equal to 15,931,000 cubic feet. Under fuel there was a falling off of nearly 11,000,000 cubic feet, occurring entirely under removals by purchasers. In the Bombay Presidency unfavourable conditions caused a falling off under this head of 8,000,000 cubic feet, whilst in the Central Provinces there was a falling off of more than 3,000,000 cubic feet in the amount of fuel removed by purchasers. The numbers of bamboos removed from the forests amounted to 140,842,000, an increase over the previous year of 6,000,000. Most of these bamboos were removed by purchasers, the largest yield coming from Madras, Burma, Assam, Bengal and the Central Provinces. Under minor forest-produce, including grass and grazing, there was a decrease in value of nearly a lakh of rupees, chiefly due to the unfavourable conditions existing in Bombay.

The details in the various provinces are shown below :—

*Bengal.*—The following statement gives details of the forest outturn of the year :—

Class of forest and agency by which produce was removed.	Timber.	Fuel.	Total wood.	Bamboos.	Minor-produce.
<i>Reserved.</i>	C. ft.	C. ft.	C. ft.	No.	R
Government	113,540	121,544	235,084	4,232	80
Purchasers	3,837,852	11,327,250	15,165,102	7,989,265	1,03,545
Free-grantees	1,801	21,673	22,974	1,350	960
Right-holders	.....	1,327,988	1,327,988	770,400	8,601
<b>TOTAL</b>	<b>3,952,693</b>	<b>12,798,455</b>	<b>16,751,148</b>	<b>8,765,297</b>	<b>1,13,186</b>
<i>Protected.</i>					
Government	16,151	843	16,994	40	7
Purchasers	434,825	2,846,027	3,280,852	121,549	30,988
Free-grantees	2,457	876	3,333	500	15
Right-holders	229,108	14,436,047	14,665,150	4,000,000	1,23,374
<b>TOTAL</b>	<b>682,536</b>	<b>17,283,793</b>	<b>17,966,329</b>	<b>4,122,089</b>	<b>1,54,384</b>
<i>Unclassed.</i>					
Government	21,139	5	21,143	10,306	.....
Purchasers	248,479	46,738	295,217	6,929,620	7,036
Free-grantees	.....	.....	.....	.....	.....
Right-holders	.....	.....	.....	.....	.....
<b>TOTAL</b>	<b>269,617</b>	<b>46,743</b>	<b>316,360</b>	<b>6,939,926</b>	<b>7,036</b>
<b>GRAND TOTAL IN 1897-98</b>	<b>4,904,846</b>	<b>30,128,991</b>	<b>35,033,837</b>	<b>19,827,312</b>	<b>2,74,606</b>
<b>GRAND TOTAL IN 1896-97</b>	<b>5,396,702</b>	<b>30,277,688</b>	<b>35,674,390</b>	<b>18,160,514</b>	<b>2,52,421</b>
<b>Difference in 1897-98</b>	<b>-491,856</b>	<b>-148,697</b>	<b>-640,553</b>	<b>+1,666,798</b>	<b>+22,185</b>

In his Resolution on the Report the Lieutenant-Governor remarks—

"The total outturn of timber and fuel was 85,033,837 cubic feet, showing a decrease of 640,553 on the outturn of the previous year. The decrease is explained by the closing of the operations in the Singhbhum district for the supply of sleepers to the Rai Bareilly-Benares Railway, the supply during the year being only 94,102 cubic feet as against 538,767 in the previous year, and also by the fact that the figures of the previous year included the standing produce, about 122,000 cubic feet, of 500 acres of land which were sold to a tea-planter. Such fluctuations will always occur with the varying demands which Railway undertakings make upon the forests. There was an increase of 1,666,798 in the yield of bamboos, while the value of grazing, fodder, etc., rose by Rs22,185. The decline in the demand for fuel in the Chittagong Division is ascribed to the cyclone having blown down many trees, thereby placing a large quantity of fuel in the hands of the villagers. The reduction in the amount of fuel supplied by departmental agency to the troops at Darjeeling is due to reduction in their numbers. The want of means of carriage for timber is ascribed as the cause of the decrease in the amount removed by purchasers and, as before remarked, this is a subject regarding which a separate report should be submitted. Though there was some increase in the quantity removed from the Sundarbans, the late famine is said to have again affected the demand."

*North-Western Provinces and Oudh.*—The following table exhibits the total outturn of the forests in timber, fuel, and minor forest-produce, and the agency by which removed:—

CIRCLE.	TIMBER REMOVED BY—								
	GOVERNMENT AGENCY AND PURCHASERS.			RIGHT-HOLDERS AND FREE-GRANTEES.			TOTAL.		
	1896-97.	1897-98.	Difference in 1897-98.	1896-97.	1897-98.	Difference in 1897-98.	1896-97.	1897-98.	Difference in 1897-98.
	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.
Central . . . . .	956,534	995,857	—677	213,658	279,345	+65,687	1,170,192	1,235,202	+65,010
Oudh . . . . .	1,358,118	1,281,394	—76,724	449,674	444,623	—5,051	1,807,792	1,726,017	—81,775
School : . . . . .	1,039,323	762,989	—276,334	96,039	102,873	+6,834	1,135,362	865,862	—269,500
Total . . . . .	3,353,975	3,000,240	—353,735	759,371	826,841	+67,470	4,113,346	3,827,081	—286,265

CIRCLE.	FUEL REMOVED BY—																	
	GOVERNMENT AGENCY AND PURCHASERS.						RIGHT-HOLDERS AND FREE-GRANTEES.						TOTAL.					
	1896-97.		1897-98.		Difference in 1897-98.		1896-97.		1897-98.		Difference in 1897-98.		1896-97.		1897-98.		Difference in 1897-98.	
	C. ft.	Value. R.	C. ft.	Value. R.	C. ft.	Value. R.	C. ft.	Value. R.	C. ft.	Value. R.	C. ft.	Value. R.	C. ft.	Value. R.	C. ft.	Value. R.	C. ft.	Value. R.
Central	1,001,500	73,482	934,655	70,105	—66,845	—3,377	2,200,520	30,969	2,399,270	36,197	+198,750	+5,228	3,202,020	1,04,451	3,333,925	1,06,302	+131,905	+
Oudh .	2,052,867	75,609	2,828,629	77,571	+775,762	+1,962	67,531	971	118,497	1,840	+50,966	+869	2,120,398	76,580	2,947,126	79,411	+826,728	+
School	779,104	51,934	724,650	37,065	—54,454	—14,839	493,631	6,749	494,764	7,802	+1,133	+1,053	1,262,735	58,683	1,209,414	44,897	—53,321	—
Total .	3,833,471	2,01,025	4,487,934	1,84,771	+654,463	—16,254	2,751,682	38,689	3,002,531	45,839	+250,849	+7,150	6,585,153	2,39,714	7,490,465	2,30,610	+905,312	—

CIRCLE.	MINOR FOREST-PRODUCE (INCLUDING BAMBOOS, GRASS, AND GRAZING) REMOVED BY—								
	GOVERNMENT AND PURCHASERS.			RIGHT-HOLDERS AND FREE-GRANTEES.			TOTAL.		
	1896-97.	1897-98.	Difference in 1897-98.	1896-97.	1897-98.	Difference in 1897-98.	1896-97.	1897-98.	Difference in 1897-98.
	Value. R.	Value. R.	Value. R.	Value. R.	Value. R.	Value. R.	Value. R.	Value. R.	Value. R.
Central . . . . .	1,15,694	1,00,693	—15,001	62,862	43,113	—19,749	1,78,556	1,43,806	—34,750
Oudh . . . . .	68,091	61,322	—6,769	25,301	20,284	—5,017	93,392	81,606	—11,786
School . . . . .	45,356	48,479	+3,123	12,970	10,467	—2,503	58,326	58,946	+620
Total . . . . .	2,29,141	2,10,494	—18,647	1,01,133	73,864	—27,269	3,30,274	2,84,358	—45,916



The Government of India remark—

"There was a large falling off in the outturn of timber removed by Government agency and purchasers, amounting to nearly 354,000 cubic feet. The chief falling off being in the School Circle, where owing to slackness of trade, caused, it is thought, by famine and plague, the amount of timber removed by purchasers was 376,000 cubic feet less than in the previous year. There was a large increase in the outturn of firewood, chiefly due to increased grants to right-holders; whilst the value of minor forest-produce removed for sale, as well as that removed by right-holders, shows a considerable falling off."

*Punjab.*—The following statement gives a summary of the produce removed from the forests during the year under report, as compared with the figures of the previous year :—

Agency.	Timber.	Fuel.	Bamboos.	Grass and grazing.	Minor produce.
	C. ft.	C. ft. solid.	Nos.	Rs	Rs
Government . . . . .	1,125,134	2,685,693	695,475	195	924
Purchasers . . . . .	609,908	985,784	153,021	2,83,434	12,785
Free-grantees . . . . .	6,798	52,133	...	2,006	36
Right-holders . . . . .	1,186,017	25,992,170	...	2,82,036	51,397
Total for 1897-98 . . . . .	2,927,857	29,715,780	848,496	5,67,671	65,142
Total for 1896-97 . . . . .	2,319,721	29,209,277	567,584	4,33,183	54,620

In their review of the year's work, the Government of India observe :—

"The total outturn of timber amounted to 2,927,857 cubic feet, against 2,319,721 in the previous year. Of this amount, 1,125,134 cubic feet of timber were removed by Government agency and 609,908 cubic feet by purchasers. This shows a considerable increase in timber removed by the Department, but the report is silent as to how much of these amounts consisted of deodar timber and how much of timber of other pines. From paragraph 39 of the report, however, it appears that 9,804 deodar trees and 629 pines and other trees were extracted by Government agency during the year, as against 9,564 deodars and 759 pines in the previous year; so that the trade in trees other than deodar is not increasing. Nor is it probable that it will do so, until some means of rendering the wood of the various pines more durable and more fitted for railway sleepers become a practical possibility. The Conservator should be asked to consider the question and to bring it forward in his next report.

The statistics which are being collected regarding the loss in volume resulting from conversion and transport are useful, and should enable the Department to definitely decide which is the most economical way of putting its timber on the market."

*Burma.*—The following tables, abstracted from the Local Government's review, fully analyse the outturn of the year and compare it with that of the previous year :—

Class of forest and agency by which produce was removed.	TIMBER.						FUEL.						TOTAL TIMBER AND FUEL.		
	LOWER BURMA.			UPPER BURMA.			LOWER BURMA.			UPPER BURMA.			Lower Burma.	Upper Burma.	Total.
	Pegu Circle.	Tenasserim Circle.	Total.	Eastern Circle.	Western Circle.	Total.	Pegu Circle.	Tenasserim Circle.	Total.	Eastern Circle.	Western Circle.	Total.			
	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.
<b>RESERVED.</b>															
Government . . . . .	1,166,174	149,916	1,316,090	515,461	34,418	549,879	...	...	...	...	...	...	1,316,090	549,879	1,865,969
Purchasers . . . . .	218,320	426,136	644,456	6,739,342	230,991	6,970,333	2,926	...	2,926	497,800	...	497,800	647,382	7,468,133	8,115,515
Free-grantees . . . . .	835	...	835	1,525	600	2,125	...	...	...	...	...	...	835	2,125	2,960
Right-holders . . . . .	...	1,370	1,370	12,124	238,965	251,089	...	635	635	376,054	40,959	417,013	2,005	668,102	670,107
<b>Total</b>	<b>1,385,329</b>	<b>577,422</b>	<b>1,962,751</b>	<b>7,268,452</b>	<b>504,974</b>	<b>7,773,426</b>	<b>2,926</b>	<b>635</b>	<b>3,561</b>	<b>873,854</b>	<b>40,959</b>	<b>914,813</b>	<b>1,966,312</b>	<b>8,688,239</b>	<b>10,654,551</b>
<b>UNCLASSED.</b>															
<i>(Afforded protection under Chapter IV of the Act and of the Regulation.)</i>															
Government . . . . .	292,332	395,772	688,104	657,274	74,056	731,330	...	...	...	...	...	...	688,104	731,330	1,419,434
Purchasers . . . . .	4,369,964	3,689,170	8,059,134	5,453,380	3,664,021	9,317,461	4,507,933	3,241,259	7,749,197	3,296,717	488,177	3,784,894	15,808,331	13,102,295	28,910,626
Free-grantees . . . . .	156,768	12,715	169,483	66,978	3,139,020	3,205,998	8,569	...	8,569	...	13,668,350	13,668,350	178,052	16,874,348	17,052,400
Right-holders . . . . .	...	49,810	49,810	...	...	...	...	...	...	...	...	...	49,810	...	49,810
<b>Total</b>	<b>4,819,064</b>	<b>4,147,467</b>	<b>8,966,531</b>	<b>6,177,632</b>	<b>7,077,097</b>	<b>13,254,729</b>	<b>4,516,507</b>	<b>3,241,259</b>	<b>7,757,766</b>	<b>3,296,717</b>	<b>14,156,527</b>	<b>17,453,244</b>	<b>16,724,297</b>	<b>30,707,973</b>	<b>47,432,270</b>
<b>GRAND TOTAL IN 1897-98</b>	<b>6,204,393</b>	<b>4,724,889</b>	<b>10,929,282</b>	<b>13,446,084</b>	<b>7,582,071</b>	<b>21,028,155</b>	<b>4,519,433</b>	<b>3,241,894</b>	<b>7,761,327</b>	<b>4,170,571</b>	<b>14,197,486</b>	<b>18,368,057</b>	<b>18,690,609</b>	<b>39,396,212</b>	<b>58,086,821</b>
<b>GRAND TOTAL IN 1896-97</b>	<b>6,502,081</b>	<b>4,378,080</b>	<b>10,880,161</b>	<b>10,186,950</b>	<b>3,125,281</b>	<b>13,312,231</b>	<b>6,116,749</b>	<b>1,841,495</b>	<b>7,958,244</b>	<b>3,249,439</b>	<b>679,113</b>	<b>3,928,552</b>	<b>18,833,405</b>	<b>17,240,783</b>	<b>36,079,188</b>
<b>Difference in 1897-98</b>	<b>-297,688</b>	<b>+346,809</b>	<b>+49,121</b>	<b>+3,259,134</b>	<b>+4,456,790</b>	<b>+7,715,924</b>	<b>-1,597,316</b>	<b>+1,400,399</b>	<b>-196,917</b>	<b>+921,132</b>	<b>+13,518,373</b>	<b>+14,439,505</b>	<b>-147,796</b>	<b>+22,155,429</b>	<b>+22,007,633</b>

MINOR FOREST-PRODUCE.

Class of forests, and agency by which produce was removed.	MINOR FOREST-PRODUCE.																		
	BAMBOOS.						GRASS AND GRAZING.						OTHER MINOR-PRODUCE.						
	Lower Burma.			Upper Burma.			Lower Burma.			Upper Burma.			Lower Burma.			Upper Burma.			
	Pegu Circle.	Tenasserim Circle.	Total.	Eastern Circle.	Western Circle.	Total.	Pegu Circle.	Tenasserim Circle.	Total.	Eastern Circle.	Western Circle.	Total.	Pegu Circle.	Tenasserim Circle.	Total.	Eastern Circle.	Western Circle.	Total.	
<b>RESERVED.</b>	No.	No.	No.	No.	No.	No.	R	R	R	R	R	R	R	R	R	R	R	R	
Government Purchasers	4,666,000	610,767	5,276,767	863,425	540,050	1,403,475	1,071	...	1,071	473	20	493	4,801	...	4,801	4	...	4	
Free-grantees	...	...	...	4,000	4,000	4,000	...	...	...	7,055	...	7,055	...	...	1,147	1,975	3,122	1,964	3,116
Right-holders	101,000	254,865	355,865	643,160	1,942,032	2,585,192	718	3,243	3,961	2,580	1,472	4,052	394	233	627	1,825	...	861	2,686
<b>Total</b>	(a) 4,767,000	(b) 865,632	(c) 5,632,632	(d) 1,506,585	(e) 2,486,032	(f) 3,992,667	1,789	3,243	5,032	10,108	1,492	11,600	6,342	2,208	8,550	3,193	3,977	7,170	
<b>UNCLASSIFIED.</b> (Afforded protection under Chapter IV of the Act and of the Regulation.)																			
Government Purchasers	17,937,000	3,302,830	21,239,830	9,257,457	10,115,627	19,373,084	...	...	...	...	...	...	10,480	17,355	27,835	92,978	45,203	1,38,181	2,487
Free-grantees	8,000	...	8,000	24,866	106,824,550	106,848,916	...	...	...	1,08,600	...	1,08,600	...	...	...	7	27,032	27,039	2,487
Right-holders	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
<b>Total</b>	(g) 17,945,000	(h) 3,302,830	(i) 21,247,830	(j) 9,281,823	(k) 116,940,177	(l) 126,222,000	...	...	...	...	1,08,600	1,08,600	10,480	17,355	27,835	92,985	74,722	1,67,707	
<b>GRAND TOTAL IN 1897-98</b>	(m) 22,712,000	(n) 4,168,512	(o) 26,880,512	(p) 10,788,408	(q) 119,426,259	(r) 130,214,667	1,789	3,243	5,032	10,108	1,10,092	1,20,200	16,822	19,563	36,335	96,178	78,699	1,74,877	
<b>GRAND TOTAL IN 1896-97</b>	(s) 18,820,000	(t) 3,063,255	(u) 21,883,255	(v) 7,872,863	(w) 7,564,226	(x) 15,437,089	1,580	3,405	4,985	9,486	14,422	23,908	16,611	16,509	33,120	88,903	1,36,903	2,25,806	
<b>Difference in 1896-97</b>	+ 3,892,000	+ 1,105,257	+ 4,997,257	+ 2,915,545	+ 111,862,033	+ 114,777,578	+ 209	-163	+ 47	+ 622	+ 95,670	+ 96,292	+ 211	+ 3,054	+ 3,265	+ 7,275	-53,204	-50,929	

	R		R		R		R
(a) Value	11,839	(g) Value	48,020	(m) Value	54,859	(s) Value	41,022
(b) "	2,290	(h) "	8,531	(n) "	10,821	(t) "	7,738
(c) "	14,129	(i) "	51,551	(o) "	55,680	(u) "	49,780
(d) "	4,031	(j) "	25,407	(p) "	29,438	(v) "	21,626
(e) "	3,643	(k) "	1,61,854	(q) "	1,65,497	(w) "	17,345
(f) "	7,674	(l) "	1,87,261	(r) "	1,94,935	(x) "	33,971

The Government of India record the following remarks :—

"The outturn of timber of all kinds aggregated 639,155 tons, or 155,301 tons more than in the previous year. Lessees extracted in all 257,517 tons of teak from the different forests, of which no less than 156,308 tons were yielded by the Pynmana forests. The extraction of 61,103 tons of teak was effected by Government agency through small contractors. It is noticed that while the exports of teak from Burma have increased, the demand has been maintained, and prices have advanced. There was a considerable falling off in the outturn of cutch, the trade in which, it is observed, is expected to revive."

*Central Provinces.*—The following table compares the operations of the last two years; it shows, in thousands of cubic feet, the amount of timber and fuel removed :—

<i>Southern Circle.</i>			
	1896-97.	1897-98.	+ or -
Departmentally . . . . .	936	776	-160
By purchasers . . . . .	6,444	7,142	+698
„ free grants . . . . .	1,145	465	-680
Total . . . . .	8,525	8,383	-142

<i>Northern Circle.</i>			
	1896-97.	1897-98.	+ or -
Departmentally . . . . .	219	368	+149
By purchasers . . . . .	3,176	4,328	+1,152
„ free grants . . . . .	3,260	1,136	-2,124
Total . . . . .	6,655	5,832	-823

The Chief Commissioner in his Resolution remarks—

"In the Southern Circle the departmental fellings have increased in six divisions and decreased in three. One of these three is Bhandara, where the decrease is due to certain removals—in reality departmental—having been arranged for by the agency of a contractor, which brings them nominally under the second of the above groups. The other two divisions in which there is a decrease under this head are Nagpur-Wardha and Raipur. In the former of these the decrease is due to causes connected with the staff which should not be allowed to recur, while in Raipur the decrease is largely under "Fuel," and is attributed by the Forest Divisional Officer to the continued poverty of the raiyats, an explanation which the Conservator is, however, not inclined to endorse. For the rest, the figures show an increase in removals (except by free grants), which is due to returning prosperity, and is satisfactory."

*Assam.*—The gross outturn of the year, as compared with that of the previous year, is thus tabulated by the Conservator :—

Class of forest and agency of exploitation.	1896-97.								1897-98.												
	ROUGH LOGS.				FUEL.				TOTAL.				ROUGH LOGS.				FUEL.				TOT.
	Traders.	Waste lands leased.	Rough poles.	Sawn timber.	Miscellaneous.	Traders.	Waste lands leased.	Traders.	Waste lands leased.	Traders.	Waste lands leased.	Rough poles.	Sawn timber.	Miscellaneous.	Traders.	Waste lands leased.	Traders.				
From Reserved forests.	733,209	...	188,691	26,339	400	433,475	...	1,382,114	...	6,68,406	...	412,037	23,528	1,585	248,894	...	1,355,450				
„ Unclassed forests.	1,193,634	759,991	2,044,214	268,822	87	10,418,073	464,220	13,924,830	1,224,211	1,158,208	2,197,683	3,852,247	263,375	72	10,087,990	1,132,574	15,261,820				
<b>Total outturn</b>	<b>1,926,843</b>	<b>759,991</b>	<b>2,232,905</b>	<b>295,161</b>	<b>487</b>	<b>10,851,548</b>	<b>464,220</b>	<b>15,306,944</b>	<b>1,224,211</b>	<b>1,827,614</b>	<b>2,197,683</b>	<b>4,264,284</b>	<b>286,903</b>	<b>1,657</b>	<b>10,336,884</b>	<b>1,132,574</b>	<b>16,717,340</b>				
By Government agency.	20,157	...	1,723	1,500	14	18,284	...	41,768	...	65,751	...	4,355	6,712	237	19,335	...	96,390				
„ purchasers	1,397,911	759,991	2,086,890	292,671	473	5,758,701	464,220	9,537,346	1,224,211	1,254,060	435,268	3,894,137	280,131	620	5,346,142	412,820	10,775,150				
„ right-holders.	...	...	...	...	...	...	...	...	...	200	...	...	...	...	...	...	200				
„ free-grants	508,775	...	144,292	...	...	5,074,563	...	5,727,630	...	507,603	1,762,415	365,792	...	800	4,971,407	719,754	5,845,600				
<b>Total outturn cubic feet solid.</b>	<b>1,926,843</b>	<b>759,991</b>	<b>2,232,905</b>	<b>295,161</b>	<b>487</b>	<b>10,851,548</b>	<b>464,220</b>	<b>15,306,944</b>	<b>1,224,211</b>	<b>1,827,614</b>	<b>2,197,683</b>	<b>4,264,284</b>	<b>286,903</b>	<b>1,657</b>	<b>10,336,884</b>	<b>1,132,574</b>	<b>16,717,340</b>				

Under timber and fuel worked out by departmental agency, there was an increase of 54,000 cubic feet, chiefly in the Sylhet Division, owing to the amount of drift washed down by floods after the earthquake. Timber and fuel removed by purchasers increased by 1,258,000 cubic feet, but that from waste-land grants fell off by 376,000 cubic feet. The increase is chiefly due to a more correct calculation of the amount of poles and firewood removed under *gurkati* licenses in the Garo Hills. The outturn of home rubber decreased considerably, falling from 1,222 maunds in the previous year to 761 maunds. The amount of foreign rubber also decreased by 740 maunds. The decrease is stated to be due to the gradual but steady destruction of trees by tappers, whose working in forests containing only scattered trees it is impossible to control.

*Cyorg*.—The following statement summarizes the outturn of the year, and compares it with that of the previous year :—

AGENCY OF WORK.	Timber, in c. ft.		Sandalwood, in tons.		Fuel, in c. ft.		Bamboos, in number.		Grass and grazing, value.		Other forest-produce, including cardamoms.	
	1896-97.	1897-98.	1896-97.	1897-98.	1896-97.	1897-98.	1896-97.	1897-98.	1896-97.	1897-98.	1896-97.	1897-98.
									Rs	Rs	Rs	Rs
By Government . . .	82,208	94,123	141	70	...	...	...	...	...	...	244	214
.. purchasers . . .	2,44,583	1,58,049	...	...	1,71,225	112,995	2,29,681	1,90,031	...	...	898	593
.. villagers and others . . .	...	...	...	...	...	...	...	...	2,154	2,200	6,995	13,809
Free grants . . .	21,125	11,841	...	...	...	...	16,800	9,400	1,400	1,473	...	...

There are decreases under nearly all heads, but the receipts from cardamoms increased by some Rs7,000, owing to improved realizations from *malá* lease-holders.

*Ajmer*.—The outturn of forest-produce is shown in the following summary by the Commissioner :—

\* In the following table will be found figures showing, in abstract form, the extent to which cut grass and other forest-produce have been removed from the reserves during the last two years :—

Year.	Timber.	Fuel.	Bamboos.	Grass.	Minor-produce.
	C. ft.	C. ft.	No.	Mds.	Rs
1896-97 . . . . .	10,687	226,056	17,151	609,483	1,104
1897-98 . . . . .	4,768	423,894	17,558	710,137	1,156

Grazing and other minor-produce yielded an income of Rs4,125, against Rs4,178 in 1896-97."

The stock of famine insurance grass was increased, and at the close of the year stood at 21,000 maunds.

*Baluchistan*.—The outturn of timber and fuel for three years is given below :—

Description of forests.	Timber—poles and logs.			Firewood.		
	1895-96.	1896-97.	1897-98.	1895-96.	1896-97.	1897-98.
	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.
Reserved . . . . .	679	271	7,046	3,202	4,097	10,061
Unclassed . . . . .	2,162	1,365	5,018	443,336	387,640	355,412
TOTAL	2,841	1,636	12,064	446,538	391,737	365,473

The outturn of minor forest-produce was as follows :—

Description of minor-produce.	1895-96.	1896-97.	1897-98.
	Mds.	Mds.	Mds.
Fodder grass . . . . .	582	800	679
„ „ out on lease . . . . .	Nil	100	175
Pasture (fees realised) . . . . .	743	712	267
Tree plants . . . . .	26	34	363
Fruit, flowers, etc. . . . .	74	76	179

*Andamans.*—The outturn compared with that of the previous year was as follows :—

	1896-97.	1897-98.
	C. ft.	C. ft.
<i>Timber—</i>		
Removed by the Forest Department . . . . .	218,171	258,006
„ „ purchasers . . . . .	43,332	9,197
<b>TOTAL</b> . . . . .	<b>261,503</b>	<b>267,203</b>
<i>Poles, Bullies, etc.—</i>		
Removed by district officers . . . . .	24,524	41,608
„ on free grants . . . . .	37,500	37,500
<b>TOTAL</b> . . . . .	<b>62,024</b>	<b>79,108</b>
<i>Fuel—</i>		
Removed by the Forest Department . . . . .	86,272	939,662
„ „ purchasers . . . . .	4,856	6,430
„ „ district officers . . . . .	1,458,778	133,479
„ „ free grants . . . . .	330,000	330,000
<b>TOTAL</b> . . . . .	<b>1,879,906</b>	<b>1,409,571</b>

One thousand six hundred and seventy-eight padouk trees were felled, yielding 3,055 logs, as against 1,236 trees and 2,429 logs in the year 1896-97; 258 tons of mill-sawn padouk were sent to London, and the sales of this wood in England amounted to 1,146 tons, the balance remaining in hand in London at the close of the year being 150 tons. A large quantity of gurjan oil was supplied to the Settlement, and the firewood supply was undertaken by the Forest Department, who delivered 18,000 tons during the year.

*Berar.*—The outturn of the year is shown and compared with that of the previous year in the following statement :—

Produce removed.	1896-97.	1897-98.	1897-98.	
			Increase.	Decrease.
Timber . . . . . c.ft.	503,439	352,938	...	150,501
Fuel . . . . . c.ft.	962,229	1,444,160	181,931	...
Bamboos . . . . . No., in 100's	22,308	19,317	...	3,491
Grass . . . . . value, in £	73,955	42,703	...	31,252
Grazing . . . . . value, in £	214,610	177,335	...	37,275
Miscellaneous { II-c.—Fruits, dye-stuff, } . . . . .	20,784	20,856	72	...
{ III.—Waif-wood . . . . . } . . . . .	241	304	63	...
{ V.—Other sources . . . . . } . . . . .	4,498	4,360	...	138
Gross revenue per square mile . . . . . £	119	98	...	21
Net revenue per square mile . . . . . „	58	41	...	17

The year was marked by a serious fall in the demand for timber, bamboos, grass and grazing, owing chiefly to the distress caused by the famine.

*Madras.*—The Madras Government remark—

"The following statement shows that the total yield of the forests during the year was somewhat less than in the previous year, except under the head of minor-produce :—

Year.	Timber, including sandalwood.	Fuel.	Bamboos.	Minor produce, gross value.
	C. ft.	C. ft.	No.	₹
1896-97	2,642,276	12,182,192	30,846,684	9,42,739
1897-98	2,619,793	11,922,428	29,317,049	9,98,993
Increase or decrease in 1897-98 against 1896-97	— 22,483	— 259,764	— 1,529,635	+ 56,254
Percentage of the increase or decrease above mentioned	— .85	— 2.13	— 4.96	+ 5.97

The decrease was chiefly due to restricted departmental operations in the collection of produce. The demand, on the other hand, as measured by the disposal of produce showed a substantial increase; the quantity removed by purchasers was more, except under bamboos, than in the previous year, the value being ₹16,17,729 against ₹15,53,365 last year; and the quantity disposed of by departmental agency was also greater, except under fuel, the value amounting to ₹4,78,301 as compared with ₹4,25,607 in the previous year."

*Bombay.*—The Bombay Government has compiled the following statement showing the outturn of timber and other forest produce :—

CIRCLE.	Agency by which material was removed.	MATERIAL REMOVED.					AVERAGE OUTTURN PER SQUARE MILE OF ALL FORESTS.		
		Timber.	Fuel.	Total Wood.	Bamboos.	Minor-produce.	Timber and Fuel.	Bamboos.	Minor-produce.
		C. ft.	C. ft.	C. ft.	No.	₹	C. ft.	No.	₹
Northern Circle.	Government Purchasers	138,948	368,071	507,019	1,031	...	...	...	...
	Free-grants	1,842,207	3,305,974	5,148,181	2,524,571	6,381	...	...	...
	Right-holders	15,147	...	15,147	1,291	...	...	...	...
	Total	1,996,302	5,890,441	7,885,743	*4,336,183	15,142	†4,860	†2,671	†9
Central Circle.	Government Purchasers	255,029	2,457,062	2,712,091	...	10,207	...	...	...
	Free-grants	217,388	578,507	795,895	753,539	13,042	...	...	...
	Right-holders	15,159	35,004	48,163	1,100	11,815	...	...	...
	Total	487,576	7,148,953	7,636,529	756,612	35,064	1,219	121	6
Southern Circle.	Government Purchasers	816,437	2,410,558	3,228,995	142,450	66,547	...	...	...
	Free-grants	602,542	2,056,853	3,659,394	2,578,165	25,189	...	...	...
	Right-holders	51,385	1,440	52,925	15,881	1,660	...	...	...
	Total	11,470,465	6,463,851	7,939,316	2,736,496	93,396	1,501	517	18
Sindh Circle.	Government Purchasers	1,407	20,686	22,093	...	219	...	...	...
	Free-grants	329,137	10,503,118	10,832,255	...	24,263	...	...	...
	Right-holders	5,657	8,600	14,257	...	51	...	...	...
	Total	336,201	10,647,091	10,983,292	...	24,533	10,371	...	22
All Circles combined.	Government Purchasers	1,711,821	6,256,377	7,468,198	143,481	76,973	...	...	...
	Free-grants	2,991,275	17,444,452	20,435,727	5,856,275	68,375	...	...	...
	Right-holders	87,448	43,044	130,492	18,272	1,711	...	...	...
	Total	4,290,544	20,155,336	24,445,880	7,829,291	1,68,135	2,420	550	1
Grand Total for 1897-98.		4,290,544	20,155,336	24,445,880	7,829,291	1,68,135	2,420	550	1
Grand Total for 1896-97.		5,136,562	37,763,776	42,920,338	6,354,888	1,97,409	2,393	443	14
Difference in 1897-98.		-846,018	-7,628,440	-8,474,458	+1,474,408	-29,274	-573	+107	-2

\* Besides 5,883 cart-loads and 5,473 head-loads of bamboos and 20,219 gaujas, 2,241 paranas and 446 pipes.

† These averages are per square mile of the total forest area of the Northern Circle, excluding the leased forests of the Dangs.

‡ Besides 11,096,302 cubic feet of timber and fuel, 476,613 bamboos, and minor-produce of the value of ₹16,664, removed under privileges.

The outturn of all kinds of produce, except bamboos, shows a further fall as compared with the year 1896-97, which was itself a bad year for forest operations. The plague continued to adversely affect trade in forest products.

## CHAPTER IV.

## FINANCIAL RESULTS.

The gross revenue realized during the Financial year amounted to **₹1,77,95,490**, a total which has only once been exceeded, *i.e.*, in 1896-97. The surplus amounted to **₹75,99,760**, which is nearly 3 lakhs less than in the previous year, this result being due to the unfavourable conditions existing in Berar, Madras, and Bombay. There was a large increase in Burma, where approaching falling in of leases rendered lessees anxious to extract as much timber under the more favourable rates as possible. Of the total revenue, **₹72,00,000** were realized in Burma, of which **₹50,00,000** were net revenue.

The principal variations in revenue and surplus, as compared with the previous year, were—

	Revenue.	Surplus.
	₹	₹
Bengal	-1,81,000	-1,45,000
North-Western Provinces and Oudh	-58,000	-70,000
Punjab	-39,000	-88,000
Burma (Lower)	+2,68,000	+3,67,000
Burma (Upper)	+5,68,000	+4,01,000
Assam	-52,000	-58,000
Coorg	+38,000	+22,000
Andamans	+71,000	+1,41,000
Berar	-1,17,000	-1,20,000
Madras	-1,67,000	-2,05,000
Bombay	-4,16,000	-5,20,000

The following table gives the revenue and surplus in each province, compared with the average of the preceding five years, as well as the proportion of surplus to gross revenue, and the net revenue realized per square mile of forest:—

PROVINCE.	REVENUE.		SURPLUS.		DEFICIT.		Proportion Surplus to gross Revenue.	Net Revenue per square mile of land under control of Forest Department.
	1897-98.	Average for preceding 5 years.	1897-98.	Average for preceding 5 years.	1897-98.	Average for preceding 5 years.		
	₹	₹	₹	₹	₹	₹	Per cent.	₹
Imperial	19,130	3,938	...	...	65,170	82,548	...	...
Bengal	11,89,280	9,26,344	5,35,840	4,58,514	...	...	45.0	40.1
North-Western Provinces and Oudh	13,86,870	16,13,362	4,68,820	6,77,948	...	...	33.8	117.5
Punjab	10,68,470	9,76,116	2,96,530	2,92,808	...	...	27.7	39.9
Burma (Lower)	40,86,200	35,15,948	26,82,090	21,27,118	...	...	65.6	363.8
Burma (Upper)	31,29,060	22,75,384	23,86,560	17,84,632	...	...	74.6	318.6
Central Provinces	7,80,050	10,28,844	...	96,248	1,41,390	...	...	...
Assam	3,84,820	4,83,578	95,990	1,59,088	...	...	24.9	4.9
Coorg	1,30,910	1,47,154	43,890	66,436	...	...	33.5	49.4
Ajmer	15,540	14,072	870	...	...	2,636	5.6	5.8
Baluchistan	15,040	17,290	...	...	12,290	29,070	...	...
Andamans	4,83,710	2,82,260	1,86,370	78,828	...	...	42.9	95.4
Forest School	2,390	2,784	...	...	58,030	60,664	...	...
Forest Surveys (Imperial)	220	850	...	...	33,730	28,014	...	...
<b>TOTAL</b>	<b>1,26,41,990</b>	<b>1,12,37,424</b>	<b>63,36,350</b>	<b>54,88,688</b>	...	...	<b>50.1</b>	<b>77.8</b>
Berar	4,00,350	4,79,876	1,56,800	2,85,376	...	...	39.0	37.4
Total, Bengal Presidency	1,30,42,340	1,17,17,300	64,92,650	57,24,064	...	...	49.7	75.8
Madras	21,86,490	19,86,464	5,63,640	5,54,580	...	...	26.4	29.3
Bombay	26,16,660	34,76,662	5,43,470	14,82,186	...	...	20.7	36.4
<b>GRAND TOTAL</b>	<b>1,77,95,490</b>	<b>1,71,60,426</b>	<b>75,99,760</b>	<b>77,60,830</b>	...	...	<b>42.7</b>	<b>63.4</b>



The revenue and expenditure for the quinquennial periods since 1872-73 are given below :—

Quinquennial periods.	Gross Revenue.	Expenditure.	Proportion of Expenditure to gross Revenue.
	₹	₹	Per cent.
1872-73 to 1876-77 . . . . .	65,38,373	44,09,179	67
1877-78 to 1881-82 . . . . .	73,80,431	49,42,512	67
1882-83 to 1886-87 . . . . .	1,06,78,807	68,31,284	64
1887-88 to 1891-92 . . . . .	1,42,46,891	80,69,590	56
1892-93 to 1896-97 . . . . .	1,21,60,426	93,99,796	55

The estimated value of forest-produce given away free or at reduced rates to right-holders and free-grantees is shown in the following table :—

PROVINCE.	Timber.	Fuel.	Bamboos.	Minor produce.	Grass and Grazing.	Total.
	₹	₹	₹	₹	₹	₹
Bengal . . . . .	11,300	1,10,700	7,100	29,900	89,800	2,48,800
North-Western Provinces and Oudh.	63,400	45,800	800	7,300	65,700	1,83,000
Punjab . . . . .	85,600	3,29,900	...	54,400	2,84,000	7,53,900
Burma (Lower) . . . . .	12,650	80	820	200	3,950	17,700
Burma (Upper) . . . . .	1,01,500	25,800	1,40,800	23,500	1,19,700	4,16,300
Central Provinces . . . . .	5,400	9,800	7,800	24,200	39,900	86,600
Assam . . . . .	2,27,100	95,900	8,800	2,30,900	64,000	6,26,700
Coorg . . . . .	1,500	...	20	...	1,500	3,020
Ajmer . . . . .	160	120	...	...	43,210	43,490
Ealuchistan . . . . .	300	...	...	200	9,900	10,400
Andamans . . . . .	23,700	18,500	300	700	...	43,200
Berar . . . . .	61,770	50,225	20,238	15,231	1,06,536	2,57,000
Madras . . . . .	6,607	4,955	1,000	40,210	2,028	54,800
Bombay . . . . .	21,000	1,70,800	4,200	87,400	5,11,900	7,45,300
<b>TOTAL</b> . . . . .	<b>6,21,977</b>	<b>8,62,080</b>	<b>1,91,878</b>	<b>4,69,141</b>	<b>13,45,124</b>	<b>34,90,200</b>

The total estimated value of forest-produce thus amounted to nearly 35 lakhs, i.e., nearly 17 per cent. of the total outturn of the forests was utilized by the people free of charge.

The following statement shows the revenue and expenditure under the various heads, and the proportion of the gross receipts expended:—

		Amount.		
		R		
Gross Receipts	(a) Wood . . . . .	1,37,39,530		
	(b) Minor forest-produce . . . . .	12,04,180		
	(c) Forest stamps and commutation fees for forest produce . . . . .	5,71,200		
	(d) Grass and Grazing . . . . .	13,51,350		
	(e) Revenue from forests not managed by Government . . . . .	3,52,410		
	(f) Miscellaneous . . . . .	5,76,840		
<b>TOTAL REVENUE</b>		<b>1,77,95,490</b>		
		Amount.	Proportion of Expenditure to gross Revenue.	
		R	Per cent.	
Expenditure	A. Recurring.	(i) Superior Staff . . . . .	22,06,940	12.40
		(ii) Exchange compensation allowance. . . . .	1,27,140	0.71
		(a) Administration. (iii) Subordinate Staff (including Rangers, Foresters and Guards). . . . .	16,29,880	9.16
		(iv) Office Establishments (including Contingencies). . . . .	8,66,940	4.87
	(b) Working . . . . .	(1) Extraction . . . . .	29,06,920	16.34
		(2) Roads and Buildings . . . . .	4,85,030	2.73
		(3) Fire-protection . . . . .	3,13,600	1.76
		(4) Cultural operations . . . . .	3,60,200	2.02
		(5) Live-stock, stores, tools and plant. . . . .	2,47,490	1.39
		(6) Working-plans* . . . . .	72,920	0.41
		(7) Rent for leased forests . . . . .	1,40,150	0.79
		(8) Miscellaneous . . . . .	1,13,210	0.64
	(c) Expenditure on realization of revenue from forests not managed by Government. . . . .	10,400	0.06	
	(d) Forest Science and Education (including all "A" and "B" charges of Forest School). . . . .	71,980	0.40	
<b>TOTAL</b>		<b>95,52,750</b>	<b>53.63</b>	
B. Extraordinary.	(e) Forest Settlement . . . . .	65,520	0.37	
	(f) Forest Surveys . . . . .	4,51,030	2.53	
	(g) Forest Demarcation . . . . .	1,26,430	0.71	
<b>TOTAL</b>		<b>6,42,980</b>	<b>3.61</b>	
<b>GRAND TOTAL EXPENDITURE</b>		<b>1,01,95,730</b>	<b>57.29</b>	
<b>Net Revenue</b>		<b>75,99,760</b>	<b>42.71</b>	

\* Exclusive of "B" charges.

The details of financial results in the various provinces were as follows; the figures are throughout those for the forest year, except where stated to the contrary:—

*Bengal.*—The following are the figures showing the financial results for the past six years:—

Receipts.	Charges.	Surplus.
R	R	R
7,70,817	8,90,428	8,80,391
7,73,096	8,98,389	8,74,707
8,25,669	4,09,552	4,16,117
9,35,680	4,75,601	4,60,079
13,45,982	6,96,378	6,49,604
12,20,617	6,55,251	5,65,366

The figures of the gross receipts and the surplus for the year were in excess of the corresponding figures for previous years, if those for 1896-97 be excepted, which was an unusually good year, on account of the receipts from departmental sleeper operations in Singhbhum. Sales of these sleepers to the Rai Bareilly-Benares Railway yielded, during the year, R3,48,414, as compared with R4,92,937 of 1896-97, making a total for the 203,964 sleepers, taken by the Railway, of R8,41,851, while the sale of rejected sleepers during the two years gave R13,627 more.

The proportion of surplus to gross receipts was 46 per cent., as compared with 48 per cent. in 1896-97 and 49 per cent. of the previous year. The ratio of expenditure to gross revenue was thus 55 per cent., and the net revenue per square mile was R42.

*North-Western Provinces and Oudh.*—The Local Government remarks:—

		R
"The financial results of the year were—		
Receipts . . . . .		14,46,393
Expenditure—		R
A.—Conservancy and Works . . . . .	5,23,590	9,34,217
B.—Establishment . . . . .	4,10,627	
Surplus . . . . .		5,12,186

These figures compare, Circle by Circle, with the figures of 1896-97 and with the Average of the three previous years, 1894-95 to 1896-97, as follows:—

Circle.	RECEIPTS.			EXPENDITURE.			SURPLUS.		
	Average of three forest years, 1894-95 to 1896-97.	Forest year, 1896-97.	Forest year, 1897-98.	Average of three forest years, 1894-95 to 1896-97.	Forest year, 1896-97.	Forest year, 1897-98.	Average of three forest years, 1894-95 to 1896-97.	Forest year, 1896-97.	Forest year, 1897-98.
	R	R	R	R	R	R	R	R	R
Central . . . . .	5,22,987	4,49,098	5,01,873	3,25,440	3,03,462	3,16,403	1,97,547	1,45,636	1,85,470
Oudh . . . . .	5,29,582	4,80,589	4,74,656	2,92,708	2,64,194	2,71,510	2,36,874	2,16,395	2,03,146
School . . . . .	4,30,715	4,56,722	4,69,854	3,03,731	3,06,397	3,46,304	1,26,984	1,50,325	1,23,550
Total for the Province.	14,83,284	13,86,409	14,46,393	9,21,879	8,74,053	9,34,217	5,61,405	5,12,356	5,12,166

Both receipts and expenditure show an increase over those of 1896-97, and more nearly approximate to the average of the preceding five years. The increased receipts indicate the passing away of the effects of the severe famine of 1896-97, and the recovery may be expected to be still more marked during the current year. In the Oudh Circle alone has any decrease in receipts occurred during the year, due to contraction of operations in Gonda, and in Bahraich to a reduced income from fuel and grazing and a smaller supply of available timber in the felling coupes. In the Central Circle receipts would have been higher but for the disturbance of trade in consequence of the plague scare.

Expenditure increased in the Central Circle by R12,941, in the Oudh Circle by R7,316, and in the School Circle by R39,907. In the last case the increase is due to the expansion of timber and export works in Jaunsar and to repairs to communications rendered necessary by heavy floods in August 1897. In the other two Circles, it is due in some measure to the reorganization of the subordinate establishment."

*Punjab.*—The financial results are summarized by the Local Government as follows:—

"The revenue and expenditure of the year were R11,57,983 and R7,81,494 respectively, the surplus thus being R3,76,489, as compared with R3,20,834 in the previous year. This improvement is more than accounted for by the transfer of the Shahpur rakhls from Civil to Forest Department management, in consequence of which that Division shows a surplus on the year's working of R59,628 as compared with a deficit of R2,581 in the previous year. Thus the increase in the Departmental revenue is obtained at the expense of land revenue, and but for this accession of income the financial results of the year would not be as favourable as in 1896-97. The expenditure amounted to 67 per cent. of gross revenue, as compared with 70 per cent. in 1896-97. The surplus amounts to 32 per cent. of the gross receipts, and though in excess of any year since 1891-92, is still considerably below the record figure of R4,52,846 attained in the year 1888-89. In view of the increase in the value of stock at depôts, which Form No. 60 A shows to be just double the value at which it was estimated

in 1895-96, it is presumed that larger annual surpluses may be looked for in the future. The amount of revenue outstanding—R1,04,107, as compared with R47,958 outstanding at the commencement of the year—seems to the Lieutenant-Governor to be unduly large. The proportion in which the revenue of the Department was derived from the several sources is noted below:—

Year.	Timber.	Fuel.	Gross and grazing.	Other items.
	%	%	%	%
1895-96 . . . . .	83	87	20	10
1896-97 . . . . .	46	28	17	9
1897-98 . . . . .	43	28	20	9

The following shows the financial results, under the three heads of work, for the three years, 1895-96 to 1897-98:—

	1895-96.		1896-97.		1897-98.	
	Surplus.	Deficit.	Surplus.	Deficit.	Surplus.	Deficit.
	R	R	R	R	R	R
I.—Departmental timber operations	2,56,226	...	2,92,715	..	3,21,655	...
II.—Other revenue	2,43,251	...	2,18,136	...	2,39,022	...
III.—Protection, etc.	...	1,62,775	...	1,90,017	...	1,84,188
<b>TOTAL</b>	<b>3,36,702</b>	<b>...</b>	<b>3,20,834</b>	<b>...</b>	<b>3,76,489</b>	<b>...</b>

The proportion of gross revenue spent on protection and improvement amounts to 16 per cent., as compared with 18 per cent. in 1896-97 and 15 per cent. in 1895-96; of this amount, 11 per cent. was spent on roads and buildings, while 89 per cent. was expended on other works of protection and improvement."

Burma.—The financial results compared with those of 1896-97 were as follows:—

Period.	CIRCLE.	Receipts.	Charges.	Surplus.	Proportion of Surplus to gross Revenue.	
		R	R	R	Per cent.	
FOREST YEAR.	Pegu	21,98,265	7,78,069	14,15,196	64.5	
	Tenasserim	19,73,727	5,91,270	13,87,457	70.1	
	Total, Lower Burma		41,71,992	13,69,339	28,02,653	67.1
	Eastern	22,16,126	5,30,843	16,85,283	76.0	
	Western	8,21,785	2,78,696	5,43,089	66.0	
	Total, Upper Burma		30,37,911	8,09,539	22,28,372	73.3
	Grand Total, Burma, 1897-98		72,09,903	21,78,878	50,31,025	69.7
	" " " 1896-97		66,59,847	20,81,454	45,78,393	68.7
	Increase in 1897-98		5,50,056	97,424	4,52,632	1.0
	FINANCIAL YEAR.	Pegu	20,26,722	8,33,813	11,92,909	58.8
Tenasserim		20,59,479	5,70,327	14,89,152	72.3	
Total, Lower Burma		40,86,201	14,04,140	26,82,061	65.6	
Eastern		23,54,466	5,18,962	18,35,504	77.9	
Western		7,74,590	2,73,506	5,01,084	64.7	
Total, Upper Burma		31,29,056	7,92,463	23,36,583	74.6	
Grand Total, Burma, 1897-98.		72,15,257	21,96,608	50,18,649	69.5	
" " " 1896-97.		63,78,950	21,28,820	42,50,130	66.6	
Increase in 1897-98.		8,36,307	67,788	7,68,519	2.9	
Average for the five years ending 1896-97.		Lower Burma . . . . . 85,15,948 Upper Burma . . . . . 23,75,384	13,88,830 5,40,752	21,27,118 17,34,632	60.4 76.2	
Total, Burma		57,91,332	19,29,582	38,61,750	66.7	

The following statement shows the various heads under which the revenue was realized:—

Particulars.	1896-97.	1897-98.	Increase or Decrease in 1897-98.
<i>Lower Burma.</i>			
	R	R	R
From timber and other produce removed from the forests by Government agency.	25,90,958	23,85,174	-2,05,784
From timber and other produce removed from the forests by consumers and purchasers.	7,13,793	11,16,212	+4,02,419
Timber	49,466	58,082	+8,616
Firewood and charcoal	67,306	83,646	+16,340
Bamboos	972	1,091	+119
Grazing and fodder-grass	12,494	12,100	-394
Other minor-produce	2,25,072	1,92,280	-32,792
Confiscated drift and waif wood	3,26,580	2,73,084	-53,546
Duty on foreign timber and other produce	49,716	50,373	+657
Miscellaneous			
Total, Lower Burma	40,36,357	41,71,992	+1,35,635
<i>Upper Burma.</i>			
From timber and other produce removed from the forests by Government agency.	2,47,670	2,53,766	+6,096
From timber and other produce removed from the forests by consumers and purchasers.	20,29,327	24,85,917	+4,56,590
Timber	36,911	45,494	+8,583
Firewood and charcoal	45,709	69,587	+23,878
Bamboos	190	493	+303
Grazing and fodder-grass	2,13,113	1,26,833	-86,280
Other minor-produce	23,285	26,080	+2,795
Confiscated drift and waif wood	27,285	29,741	+2,456
Duty on foreign timber and other produce			
Miscellaneous			
Total, Upper Burma	26,23,490	30,37,911	+4,14,421

The Local Government remarks—

"The increase in Lower Burma was chiefly due to the high prices obtained from the sale of teak at Government auctions. The increase in Upper Burma was due to the larger extraction of timber by the Bombay-Burma Trading Corporation from the Pynmans and Chindwin forests."

The average value per ton of teak exported from Moulmein and Rangoon rose to R87 against R83 in the previous year.

Central Provinces.—The Chief Commissioner thus explains the position—

"The following table shows the general result in thousands, of rupees, of each of the last five years. The figures already tend to show a return to the scale of the years previous to the recent bad times, but are still far below what may be considered as normal:—

	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.
<i>Receipts.</i>					
Southern Circle	561	539	492	442	488
Northern "	532	504	428	320	361
Total	1,093	1,043	920	762	349
<i>Expenditure.</i>					
Southern Circle	444	477	473	460	463
Northern "	398	401	386	404	407
Total	842	879	859	863	870
<i>Result.</i>					
Southern Circle	+117	+61	+19	-18	+25
Northern "	+134	+103	+42	-84	-46
Total	+251	+164	+61	-101	-21

The reasons of the falling off of forest revenue in the Central Provinces have been frequently and exhaustively discussed. There is no doubt that many of them are not of a merely temporary nature. The rules for *malguzari* forests, issued in October 1891, were intended to provide for the exercise of a stricter control than had previously been authorized. But as so often happens, the substitution of precise regulation for a vague authority

resting upon custom greatly hampered its exercise, and the definition of the limitations upon it brought home to the *malguzars* for the first time the very wide liberty of disposal which they possessed as regards their forest produce. Similarly, as explained by Mr. Fernandez, the optional nature of the commutation cess, which was naturally paid by all in days when no progress had been made with demarcation, and the boundaries between private and Government forests were unknown, has recently become more widely understood. Both causes have contributed to increase the competition of the *malguzari* forests with our own, which has been further intensified by the introduction of a regulated system of working; and wherever and so long as private forests can supply the needs of the local market as conveniently as our own, we can hardly expect our revenue to recover the ground thus lost. Again, the excision for *ryotwari* extensions of considerable areas in the neighbourhood of the settled tracts has not only reduced the area conveniently situated for the local demand, but has also, in many cases, afforded an immediate supply of *nistar* free of charge. The Government in the end gains largely in the matter of revenue, but the forest income suffers. Mr. Ibbetson cordially agrees with all that Mr. Fernandez wrote in paragraph 87 of his Report (Northern Circle) for 1896-97, on the advantages of a judicious lowering of rates to meet such circumstances as the distance of markets, difficulties of transport, and the ratio of supply to demand. There is much in our forests which it is better to sell at any price than not at all; and the fact should be steadily kept in view in both Circles. Some result is said already to have been produced in the Northern Circle. But except where Government forests possess advantages of position or otherwise over the *malguzari* forests, it is probable that the latter will always undersell the former, however low the rates be pitched, so long as their supply holds out."

*Assam.*—The following are the figures showing the financial results for the past five years :—

Year.	Receipts.	Expenditure.	Surplus.	Proportion of Surplus to Receipts.
	R	R	R	R
1893-94 . . . . .	4,92,811	2,65,421	2,27,390	46.1
1894-95 . . . . .	4,44,706	2,81,652	1,63,054	36.7
1895-96 . . . . .	4,04,482	2,89,323	1,15,169	28.5
1896-97 . . . . .	4,40,936	2,82,191	1,58,745	36.0
1897-98 . . . . .	3,70,778	2,86,146	84,632	22.8

The following table shows the revenue under main heads for the three years 1895-96 to 1897-98 :—

Budget heads.	1895-96.	1896-97.	1897-98.	Difference in 1897-98 compared with 1895-97.
	R	R	R	R
I.—Timber and other produce removed by Government agency.	7,548	32,214	16,794	—15,420
II.— { Timber and other produce removed by traders . . . . .	2,71,490	2,61,417	2,41,692	—19,725
{ Valuation of waste lands taken up for cultivation . . . . .	39,061	66,683	35,520	—31,163
III.—Drift wood and confiscated forest-produce . . . . .	5,788	5,237	12,098	+ 6,861
IV.—Revenue from forests not managed by Government . . . . .	32,887	35,311	26,528	—8,783
V.—Miscellaneous . . . . .	47,708	40,074	38,146	—1,928
Total . . . . .	4,04,482	4,40,936	3,70,778	—70,15

*Coorg.*—The following shows the financial results of the year compared with those of 1896-97 :—

Year.	Receipts.	Charges.	Surplus.	Proportion of Surplus to Gross Receipts.
	R	R	R	Per cent.
1897-98 . . . . .	1,35,318	84,081	51,237	37.86
1896-97 . . . . .	84,014	77,203	6,811	8.10
Increase in 1897-98 . . . . .	51,304	6,878	44,426	29.76

The principal increases of revenue were under timber, sandal and cardamoms.

*Ajmer.*—The Chief Commissioner remarks—

“From a financial point of view the working of the forests was relatively satisfactory. The realizations amounted to Rs15,295 against an expenditure of Rs15,597, or a deficit of Rs302 only on the year's operations. The corresponding figures for the previous four years are given in the subjoined table :—

	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.
	R	R	R	R	R
Receipts . . . . .	14,343	12,887	15,380	12,532	14,295
Expenditure . . . . .	15,696	14,794	16,467	21,014	15,597
Deficit . . . . .	1,353	1,907	1,087	8,482	302

The increase in the revenue during the year of Rs2,763, as compared with that of the year 1896-97, is attributed to the extended area felled under the prescriptions of the working-plan, and occurs mainly under the heads of firewood and charcoal.

The expenditure, as compared with the figures for 1896-97, shows a decrease of Rs5,417.”

*Baluchistan.*—The Agent to the Governor-General thus explains the financial position :—

“The following statement shows the financial results of the past forest year, as compared with the two preceding years :—

Forest year.	Revenue.	Expenditure.	Deficit.
	R	R	R
1895-96 . . . . .	14,751	36,382	21,631
1896-97 . . . . .	15,942	28,478	12,536
1897-98 . . . . .	14,449	28,534	14,085

The increased deficit of Rs1,549 in the accounts of the year is due to a decrease of Rs1,495 in the revenue and an increase of Rs56 in the expenditure. The former is accounted for by the falling off in the demand for firewood and the inclusion in the revenue of 1896-97 of an item of Rs423 on account of sales from the Shibu plantation. The increase in expenditure is small, and is due to the grant of dearness of provisions allowance to menial servants.”

In the Zhob Valley an expenditure of Rs1,079 was incurred on forest conservancy, whilst the revenue realised, almost entirely royalty on wood and which is credited to Special Revenues, amounted to Rs4,238.

*Andamans.*—The following shows the financial results of working the forests for the years 1896-97 and 1897-98 :—

Period.	Receipts.	Charges.	Surplus.	Proportion of Surplus to gross Revenue.
	R	R	R	Per cent.
Forest year { 1897-98 . . . . .	3,49,363	1,82,980	1,66,383	47.6
{ 1896-97 . . . . .	2,55,444	1,61,009	94,435	36.9
{ Increase in 1897-98 . . . . .	93,919	21,971	71,948	10.7
Financial year { 1897-98 . . . . .	4,80,052	2,47,836	2,32,716	48.4
{ 1896-97 . . . . .	3,62,385	3,16,581	45,804	12.6
{ Difference in 1897-98 . . . . .	+1,17,667	-69,245	+1,86,912	+35.8
{ Average for the five years ending 1896-97 . . . . .	2,82,260	2,03,432	78,828	27.9

These results are satisfactory and show a surplus of R2,32,000, part of which was due to refunds. But allowing for this, the transactions of the year show a surplus of more than a lakh, or a marked improvement when compared with the two previous years.

*Bézar.*—The financial results of the four years 1893-94 to 1896-97 were—

YEAR.	Receipts.	Charges.	Surplus.
	R	R	R
1893-94 . . . . .	4,79,475	2,64,318	2,15,157
1894-95 . . . . .	4,66,013	2,49,118	2,16,826
1895-96 . . . . .	4,95,899	2,27,862	2,68,037
1896-97 . . . . .	4,96,717	2,54,696	2,42,021

and the following statement shows the financial results of the year as compared with those of the year 1896-97 :—

Period.	Receipts.	Charges.	Surplus.	Proportion of Surplus to gross Revenue.
	R	R	R	Per cent.
Forest year { 1897-98 . . . . .	4,08,808	2,34,944	1,73,859	42.5
1896-97 . . . . .	4,96,717	2,54,696	2,42,021	48.7
Decrease in 1897-98 . . . . .	87,914	19,752	68,162	6.2
Financia year. { 1897-98 . . . . .	4,00,350	2,42,515	1,57,835	39.4
1896-97 . . . . .	5,17,771	2,40,708	2,77,063	53.5
Difference in 1897-98 . . . . .	-1,17,421	+1,807	-1,19,228	-14.1
Average for the five years ending 1896-97 . . . . .	4,79,876	2,44,500	2,35,376	49.05

The Resident remarks on these results as follows :—

"The recent famine has, as was expected, shewn its effects severely in the forest receipts of the past year. There is a decrease of R87,914 as compared with the year 1896-97."

Sir Trevor Chichele-Plowden does not lose sight of the fact that even in so unfavourable a year the accounts show a surplus of R1,73,859 in favour of the province. It has to be remembered, however, that the expenditure dealt with in the Forest Report does not include the whole expenditure of the Department. A considerable sum has been spent on forest roads by the Public Works Department, and the maintenance of these roads is provided for in that Department. The cost of stationery and printing is another item of importance."

*Madras.*—The Madras Government summarize the results as follows :—

"The financial results are exhibited in the table below :—

	Receipts.	Charges.	Surplus.	Proportion of Surplus to gross Revenue.
	R	R	R	Per cent.
1896-97.				
Northern Circle . . . . .	5,97,422	4,65,280	+1,32,142	22
Central " . . . . .	9,48,547	5,84,782	+3,63,765	38
Southern " . . . . .	6,42,948	5,37,815	+1,05,133	16
Total . . . . .	21,88,917	15,87,877	+6,01,040	27
1897-98.				
Northern Circle . . . . .	5,99,670	4,68,026	+1,31,644	22
Central " . . . . .	8,88,334	5,56,487	+3,32,347	37
Southern " . . . . .	6,62,810	5,63,976	+98,834	15
Total . . . . .	21,51,114	15,88,489	+5,62,625	26
Increase or decrease in 1897-98.				
Northern Circle . . . . .	+2,248	+2,746	-498	...
Central " . . . . .	-59,713	-28,295	-31,418	...
Southern " . . . . .	+19,662	+26,161	-6,499	...
Total . . . . .	-37,803	+612	-38,415	...



It is observed that, though the quantity and value of the produce disposed of during the year was greater than in the previous year, the total revenue collected was less, the exact amount of the decrease being Rs 37,803. This is partly due to the fact that receipts under *miscellaneous items* showed a decrease of Rs 21,981 owing to a fall in the payments for clearing land on the Anamalais; but the balance appears to consist of the difference between the collections on account of arrears made during the year and the value of items not collected within the same period.

Under expenditure there was an increase of Rs 59,602 under "*Establishment*" due chiefly to the reorganization of the executive staff, but this was counterbalanced by an almost equal decrease under "*Conservancy and Works*."

The net result is a surplus of 5.62 lakhs of rupees, being 26 per cent. of the gross revenue."

**Bombay.**—The following statement shows how the Department suffered from the general depression with which all commercial enterprise was effected:—

Period.	Circle.	Receipts.	Charges.	Surplus or Deficit.	Proportion of Surplus to gross Revenue.
		R	R	R	Per cent.
Forest year	Northern . . . . .	4,92,793	3,15,812	+1,76,981	35.9
	Central . . . . .	4,98,617	6,10,138	-1,11,521	...
	Southern . . . . .	12,84,130	9,22,402	+3,61,728	28.2
	Sindh . . . . .	2,67,114	1,39,811	+1,27,303	47.6
	Total in 1897-98 . . . . .	25,42,654	19,88,163	+5,54,491	21.8
	„ 1896-97 . . . . .	30,40,897	20,24,047	+10,16,850	33.4
	Decrease in 1897-98 . . . . .	4,98,243	35,884	4,62,359	11.6
Financial year	Northern . . . . .	5,02,522	3,30,593	+1,71,929	34.2
	Central . . . . .	5,41,620	6,79,741	-1,38,121	...
	Southern . . . . .	12,80,722	9,20,652	+3,60,070	28.1
	Sindh . . . . .	2,91,793	1,42,204	+1,49,589	51.2
	Total in 1897-98 . . . . .	26,16,657	20,73,190	+5,43,467	20.7
	„ 1896-97 . . . . .	30,32,708	19,69,160	+10,63,548	35.0
	Difference in 1897-98 . . . . .	-4,16,051	+1,04,030	-5,20,081	-14.3

The Bombay Government in their review of forest administration for the year say—

"The prevalence of plague, and its extension over a wider area, the after-effects of famine, and the continuance of scarcity in many tracts combined to effect a most serious reduction in the revenue of the year.

"In the Northern Circle the net surplus was only Rs 1,76,981, the lowest recorded in the last ten years and nearly Rs 87,000 less than that of the previous year, and over three lakhs less than the average of the three years ending 1895-96. In the Thana Division it was found impossible to sell 38 coupes, and the price of those sold which fell in the previous year from 38.4 to 25.5 per acre experienced a further fall in the year under review to Rs 24.3. The Central Circle, which, owing to the excellent organization of its resources by its able Conservator, Mr. Shuttleworth, had for years shown handsome and increasing surpluses, in 1896-97 barely paid its way, and in the year under report actually shows a deficit of Rs 1,11,521. In Khandesh a surplus of Rs 1,27,687 was obtained, but every other division contributed to the deficit. This was the Circle in which on the whole famine was the most severe in the forest districts. The grazing revenue was severely affected by reason of the remission of fees to agricultural cattle on account of the famine, and the special grass supply operations, though of great value for the purpose for which they were initiated, were, as anticipated, the reverse of profitable commercially. The disastrous effects of stagnation in the timber trade may be gathered from the fact that the Circle, which usually derives from timber receipts considerably over a lakh of rupees gross revenue, this year realised not quite thirteen thousand. It is due to Mr. Shuttleworth and his zealous subordinate officers to state that in the opinion of Government these lamentable results were in no way due to want of energy or ability in grappling with the situation. They were in the circumstances of the year wholly unavoidable. Government, however, cannot approve without further explanation of the Conservator's proposal to discontinue firewood operations in certain talukas of the Satara District. It is the declared policy of Government to encourage the use of cowdung as manure by rendering available a sufficient supply of firewood as fuel; and it is the duty of the Forest Department to bring the price of the fuel down to the capacity of the consumer. There is no advantage in allowing the fuel to lie useless on the hill sides if means can be devised for its utilisation without positive loss to the Department or injury to the forests.

"In the Southern Circle receipts fell by over Rs 1,56,000, while the expenditure on "*Conservancy and Works*" rose by about Rs 62,000, the net surplus being thus reduced from Rs 5,64,241 to Rs 3,61,728. In such circumstances Government would have expected a further explanation from the Conservator of the causes of the simultaneous growth of expenditure and the decrease of revenue. The general depression of trade which is said to account in part for the latter is a matter of notoriety, but in the absence of further information the complaint as to the dearth of labour, especially in a populous district like Belgaum, is not understood. The increase in expenditure is reported to be due to the disbursement of back payments to contractors and the exportation of bamboos for the Public Works Department and the Plague authorities.

"In the Sindh Circle there was a decrease in the total receipts from Rs 12,297 to Rs 2,67,114 and in the net surplus from Rs 1,78,088 to Rs 1,27,303. The Conservator has explained the failure of several contractors to fulfil their undertakings owing to the monetary stringency and the dislocation of trade. Government accept the Commissioner's assurance that every effort was made to surmount the difficulties of the situation."

## CHAPTER V.

## I.—ESTABLISHMENT.

Of the 19 permanent Conservators, 16 remained on duty throughout the year. The sanctioned strength of officers of the Imperial Forest Service stood at 186 at the close of the year. Of these 165 remained on duty throughout the year. Three officers were on foreign service, Mr. McDonell continuing to keep charge of the Kashmir forests and Messrs. Slade and Tottenham being lent to Siam. Two officers of the Provincial Service are also now at work under the Siam Government, which is, moreover, making arrangements to get officers trained at the Dehra School to enter their service—an enlightened policy which it is very satisfactory to record, and one likely to have the best result on the forest wealth of the country.

Of the 43 appointments which under the re-organization scheme are to be transferred from the Imperial to the Provincial Service, two were transferred during the year; bringing the total number thus dealt with to 14 at the close of the year. Under the reorganization of the Imperial and Provincial Services in 1891, and of the subordinate establishment in 1897, the prospects of the two latter branches of the Service have been much improved, and the students who obtain their certificate at the Imperial Forest School, Dehra Dun, can now rise to the rank of Extra-Deputy Conservator on Rs. 650 a month.

The question of the reorganization of the office establishments still remained unsettled; it is now, however, in an advanced stage, and will, it is hoped, be shortly decided.

The members of the subordinate staff are but indifferently reported on, more particularly in the Central Provinces and Madras; but it is satisfactory to note that Forest Rangers have done good work in most provinces. The full effect of the re-organization lately sanctioned is not yet felt, and it is believed that with the better prospects now existing a better class of man will come forward, and the discipline and work of the subordinate staff will be gradually improved.

## II.—EXPERIMENTS.

Experiments were continued with *Robinia pseudo-acacia*, but the tree does not appear likely to prove so useful in re-stocking bare areas with poor soil, as had been at one time anticipated. In favourable situations in good soil, and at an elevation of not less than 5,000 feet it has proved most successful, and its growth in the Simla Division is often excellent, and it is also doing well at Sukesar, in the Shahpur Division, where the trees planted in 1893 are now nearly 30 feet high. It also gives promise of success in Baluchistan:

On the other hand it has failed at Darjeeling; at Dehra and at Jaunsar its growth is indifferent, whilst the Conservator of the Punjab remarks that it does not appear to thrive at all on the lower hills, where it is most required, owing to the excessive heat and deficient rainfall; and this will probably prove to be the case.

The Spanish chestnut trees introduced into Bashahr and Kulu have proved very successful and are now yielding some 20 to 40lb of good fruit yearly. A scheme is under consideration for largely distributing the tree throughout Kulu and Bashahr, as well as in the North-Western Provinces Himalayas.

In Madras as usual a number of experiments were made; in Kistna 600 bamboo plants were put out in the Weld reserve, and they are doing well. In South Malabar several kinds of bamboos artificially introduced on the banks

of the rivers in Pokote and Mulathmanna are doing well. *Arundinaria Brandisii* (the giant bamboo) planted in Ayravallikava in 1879 have now some of them a girth of 22 inches. Of a number of trials to introduce the date tree the greater number have failed; those made in the Vettangudi reserved forest appear to have the greatest chance of success.

Many experiments have been made to encourage the growth of the mahogany tree (*Swietenia macrophylla*), with varying success. The plants put out at Kanoth are doing well, one being nearly 30 feet high. The trees in Pokote and Edacode, as well as those in the Kullar nursery, are doing well, but on the whole the experiments have not been very successful. That the tree will flourish is shown by the fact that the single tree in Chathambarai measures 87 feet in height, and has a girth of 74 inches, and once its culture from seed is better understood, there appears no reason why the efforts made to rear it should not be more successful than they are at present.

The supply of India-rubber continued to decrease, and in Assam the outturn of home and foreign rubber fell off by 38 and 26 per cent. The total amount of India-rubber exported fell to 278 tons as against 422 tons, the average of the preceding five years, the value at port of shipment rising to Rs. 3,038 per ton against Rs. 2,889 in the previous year. The importance of increasing the India rubber resources of the country is fully recognized. The Charduar rubber plantation was extended by 41 acres, and now covers an area of 1,700 acres, and it is intended to tap trees in it regularly in future years. Experimental tappings tend to show that about 1 seer per tree can be obtained annually without damage to the tree. Steps are being taken to start experimental plantings of the Ceara rubber tree in the Mount Stuart forest, in South Coimbatore.

The possibility of starting large plantations of the Para rubber tree in Burma is at the present moment under consideration, and a general investigation of all plants yielding a latex possessing some of the properties of rubber is being undertaken.

An interesting experiment was carried out under the orders of the Government of India with a view to introducing the Chinese silkworm into India, and so improving and increasing the output of Indian silk. A supply of living cocoons was procured through the courtesy of Her Majesty's Consul at Newchang and distributed partly to Darjeeling and partly to Chakrata. Those sent to Darjeeling failed, but from those sent to Chakrata some 5,000 larvæ were hatched out. Fed at first on the leaves of the Bán Oak (*Quercus dilatata*) they did not flourish, but removed to Deoban at an elevation of 8,000 feet and fed on the leaves of the Karshu Oak (*Quercus semecarpifolia*) they did much better, and 182 of the larvæ became full grown and encased themselves in cocoons. Seeds of the Chinese Oak, on which the worms thrive in China, were also obtained and have been sown at Darjeeling, Chakrata, and Jutogh.

Attention continued to be directed to the study of barks, etc., likely to prove suitable for the preparation of tannin extracts, and much useful information has been collected.

At a conference held at Calcutta between the Inspector-General of Forests and the Reporter on Economic Products, it was decided to restrict the enquiry to the following species of trees which, from the preliminary enquiries, seemed to give the best promise of yielding good results:—

*Acacia arabica.*

„ *Catechu* (Chips of wood).

*Shorea robusta.*

*Terminalia tomentosa.*

*Anogeissus latifolia.*

*Cassia Fistula.*

*Cassia auriculata.*

*Phyllanthus Emblica* (fruits).

*Pterocarpus Marsupium* (bark from trees felled and of branches).

*Xylia dolabriformis* (waste wood, sawdust, and branches).

*Ceriops Candolleana.*

*Terminalia Chebula* (fruits from Burma).

*Pinus longifolia.*

*Casuarina equisetifolia.*

*Acacia leucophloea.*

*Briedelia retusa* or *B. montana.*

*Kandelia Rheedii.*

*Bruguiera gymnorhiza.*

*Rhizophora mucronata.*

*Ceriops Roxburghiana.*

Analysis of the raw material made by Mr. Hooper, Curator of the Economic Section, Indian Museum, Calcutta, gave the following results:—

			Tannin.	Extracts.	Moisture.	Ash.
<i>Terminalia Chebula</i> , bark, E. No.	11409		28.6	31.2	11.7	10.1
<i>Rhizophora mucronata</i> do.	10759		26.9	40.0	10.9	9.2
<i>Ceriops candolleana</i> do.	10282		26.2	28.0	13.3	10.6
<i>Cassia auriculata</i> do.	10746		23.0	32.3	11.1	5.9
<i>Ceriops Roxburghiana</i> do.	10285		19.2	27.8	9.2	18.0
<i>Acacia dealbata</i> do.	11389		17.8	23.6	12.1	4.6
<i>Acacia arabica</i> do.	10586-1		16.7	26.0	9.8	10.9
<i>Acacia leucophloea</i> do.	10579		16.2	23.0	7.4	9.8
<i>Bruguiera gymnorhiza</i> do.	10291		15.9	21.2	9.6	7.3
<i>Briedelia retusa</i> do.	10639		15.9	18.6	9.5	11.0
<i>Pinus longifolia</i> do.	10581		14.6	26.3	8.9	3.9
<i>Kandelia Rheedii</i> do.	10288		12.2	17.7	9.9	9.8
<i>Casuarina equisetifolia</i> do.	10482		11.1	14.4	10.3	4.9
<i>Cassia Fistula</i> do.	10977		9.5	27.9	11.2	11.0
<i>Acacia Catechu</i> wood,	10978		6.8	14.3	5.5	1.5
<i>Pterocarpus Marsupium</i> do.	10585		5.4	7.0	10.2	12.9
<i>Shorea robusta</i> N.-W. P., old trees do.	10975		10.0	19.2	11.6	3.4
Ditto Coppiced trees do.	10975-1		10.5	21.0	12.4	6.5
Ditto Assam, mature do.	11093		13.2	21.2	11.4	6.0
Ditto Old branches do.	11093-1		2.8	6.3	13.5	5.1
Ditto C. P. ditto do.	11035		6.7	16.3	7.2	10.5
Ditto Old trunk do.	11035-1		4.6	7.5	9.5	6.0
Ditto Young coppice trees do.	11035-2		7.1	11.2	10.1	4.0

	Tannin.	Extracts.	Moisture.	Ash.
Terminalia tomentosa, N.W.P., old trees, bark, R. No. 10976 . . . . .	11.8	20.6	12.6	25.0
Ditto coppiced trees do. 10976-1 . . . . .	12.3	26.0	19.4	22.0
Ditto Old branches do. 10976-2 . . . . .	13.6	19.7	10.0	20.7
Ditto Assam mature trees do. 11094 . . . . .	8.6	15.5	11.8	12.5
Ditto Old branches do. 11094-1 . . . . .	5.7	7.5	12.0	24.4
Ditto C.P., Old bark do. 11034-1 . . . . .	26.2	28.7	10.4	21.6
Ditto young coppiced trees do. 11034-2 . . . . .	12.6	16.0	9.1	29.5
Ditto Old branches do. 11034 . . . . .	11.7	17.3	9.2	17.1
Xylia dolabriformis saw- dust do. 11442 . . . . .	6.1	7.0	9.0	2.4
Ditto Chips do. 10442-1 . . . . .	5.4	6.0	8.0	4.1
Ditto Sawdust do. 11408 . . . . .	.8	1.0	20.8	2.2
Ditto Chips do. 11408-1 . . . . .	4.6	5.7	5.6	2.9

In an article on tannin extracts in the "*Indian Forester*" for April 1899 it is stated—

"Arrangements were next made to ascertain the market value of the extracts made in India, as compared with those in actual use in Europe. Some samples of extracts of Pyinkado, etc., were sent to Germany by favour of Messrs. Von Ernsthansen & Co., and were analysed by Drs. Popp and Becker, authorised trade Chemists and Analysts of Frankfort. The best sample contained 37.24 per cent. of tanning agents and too much colouring material was present. The opinion was given that extracts containing so low a percentage of tannin could not compete with those at present in use in the German market. The extract in use which contains the lowest percentage of tannin is that of Quembracho, which contains 43.2 per cent. of tanning agents; and this can be bought in Germany at 88 marks per 100 kilogrammes, or say, £9-1-5 per maund or £247-8 per ton.

Further reports were obtained by favour of Messrs. Ernsthansen from Messrs. Schönbank and Sons, of Berlin. The following shows the results of analyses made by them:—

	Acacia arabica, bark.	Acacia arabica, pods.	Terminalia tomentosa, bark.	Terminalia tomentosa, bark.
Tanning agents . . . . .	30.06%	22.80%	52.50%	23.40%
Non-tanning soluble substances . . . . .	24.40 „	34.10 „	27.10 „	33.40 „
Insoluble . . . . .	6.20 „	9.40 „	6.80 „	31.60 „
Water . . . . .	39.40 „	34.70 „	13.60 „	11.60 „
	100.00	100.00	100.00	100.00

And they compare this with the analysis of tannin extracts procurable in Germany which is as follows:—

	Liquid extract of Oak wood.	Liquid extract of Chestnut.	Liquid extract of Quembracho.	Solid extract of Quembracho.
Tanning agents . . . . .	28.60%	30.40%	38.80%	68.50%
Non-tanning soluble agents . . . . .	13.70 „	8.20 „	2.40 „	5.40 „
Insoluble agents . . . . .	2.20 „	1.80 „	3.20 „	6.80 „
Water . . . . .	55.50 „	59.60 „	55.60 „	19.30 „
	100.00	100.00	100.00	100.00

Messrs. Schönbank and Sons report that the extracts from *Terminalia tomentosa* are too dark in colour and require to be decolorated before they can have any chance of finding a market. Further, they state that the samples contain far too large a proportion of non-tanning soluble substances, from 24.40 per cent. to 34.10 per cent. as compared with 2.40 per cent. to 13.70 per cent. in the extracts used in the trade, and they conclude that in order to render it possible for tanning extracts made in India to find a market in Europe, it is absolutely indispensable that they should be prepared in a rational, up-to-date manner, that the colouring matter should, as far as possible, be removed from the liquid solutions before condensation, and that these should be condensed in a vacuum.

These reports show clearly that the preparation of extracts in a rough and ready way in the forests is but a waste of time and money. The question of importing modern machinery is under consideration; the methods by which the solution may be decolorated is being investigated and in the meantime experiments are being continued at the Forest School at Dehra."

### III.— EXPORTS OF FOREST-PRODUCE.

The following table gives the amounts and value of various articles exported from India during the year:—

ARTICLES OF FOREST-PRODUCE.	QUANTITY, IN TONS OF 20 CWT. ; IN THE CASE OF TEAK, CUBIC TONS.		VALUATION AT PORT OF SHIPMENT IN 1897-98.	
	Average of five years, 1892-93 to 1896-97.	In 1897-98.	Total.	Per ton.
Caoutchouc	422	278	₹ 8,44,784	₹ 3,038
Lac—				
Putton	1,445	1,353	13,15,233	972
Shell	3,660	9,466	92,86,795	981
Stick and other kinds	94	122	1,07,175	878
Lac-dye	8	....	...	...
Sandal-wood, ebony and other ornamental woods	Information	not available	5,86,937	...
Cutch and gambier	8,773	4,859	18,74,850	336
Myrabolams	45,206	36,303	25,89,438	71
Teak	57,709	81,866	95,48,521	116
Cardamoms	101	48	2,43,659	6,076
TOTAL IN 1897-98	...	...	2,63,95,440	...
"    1896-97	...	....	2,84,83,250	...
DECREASE IN 1897-98	...	...	20,87,810	...

There has, therefore, been a marked falling off in exports under nearly all heads. Cutch and gambier show a decrease of 1,245 tons, as compared with the exports of the previous year, and now show little more than half the average amounts exported during the previous five years. On the other hand, the exports of teak show a steady increase, and during the year reached the large total of 81,866 tons, being 17,645 tons more than in the previous year. It is satisfactory to record that, notwithstanding the increased export, prices were well maintained and stood firm at ₹116 per ton at port of shipment, a slightly higher rate than in the previous year. The following particulars of the teak trade, communicated by Messrs. The Bombay-Burma Corporation, Limited, and Messrs. Macgregor and Company, may be recorded:—

" Prices per load ranged from £12 to £12-10-0, rising to £13-10-0 for planks, and consumption in the Home markets maintained the same level as last year at about 70,000 tons, of which about 26 per cent. was derived from Siam. In deck planks a new trade is developing at rates ranging at present from £17 to £20 per load.

In the European markets complaints (believed to be well-founded) arose as to inferiority of recent shipments, especially of timber from Moulmein. In the Indian markets the prices of squares have ranged from R85 to R90 per ton, according to quality, and an increasing demand arose for scantling at R70 to R120 per on according to dimensions."

#### IV.—TECHNICAL EDUCATION AND RECRUITMENT.

Five young forest officers, having completed their course of training at Cooper's Hill College, joined the Department in India towards the end of 1897. They were all posted to Burma.

The number of officers selected by competition for the Forest Department during the year was six, and they commenced their course of training at Cooper's Hill College under the guidance of Dr. Schlich, who continued Professor of Forestry, assisted by Mr. W. R. Fisher, throughout the year.

The Imperial Forest School at Dehra Dun continued to do excellent work under its Directors Mr. J. W. Oliver (1st July 1897 to 10th January 1898) and Mr. J. S. Gamble (10th January 1898 to close of year). Mr. Gleadow continued to hold the post of Deputy Director, and Mr. A. F. Gradon that of 1st Instructor. The post of 2nd Instructor was held, for part of the year, by Mr. B. B. Osmaston, who on being placed in charge of the Jaunsar Division was relieved by Mr. Caccia. Babu Upendra Nath Kanjilal was Vernacular Instructor and Babu Birbal was appointed Assistant Vernacular Instructor and Curator. The regular School staff was also assisted by Mr. J. F. Duthie, Director of the Botanical Department, Northern India, the Assistant Agricultural Chemist, and officers of the School Circle.

The number of students who completed the course during the year was 28 in the Upper Class and 9 in the Lower Class. Of these 20 obtained their certificate by the Higher Standard (two with honours) and 9 by the Lower Standard. In his report of the year's work the Director remarks—

"Since 1881 Higher Standard Certificates have been granted to 346 students and Lower Standard Certificates to 105 students. The following table embodies the available information in regard to their subsequent careers; it differs somewhat from the table of last year in consequence of more accurate information having been obtained for the correction of the School Calendar. In the Forest Department under the Governments of India and Madras—

		Higher Standard Certificate.	Lower Standard Certificate.
Deputy Conservators . . . . .	2	2	...
Extra-Deputy Conservators . . . . .	3	3	...
Extra-Assistant Conservators . . . . .	62	61	1
Forest Rangers . . . . .	194	168	26
Deputy Rangers . . . . .	39	5	34
Foresters . . . . .	4	1	3
In the Commission . . . . .	3	3	...
Police . . . . .	1	1	...
Ceylon Forest Department . . . . .	4	4	...
In Forest Departments of Native States . . . . .	60	43	17
Left the service . . . . .	17	13	4
Deceased . . . . .	32	18	14
No information is available in regard to . . . . .	30	24	6
<b>TOTAL</b> . . . . .	<b>451</b>	<b>346</b>	<b>105</b>

Good reports continue to be received from most Provinces of the work done by old students, especially by the Extra-Deputy and Extra-Assistant Conservators. Two of these, Messrs. Healy and Marshall, have been selected to help in organizing work in Siam. Babu Har Swarup has been placed in charge of the forests of Ajmer, and Pandit Keshavanand of those of the State of Tehri-Garhwal. In other Native States also, old Dehra students are at the head of the Forest Department; Sunder Lal Pathak in Patiala, Gokul Dass in Jodhpur, Gurdit Singh in Kapurthala, and Choga Lal in Jeypur among others. All these keep up more or less their old connection with the School. In Hyderabad and Mysore some of the old Dehra Dun students are in charge of important divisions and others are at work in Kashmir, Baroda, etc. Recent reports have specially mentioned the good work done by old students in several Provinces, and it is specially satisfactory to see that several of them have been employed on working-plan work."

An important step was taken during the year in the establishment of a Vernacular Forest School in Burma for the special training of Burmese, the

want of which has been much felt for many years past. The new school is to be located at Tharrawaddy, and has been placed in charge of Mr. Buchanan, an Extra-Deputy Conservator of Forests.

#### V.—FOREST ADMINISTRATION IN NATIVE STATES.

Copies of their annual Administration Reports have been received from Jammu and Kashmir, Jodhpur, Mysore, and His Highness the Nizam's Dominions in Hyderabad. In Kashmir the management of the State forests continued to be successfully carried on by Mr. McDonell. The total area of forests on the books of the department at the close of the year stood at 1,885 square miles, being an increase of 59 square miles during the year. Of this total area, about 480 square miles are estimated to contain deodar; it is thought unlikely that any further forests worth reservation will be found. Considerable attention was paid to demarcation in the face of considerable opposition from *jagir* villagers. The area of forests completely demarcated at the close of the year stood at 568 square miles; that partially, but in most cases sufficiently, demarcated at 548 square miles. The undemarcated tracts comprise an area of some 700 square miles, so the Department has still much important demarcation work to carry out.

Good progress was made in the survey of boundary lines, and an expenditure of R1,652 was incurred on this work.

Two hundred and twelve cases of forest offences were brought before the Courts, in which at the close of the year there were 424 cases pending. Two hundred and four cases were disposed of during the year, convictions being obtained in 108 cases only. The Conservator complains bitterly of the difficulty in getting the Courts to dispose of cases, and of providing sufficient evidence to obtain convictions in cases left pending, as is too often the case, for several years. The results of fire-protection were again satisfactory, 11,000 acres being alone burnt over, much of this being land covered only with bushes and grass.

The year was a very favourable one for forest operations, and the revenue rose to R10,96,000; the expenditure was R4,01,000, leaving a surplus of R6,95,000, which is more than it has ever been before.

Forest administration in Kashmir appears to be on a sound basis; demarcation should be pushed on, and the forests brought under working-plans. It will probably be found necessary to reorganize the subordinate staff, for, with the present paucity of trained officers, there is much difficulty in framing plans, and even if framed it would be found impossible to properly carry out their provisions.

In Mysore the area of the State forests at the close of the year stood at 1,545 square miles, of which 176 square miles were added during the year. A further area of 238 square miles was under enquiry and settlement. One hundred and eight miles of new demarcation lines were cut, and lines were re-cleared over 257 miles. A total expenditure of R12,540 was incurred. The actual state of demarcation cannot be gathered from the report, and it would be well to keep up a form similar to Form No. 48 prescribed in the Forest Department Code, showing what has been done and what still remains unfinished. Good progress was made in surveys, 116 square miles being surveyed. It is satisfactory to note that maps have been made for each district and for the whole province, which only require testing and correction before issue.



Two hundred and sixty-eight cases of breaches of forest rules were tried by the Courts, and convictions obtained in 73 per cent., a result not quite so satisfactory as in the previous year. Fire-protection was attempted over an area of 1,600 square miles, out of which 277 square miles or 17 per cent. was burnt. This is capable of considerable improvement, and from the remarks made by the Conservator regarding the Mysore District, it would appear that fire conservancy arrangements require to be placed on a sounder footing. The financial results were satisfactory, the revenue being  $\text{R}10,97,241$ , expenditure  $\text{R}4,30,893$  and surplus  $\text{R}6,66,348$  as compared with  $\text{R}4,90,160$  in the previous year. The increased surplus is due to increased sales of sandal wood. The quantity of sandal wood sold was 1,572 against 1,304 tons, and the amount realized  $\text{R}6,07,000$  against  $\text{R}4,63,000$ . The average value per ton was  $\text{R}386$  or  $\text{R}31$  more than in the previous year. It is estimated that forest produce to the value of  $\text{R}3,00,000$  was taken away free by raiyats.

Colonel Campbell-Walker, who became Conservator of Forests in Mysore in December 1895, has now completed his three years' term of office and made way for Mr. J. L. Pigot, formerly Deputy Conservator of Forests in Coorg. The Mysore Government in their review of the year's work remark—

"The Government have much pleasure in recording their appreciation of the valuable services rendered to the State in the Forest Department by Colonel I. Campbell-Walker during his tenure of office as head of the Forest Department in Mysore, extending over three years. He introduced improved methods of working in the Forest Department and maintained the department in a high state of efficiency."

Before leaving Colonel Campbell-Walker wrote and submitted to the Mysore Government some "Suggestions regarding forest administration in Mysore" which should prove of value to his successors. He is of opinion that the areas of reserves should be largely increased, and that under proper management the forest revenue in Mysore is capable of considerable enhancement.

The area of reserved forests in the dominions of His Highness the Nizam of Hyderabad was 3,881 square miles at the close of the year, of which 129 square miles were added during the year. There is also a very large area of open forests, much of which contains valuable timber growth, to which a certain amount of protection, by the reservation of certain species, is accorded. This protection is, however, reported to be quite insufficient, and the open forests appear to be rapidly deteriorating. The remedy lies in selecting as quickly as possible a sufficient area of the most valuable forests to be properly managed as permanent forest estates. The Conservator, Mr. Biscoe, is doing his best to push on reservation, and has proposals ready for the reservation of further areas of some 4,900 square miles, and considers that the area to be ultimately reserved should not be less than 10,000 square miles. It is satisfactory to note that since the close of the year to which the report refers an area of 860 square miles has been constituted reserved forest. Demarcation work made fair progress, but there appear to be a number of boundary disputes which should be settled as soon as possible.

The possibility of framing working-plans is discussed by the Conservator, and proposals are formulated for the preparation of a plan for the Kanad reserve. Owing to the existence of extensive private forests, the owners of which are at present able to undersell the Government, the Conservator is probably right in thinking that the time for placing the bulk of the forest areas under regular working-plans is not yet come. There appears to be a marked absence of roads leading from the forests to the markets, and until these are constructed the

forests must remain unexploited. The protection of the reserves appears to be very insufficient, and there were a large number of undetected and unpunished cases. Twelve cases were disposed of by the Courts, and convictions obtained in 4 cases only. Fire-protection was in force over 16 square miles only, and this area was saved from fire. The rest of the forests, both reserved and open, were all burned over, with the result that, in addition to the immense damage done to tree-growth, there was, in the subsequent time of scarcity, no grass for the cattle to eat, and that these died in hundreds.

The revenue amounted to R2,02,000 and the expenditure to R1,26,000, leaving a surplus of R76,000 as against R75,000 in the previous year.

It will be gathered from the above that forest administration in Hyderabad is beset with difficulties, and that it is indeed still in its infancy. The areas concerned are very large and the establishment employed quite insufficient. Demarcation is incomplete and fire-protection, without which proper forest conservancy cannot exist, has but just been started.

In Jodhpur the total area under the management of the Department stood at 301 square miles, and this appears to be satisfactorily demarcated. Surveys were in progress by the forest staff, and maps will soon be available. A working-plan has been prepared for the Desuri forest (5,438 acres), and the grazing regulated. A plan was also prepared for part of the Kanuja forest. Two hundred and sixty-three cases of breaches of forest rules were compounded, an average of R1-4-3 being realized per person concerned: 4 cases were prosecuted in the Courts and convictions obtained in all. One lakh eighty-nine thousand one hundred and twenty-seven acres were under fire-protection, of which 2,579 acres only were burnt, a very satisfactory result. Natural reproduction is reported to be in a satisfactory condition, and a lot of bamboos were planted out. The revenue realized was R23,915, the expenditure was R20,434, and the surplus R3,481. Forest produce was given away free to the estimated value of some R17,000.

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## APPENDIX I.

Summary of the Revenue and Expenditure of the Forest Department in India  
for the year 1897-98.

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## Summary of the Revenue and Expenditure

BUDGET HEADS.	BENGAL PRESIDENCY (BRITISH)										
	Imperial.	Bengal.	North-Western Provinces and Oudh.	Punjab.	Burma (Lower).	Burma (Upper).	Central Provinces.	Assam.	Coorg.	Ajmer.	Baluchistan.
<b>REVENUE.</b>	R	R	R	R	R	R	R	R	R	R	R
I.—Timber and other produce removed from the forests by Government agency.	18,570	3,83,560	3,80,970	6,95,840	22,36,130	3,40,020	66,600	14,120	95,360	420	2,660
II.—Timber and other produce removed from the forests by consumers or purchasers.	560	7,71,100	9,29,710	2,97,000	12,63,340	27,97,990	6,79,070	2,92,360	34,970	14,480	1,950
III.—Drift and waif wood and confiscated forest produce.	...	6,670	15,240	36,040	1,09,790	23,280	2,460	11,640	...	30	...
IV.—Revenue from forests not managed by Government.	...	...	12,740	2,410	2,86,120	...	...	28,250	...	...	9,500
V.—Miscellaneous . . . . .	...	27,950	48,010	37,180	50,820	27,770	31,920	38,450	580	610	930
<b>Total Revenue . . . . .</b>	<b>19,130</b>	<b>11,89,280</b>	<b>13,86,670</b>	<b>10,68,470</b>	<b>40,86,200</b>	<b>31,29,060</b>	<b>7,80,050</b>	<b>3,84,820</b>	<b>1,30,910</b>	<b>15,540</b>	<b>15,040</b>
<b>EXPENDITURE.</b>											
<b>A.—CONSERVANCY AND WORKS.</b>											
I.—Timber and other produce removed from the forests by Government agency.	970	1,95,430	1,97,170	3,09,540	5,06,090	1,51,200	35,000	4,330	23,460	60	1,200
II.—Timber and other produce removed from the forests by consumers or purchasers.	...	53,330	13,880	880	14,390	6,980	98,930	4,720	...	10	...
III.—Drift and waif wood and confiscated forest produce.	...	1,900	5,280	8,120	33,720	16,620	20	570	...	...	...
IV.—Revenue from forests not managed by Government.	...	...	5,460	...	4,900	...	...	...	...	...	40
V.—Rent of leased forests, and payments to shareholders in forests managed by Government.	...	...	19,130	40,400	...	...	...	11,500	...	...	...
VI.—Live-stock, stores, tools and plant .	...	11,070	27,070	5,910	45,690	29,620	17,500	13,400	1,670	230	20
VII.—Communications and buildings .	...	51,830	1,16,560	43,380	24,050	55,150	17,250	23,690	5,690	670	...
VIII.—Demarcation, improvement, and extension of forests.	230	35,220	1,07,490	30,280	2,60,990	96,270	1,88,690	27,280	16,650	3,050	...
IX.—Miscellaneous . . . . .	...	3,720	9,450	2,340	7,760	4,350	4,190	1,740	300	140	...
<b>Total A.—Conservancy and Works .</b>	<b>1,200</b>	<b>3,52,500</b>	<b>5,06,490</b>	<b>4,40,850</b>	<b>9,48,090</b>	<b>3,60,190</b>	<b>3,61,580</b>	<b>36,430</b>	<b>47,770</b>	<b>3,160</b>	<b>...</b>
<b>B.—ESTABLISHMENT.</b>											
I.—Salaries . . . . .	82,620	2,42,470	3,40,550	2,66,340	3,75,970	3,59,740	4,45,440	1,66,020	30,840	9,610	22,220
II.—Travelling allowances . . . . .	...	38,430	42,440	40,630	54,340	57,020	39,710	23,530	6,210	1,050	2,790
III.—Contingencies . . . . .	430	20,040	28,370	23,620	25,210	15,550	74,710	12,850	2,200	850	840
<b>Total B.—Establishments . . . . .</b>	<b>*83,100</b>	<b>3,00,940</b>	<b>4,11,360</b>	<b>3,31,090</b>	<b>4,56,020</b>	<b>4,32,310</b>	<b>5,59,860</b>	<b>2,02,400</b>	<b>39,250</b>	<b>11,510</b>	<b>25,850</b>
<b>Grand Total of Expenditure . . . . .</b>	<b>84,300</b>	<b>6,53,440</b>	<b>9,17,850</b>	<b>7,71,940</b>	<b>14,04,110</b>	<b>7,92,500</b>	<b>9,21,440</b>	<b>2,88,830</b>	<b>87,020</b>	<b>14,670</b>	<b>27,330</b>
<b>SURPLUS . . . . .</b>	...	5,35,840	4,68,820	2,96,530	26,82,090	23,36,560	...	95,990	43,890	870	...
<b>DEFICIT . . . . .</b>	65,170	...	...	...	...	...	1,41,890	...	...	...	12,290

\* Includes salary of the Inspector-General and Assistant

## DIX I.

of the Forest Department in India for the year 1897-98.

TERRITORIES).			Total Bengal Presidency (British Territories).	Madras.	Bombay.	Total British Provinces.	Berar.	GRAND TOTAL.	BUDGET HEADS.
Andamans.	Forest School.	Forest Surveys (Imperial).							
R	R	R	R	R	R	R	R	R	
3,64,830	...	...	46,49,130	4,91,450	11,14,630	62,55,210	...	62,55,210	I.—Timber and other produce removed from the forests by Government agency.
1,750	...	...	70,24,280	14,89,680	14,00,790	99,14,750	3,95,930	1,03,10,730	II.—Timber and other produce removed from the forests by consumers or purchasers.
...	...	...	2,95,150	13,780	8,140	3,17,050	850	3,17,400	III.—Drift and waif wood and confiscated forest produce.
...	...	...	8,39,020	...	13,390	3,52,410	...	3,52,410	IV.—Revenue from forests not managed by Government.
67,080	2,890	230	3,34,410	1,41,600	79,710	5,55,720	4,020	5,59,740	V.—Miscellaneous.
4,33,710	2,890	230	1,26,41,090	21,86,490	26,16,660	1,72,95,140	4,00,850	1,77,95,490	Total Revenue.
<b>EXPENDITURE.</b>									
<b>A.—CONSERVANCY AND WORKS.</b>									
2,05,380	...	...	16,29,830	1,80,340	6,09,180	24,19,330	...	14,19,330	I.—Timber and other produce removed from the forests by Government agency.
...	...	...	1,98,620	90,150	39,760	3,28,530	40,650	3,69,180	II.—Timber and other produce removed from the forests by consumers or purchasers.
...	...	...	1,16,230	1,650	530	1,18,410	...	1,18,410	III.—Drift and waif wood and confiscated forest produce.
...	...	...	10,400	...	...	10,400	...	10,400	IV.—Revenue from forests not managed by Government.
...	...	...	71,030	17,570	85,990	1,24,590	15,560	1,40,150	V.—Rent of leased forests and payments to shareholders in forests managed by Government.
20,920	930	3,680	1,77,700	52,110	14,730	2,44,540	3,870	2,48,410	VI.—Live-stock, stores, tools and plant.
1,310	...	...	3,38,880	90,710	5,080	4,64,670	20,360	4,85,030	VII.—Communications and buildings.
190	...	5,40	1,71,390	3,16,890	2,81,530	13,69,810	19,890	13,89,700	VIII.—Demarcation, improvement, and extension of forests.
760	2,440	110	37,310	3,100	66,910	1,12,320	3,330	1,15,650	IX.—Miscellaneous.
1,23,580	3,360	2,780	33,51,390	7,57,520	10,83,690	51,92,600	1,03,660	52,96,260	Total A.—Conservancy and Works
<b>B.—ESTABLISHMENTS.</b>									
18,450	50,280	18,500	24,27,550	6,33,290	3,24,910	33,85,750	1,12,280	39,98,030	I.—Salaries.
2,060	4,160	...	3,12,870	1,29,760	1,19,610	5,62,240	16,960	5,79,200	II.—Travelling allowances.
270	3,120	5,720	2,13,830	52,280	44,980	3,11,090	11,150	3,22,240	III.—Contingencies.
13,780	57,560	24,220	29,54,250	8,15,330	9,89,500	47,59,080	1,40,390	49,99,470	Total B.—Establishments.
47,340	60,920	33,950	63,05,640	15,72,850	20,73,190	99,51,680	2,44,050	1,01,95,730	Grand Total of Expenditure.
86,370	...	...	63,36,250	5,63,640	5,43,470	74,42,460	1,56,300	75,99,760	<b>SURPLUS.</b>
...	58,030	33,730	...	...	...	...	...	...	<b>DEFICIT.</b>

APPENDIX II.\*

Revenue, Expenditure and Surplus of the Forest Department throughout India during the 25 years from 1873-74 to 1897-98.

REVENUE.

Regions.	1873-74.	1874-75.	1875-76.	1876-77.	1877-78.	1878-79.	1879-80.	1880-81.	1881-82.	1882-83.	1883-84.	1884-85.	1885-86.	1886-87.	1887-88.	1888-89.	1889-90.	1890-91.	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.
	₹	₹	₹	₹	₹	₹	₹	₹	₹	₹	₹	₹	₹	₹	₹	₹	₹	₹	₹	₹	₹	₹	₹	₹	₹
India	1,225	1,144	1,465	2,490	1,36,772	16,716	17,214	18,887	27,407	20,732	32,907	26,574	14,708	4,186	4,827	4,017	4,759	6,370	6,688	5,240	2,68	4,98	2,690	4,10	19,13
North-Western Provinces and Punjab	1,79,366	1,85,932	1,98,274	2,22,401	4,28,228	4,16,027	4,49,524	5,61,340	6,33,734	6,93,958	6,94,334	5,71,152	5,97,432	6,53,634	6,57,794	6,76,907	7,68,718	7,27,392	7,89,553	7,44,880	8,01,610	7,95,670	9,18,710	13,70,856	11,89,280
Central Provinces and Berar	19,32,577	13,63,358	12,64,356	11,50,671	12,03,108	11,28,755	10,39,966	9,42,228	10,66,094	10,13,403	16,11,383	15,72,319	14,61,495	15,73,556	12,47,454	14,62,802	17,14,159	16,37,879	17,31,514	16,52,540	17,09,860	16,58,250	16,01,340	14,44,82	13,86,670
Madhya Pradesh	7,32,539	8,34,874	9,08,831	5,98,754	6,83,711	5,00,619	6,49,819	6,71,678	6,88,308	7,66,709	9,10,177	7,49,352	8,50,419	11,27,277	7,86,936	10,45,768	9,21,713	8,34,370	10,20,074	8,12,630	9,12,300	10,32,430	10,14,500	11,07,72	10,68,470
Madhya Pradesh (Lower)	10,68,621	10,74,802	17,78,020	15,51,408	16,03,082	11,37,562	11,80,190	15,16,613	22,31,804	25,03,896	25,09,275	16,70,982	20,23,859	19,96,667	22,18,897	28,09,305	31,34,716	26,77,671	28,58,114	35,83,370	34,89,350	32,74,200	34,14,550	38,18,270	40,86,200
Madhya Pradesh (Upper)	...	...	...	...	...	...	...	...	...	...	...	...	...	1,08,074	2,86,878	15,79,928	18,06,070	16,44,297	13,27,300	20,76,630	22,95,75	21,62,580	22,81,280	25,63,680	31,29,060
Central Provinces	5,63,367	6,60,938	7,26,176	6,61,326	6,83,910	8,52,862	10,06,724	8,50,139	11,72,884	9,77,647	9,94,766	10,27,202	10,36,894	9,57,410	10,93,369	11,80,405	11,56,181	12,13,461	13,59,900	12,30,850	11,34,480	10,08,630	9,96,940	7,73,320	7,80,050
Madhya Pradesh	...	65,949	61,870	81,568	1,34,326	1,61,779	1,64,335	1,68,937	1,66,054	2,48,605	2,11,445	1,80,414	1,86,666	2,12,011	2,67,312	3,03,822	3,79,498	3,26,793	3,36,129	3,82,830	4,88,500	4,35,090	4,25,03	4,36,440	3,84,820
Madhya Pradesh	1,10,284	58,015	1,07,450	75,927	1,01,015	52,023	1,01,786	87,857	1,00,364	1,39,022	87,822	1,13,233	89,386	99,291	1,27,028	1,36,183	92,753	1,35,561	1,82,897	1,80,680	1,73,790	1,53,050	1,35,250	93,000	1,30,910
Madhya Pradesh	304	202	410	905	3,002	1,241	1,861	1,124	4,065	7,128	8,198	10,456	9,697	11,274	14,293	13,574	11,592	15,266	19,799	14,890	14,620	12,840	15,640	12,370	15,540
Forest Surveys (Imperial)	...	...	21	...	...	63	38	272	...	349	36	234	202	241	40	315	220	2,104	257	520	240	80	510	400	220
Forest School	...	...	...	...	...	...	...	...	...	...	...	73	273	415	777	449	1,237	1,184	1,788	1,980	1,990	2,790	4,210	2,850	2,850
Damans	4,184	5,516	5,363	4,679	1,301	5,564	2,437	27,734	48,407	70,858	24,762	12,213	22,944	31,870	1,04,062	1,06,075	1,62,195	1,58,326	2,72,338	3,60,490	4,41,730	1,14,530	1,32,120	3,62,370	4,33,710
Total	45,97,567	42,50,730	50,54,246	43,50,129	49,76,455	42,71,208	46,13,894	48,46,869	61,3,121	64,51,305	70,85,108	50,44,204	63,04,965	67,77,906	68,19,685	91,19,610	1,01,53,811	93,80,674	99,06,351	1,10,47,530	1,14,67,960	1,06,55,120	1,19,42,870	1,19,87,190	1,26,26,950
Madhya Pradesh	6,13,653	5,14,401	6,77,873	5,92,573	5,50,310	6,06,788	6,26,168	7,36,880	8,06,908	9,06,442	9,53,704	11,86,916	11,98,650	12,46,911	13,74,920	15,15,006	15,57,627	17,95,408	16,94,216	15,77,210	19,47,180	18,94,030	21,10,570	23,03,330	12,36,490
Madhya Pradesh	11,88,089	12,24,051	12,48,672	12,26,658	12,61,528	11,81,894	15,24,712	15,22,807	18,28,117	20,90,353	25,03,100	27,74,842	33,66,286	30,32,676	30,32,577	28,50,190	31,37,696	32,58,220	32,84,649	32,69,550	37,94,250	37,50,030	35,36,670	30,32,710	26,16,660
Madhya Pradesh (British India)	63,99,309	59,89,182	69,80,791	61,69,360	67,88,293	60,59,890	67,64,774	71,06,556	87,74,146	94,48,100	1,05,41,912	98,85,962	1,08,69,901	1,10,57,493	1,12,27,182	1,34,84,806	1,48,49,134	1,44,64,302	1,48,85,216	1,18,94,290	1,72,09,490	1,62,99,180	1,65,90,110	1,73,23,230	1,73,80,100
Madhya Pradesh	2,63,256	2,60,674	2,32,782	2,53,072	2,79,236	2,88,704	3,07,500	2,66,556	2,33,511	2,92,014	3,08,218	2,97,185	3,10,851	3,26,261	4,06,447	4,07,977	4,40,541	4,87,109	5,11,185	4,31,020	4,82,800	4,73,400	4,94,340	5,17,820	4,00,350
Madhya Pradesh (Forest Surveys)	...	...	...	...	...	...	...	...	...	...	...	934	631	651	596	...	...	...	...	...	...	...	...	...	...
Madhya Pradesh	...	...	...	...	...	...	...	14,373	18,616	5,039	4,752	6,089	14,962	14,081	14,063	5,668	13,897	15,724	20,609	19,030	20,730	16,300	14,930	15,460	15,010
GRAND TOTAL	66,62,565	62,49,856	72,13,573	64,22,432	70,67,529	63,48,504	70,72,274	73,87,488	90,26,273	97,45,153	1,08,54,882	1,01,90,170	1,12,05,345	1,13,98,486	1,16,48,288	1,38,38,451	1,53,03,572	1,49,67,135	1,54,17,010	1,63,44,340	1,77,13,020	1,67,88,880	1,70,99,380	1,78,56,510	1,77,95,490

EXPENDITURE.

Provinces.	1873-74.	1874-75.	1875-76.	1876-77.	1877-78.	1878-79.	1879-80.	1880-81.	1881-82.	1882-83.	1883-84.	1884-85.	1885-86.	1886-87.	1887-88.	1888-89.	1889-90.	1890-91.	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.
	₹	₹	₹	₹	₹	₹	₹	₹	₹	₹	₹	₹	₹	₹	₹	₹	₹	₹	₹	₹	₹	₹	₹	₹	₹
Imperial*	79,211	81,210	48,239	44,004	98,059	62,956	73,810	65,291	77,635	87,263	98,268	96,306	88,245	86,299	78,628	88,199	81,311	85,414	65,788	1,07,270	80,840	81,950	80,410	78,969	94,300
Bengal	1,39,274	1,01,361	1,42,676	2,14,497	2,62,913	2,38,675	2,75,749	2,35,381	2,91,612	2,62,182	2,87,812	4,11,915	3,70,399	4,22,781	2,90,368	2,76,270	2,98,150	4,14,004	4,22,830	2,81,610	4,04,040	3,97,390	4,68,070	6,90,040	6,52,140
North-Western Provinces and Oudh	11,90,794	10,61,202	7,36,979	8,61,962	7,28,926	8,09,977	7,16,594	6,79,574	9,16,212	8,39,025	10,41,885	10,20,101	9,74,519	8,19,580	8,30,748	8,44,544	9,63,151	9,19,185	9,58,211	8,28,540	9,62,020	9,36,310	8,42,860	9,06,340	9,17,850
Punjab	6,11,556	6,58,983	5,56,911	5,25,659	5,20,631	5,23,554	4,80,676	4,95,366	5,16,269	5,60,756	6,58,146	6,58,070	6,75,483	7,16,510	6,77,912	5,93,885	6,45,855	6,53,041	6,40,275	6,56,270	6,36,430	7,22,120	6,78,420	7,23,300	7,71,940
Burma (Lower)	4,75,304	6,63,547	8,15,659	10,05,554	8,58,231	7,18,402	7,53,490	7,12,568	11,50,224	12,28,955	12,17,824	12,12,233	11,50,952	10,75,830	10,32,694	12,31,944	13,32,844	10,86,474	12,25,121	13,63,250	12,41,640	13,78,230	13,57,740	15,03,290	14,04,110
Burma (Upper)	...	...	...	...	...	...	...	...	...	...	...	...	...	2,188	1,21,152	7,85,129	2,73,800	2,02,815	2,73,859	4,41,750	5,20,860	5,39,760	5,75,860	6,25,530	7,92,500
Central Provinces	2,85,933	2,94,449	3,73,327	2,90,295	2,22,694	3,93,758	5,22,574	4,95,512	4,97,013	4,12,287	4,36,058	4,95,821	4,45,432	4,99,233	5,82,939	6,68,697	6,96,445	7,35,554	8,08,915	8,51,400	9,32,190	9,76,060	9,52,940	9,50,950	9,21,440
Assam	...	60,367	63,397	90,520	1,01,158	1,26,028	1,32,829	1,42,725	1,65,361	1,71,823	1,99,562	1,97,699	2,11,494	2,12,297	2,26,892	2,09,905	2,57,123	2,63,852	2,67,525	2,64,070	2,68,220	2,72,010	2,86,140	2,82,010	2,86,830
Coorg	45,952	37,939	40,169	38,692	36,268	34,829	55,165	56,497	59,796	64,770	75,022	76,951	65,690	74,088	72,629	80,175	72,420	65,818	66,860	73,090	86,890	86,140	85,940	71,630	87,020
Uttar Pradesh	17,932	15,281	27,346	22,460	14,926	13,445	13,750	12,423	13,954	11,284	14,574	16,316	16,469	20,744	18,897	15,676	12,701	12,720	13,986	15,000	15,900	14,900	15,730	22,010	14,670
Forest Surveys (Imperial)	69,556	78,090	58,920	58,929	60,165	60,325	48,878	40,335	42,489	41,585	30,940	19,823	19,180	28,348	32,669	22,164	21,188	24,224	26,882	22,160	27,900	29,040	29,950	31,970	37,950
Forest School	...	...	...	...	...	...	...	...	...	...	22,568	24,239	30,631	33,129	32,961	6,646	35,181	44,347	60,400	65,530	65,960	67,950	67,380	60,020	...
Andamans	...	...	...	1,307	1,096	...	7,177	2,160	2,306	1,846	12,161	22,760	37,085	25,769	62,679	67,295	94,975	1,30,052	1,79,909	2,31,210	2,44,550	1,22,780	1,02,020	3,18,600	2,47,360
Total	29,05,522	20,62,539	28,63,632	31,42,279	30,04,442	30,82,949	20,78,691	30,37,829	38,25,871	34,01,740	41,67,252	41,50,563	40,79,137	41,14,549	41,31,532	60,04,844	48,79,615	67,47,864	62,09,608	53,86,020	55,88,010	56,26,470	56,42,330	62,70,050	62,78,31
Madras	4,74,920	5,95,941	5,92,039	6,35,560	5,65,624	4,85,914	5,49,527	5,19,270	6,08,419	6,45,352	7,86,733	8,96,505	9,37,972	11,53,122	11,29,218	12,20,794	11,61,237	12,46,914	12,24,254	13,30,390	13,62,770	13,96,350	14,45,610	15,34,300	15,72,850
Bombay	7,21,584	6,36,675	7,94,141	8,36,979	8,77,716	10,04,923	10,78,989	11,67,347	11,69,181	12,78,770	15,64,172	17,78,723	18,39,467	19,82,910	19,44,005	16,93,962	17,70,691	18,69,867	19,31,457	19,04,970	20,71,940	20,67,920	19,58,390	19,69,160	20,73,190
Total (British India)	31,02,037	44,85,205	42,49,812	46,22,818	44,47,782	45,82,766	47,04,207	47,24,441	56,08,471	57,25,862	65,18,157	68,25,791	68,56,570	72,20,580	72,04,750	79,18,600	78,11,542	78,64,754	84,65,919	86,21,366	90,22,720	90,80,740	90,44,330	97,73,510	99,21,350
Bihar	86,260	81,389	81,449	94,852	1,00,968	1,07,350	1,10,506	1,28,968	1,52,965	1,58,054	1,56,779	1,52,648	1,59,242	1,71,704	1,83,765	1,70,213	1,76,549	1,68,921	1,98,366	2,29,230	2,54,250	2,51,640	2,45,510	2,41,670	2,44,050
Forest Surveys (Bihar)	...	...	...	...	...	...	...	...	...	...	15,043	24,804	42,940	45,472	82,098	23,955	6,464	...	...	...	...	...	...	...	...
Baluchistan	...	...	...	...	...	...	...	16,416	17,682	11,962	16,911	13,268	15,789	17,836	17,753	15,994	17,962	29,450	30,497	56,620	52,730	40,910	31,770	29,770	27,330
GRAND TOTAL	41,68,387	45,70,604	43,41,311	47,17,470	45,57,750	46,91,136	49,14,713	48,69,825	57,79,138	58,92,978	67,06,890	70,26,510	70,74,551	74,55,562	74,48,366	81,29,761	80,12,519	89,62,195	88,94,183	89,06,290	93,30,700	93,73,280	93,33,610	1,00,45,150	1,01,95,790

\* Includes pay of Inspector-General of Forests, certain home charges and undistributable and petty local items.

STATEMENT II—concluded.

SURPLUS.

PROVINCE.	1873-74.	1874-75.	1875-76.	1876-77.	1877-78.	1878-79.	1879-80.	1880-81.	1881-82.	1882-83.	1883-84.	1884-85.	1885-86.	1886-87.	1887-88.	1888-89.	1889-90.	1890-91.	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.
	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Imperial*	-77,961	-80,066	-46,779	-41,514	38,673	-47,240	-56,596	-46,404	-50,228	-56,536	-65,359	-69,732	-73,537	-82,113	-73,779	-82,182	-76,552	-79,044	-59,100	-1,02,030	-78,160	-79,970	-77,720	-74,860	-65,170
Bengal	40,092	64,571	55,598	7,904	1,63,315	77,352	1,73,776	2,25,959	2,39,122	3,11,776	3,06,521	1,59,237	2,27,033	2,30,853	2,67,426	3,00,637	3,70,568	3,13,388	3,66,623	3,63,270	3,97,570	3,98,280	4,52,640	6,80,810	5,35,840
North-Western Provinces and Oudh	7,41,883	3,02,056	5,27,377	2,89,309	4,74,182	3,16,778	3,23,372	2,62,654	1,49,882	1,74,378	5,69,498	5,52,218	4,86,976	6,53,976	4,16,708	6,18,258	7,51,008	7,18,684	7,73,303	7,24,000	7,46,840	7,21,940	6,58,480	5,38,480	4,68,820
Punjab	1,20,983	1,75,891	3,52,920	73,095	1,63,083	-22,935	1,69,143	1,76,310	1,72,039	2,05,959	2,57,031	1,91,282	1,74,936	4,10,767	1,09,024	4,51,883	2,75,858	1,81,329	3,79,799	1,56,360	2,76,870	3,10,310	3,35,080	3,84,420	2,96,530
Burma (Lower)	5,93,317	4,11,255	9,63,361	5,45,854	7,44,851	4,19,180	4,26,700	8,04,045	10,81,580	12,74,941	12,91,451	4,58,749	8,72,907	9,22,837	11,86,203	13,77,361	18,01,872	15,91,791	15,32,993	22,20,120	21,47,710	18,95,970	20,56,810	23,14,980	26,82,060
Burma (Upper)	...	...	...	...	...	...	...	...	...	...	...	...	...	1,05,883	1,75,724	7,91,795	15,32,270	18,41,932	9,53,441	16,34,880	17,74,890	16,22,820	17,05,420	19,35,150	23,36,560
Central Provinces	2,82,428	3,66,489	3,52,849	3,71,031	3,61,876	4,59,104	4,84,157	3,54,627	6,75,871	5,65,400	5,58,711	5,31,381	5,91,462	4,58,117	5,40,430	5,11,708	4,59,736	4,77,907	5,55,985	3,79,450	2,02,290	32,570	44,600	-1,77,670	-1,41,390
Assam	...	5,582	-1,527	-8,952	33,173	35,751	31,506	26,272	693	-67,782	11,883	-17,285	-14,838	-276	40,420	93,977	1,22,369	42,941	68,604	1,18,760	2,20,280	1,63,080	1,38,890	1,54,430	95,990
Coorg	64,332	20,016	67,292	42,285	64,747	17,191	46,621	31,370	40,568	73,252	12,799	36,282	23,696	25,203	54,399	56,008	20,333	-69,743	96,037	1,07,590	86,900	66,910	48,410	21,370	43,890
Chamberlain	-17,628	-15,079	-26,936	-21,555	-11,924	-12,204	-11,889	-11,299	-9,889	-4,158	-6,376	-5,860	-6,772	-9,470	-4,604	-2,102	-1,109	2,546	5,813	-110	-1,280	-2,060	-90	-9,640	870
Forest Surveys (Imperial)	59,556	-78,090	-58,909	-58,929	-60,165	-60,262	-46,840	-40,063	-42,480	-41,247	-30,904	-19,589	-18,978	-28,107	-32,828	-21,849	-20,968	-22,220	-26,625	-21,640	-27,660	-29,760	-29,440	-31,570	-33,730
Forest School	...	...	...	...	...	...	...	...	...	...	...	-22,495	-23,966	-30,416	-32,352	-32,512	-28,409	-34,007	-42,559	-48,420	-68,540	-63,190	-63,640	-64,530	-58,030
Landmann	4,181	5,516	5,363	3,372	205	5,564	-4,740	25,574	46,101	69,018	12,601	-547	-13,091	6,101	41,383	48,780	67,220	28,274	92,429	1,29,280	1,97,240	-8,250	30,100	45,770	1,86,370
Total	16,92,044	11,98,141	21,90,614	12,01,850	19,72,013	11,88,259	15,35,203	18,09,045	23,03,250	26,49,565	29,17,856	17,83,941	22,25,828	26,63,358	26,88,152	41,14,766	52,74,196	46,32,720	46,96,743	56,61,510	58,79,950	50,28,650	53,01,540	57,17,140	63,48,640
Madras	1,38,733	-81,540	85,834	-42,987	-15,314	1,10,874	77,641	2,17,610	2,03,489	2,61,090	1,66,971	2,70,411	2,60,678	93,789	2,45,708	2,94,212	3,96,890	5,48,495	3,69,962	2,46,820	5,84,410	5,07,680	6,64,960	7,69,030	5,63,640
Bombay	4,66,495	3,87,376	4,54,531	3,87,679	2,83,812	1,76,971	4,47,723	3,55,460	6,58,936	8,11,583	9,38,928	9,96,119	15,26,825	10,79,766	10,88,572	11,56,228	13,67,005	14,18,333	13,53,192	13,64,580	17,22,410	16,82,110	15,78,280	10,63,550	15,43,470
Total (British India)	22,97,272	15,03,977	27,30,978	15,46,542	23,40,511	14,76,104	20,60,567	28,82,115	31,65,675	37,22,238	40,23,755	30,60,171	40,13,331	23,36,913	40,22,432	55,65,206	70,37,591	65,99,548	64,19,897	72,72,910	81,86,770	72,18,440	75,44,780	75,49,720	74,55,750
Star	1,76,906	1,69,285	1,41,282	1,58,420	1,69,268	1,81,354	1,96,994	1,87,588	80,526	1,36,960	1,51,439	1,44,536	1,36,609	1,54,552	2,22,682	2,37,765	2,63,992	3,18,183	3,12,819	2,01,790	2,28,550	2,21,760	2,48,660	2,75,950	1,56,360
Forest Surveys (Bemar)	...	...	...	...	...	...	...	...	...	...	-15,043	-33,870	-42,309	-44,821	-41,502	-23,955	-6,461	...	...	...	...	...	...	...	...
Malochistan	...	...	...	...	...	...	...	-2,040	931	-6,923	-12,159	-7,177	-837	-3,755	-3,690	-10,326	-4,065	-13,726	-9,888	-36,590	-43,000	-24,610	-26,840	-14,310	-12,2
GRAND TOTAL.	24,74,178	16,73,202	28,72,202	17,04,362	25,09,779	16,57,458	22,57,561	25,17,663	32,47,135	38,52,275	41,47,952	31,63,660	41,30,794	39,42,894	41,99,922	57,63,690	72,91,054	69,04,010	67,22,828	74,38,110	83,72,320	74,15,590	77,66,770	78,11,860	75,99,760

\* Includes pay of Inspector-General of Forests, certain home charges, and undistributable and petty local items.