

Administrative Report-

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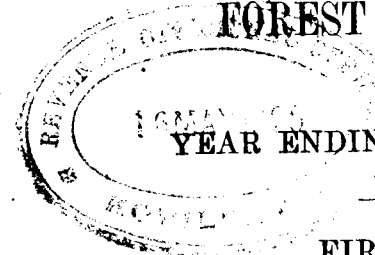
Forest- Dept, Madras

1923-24



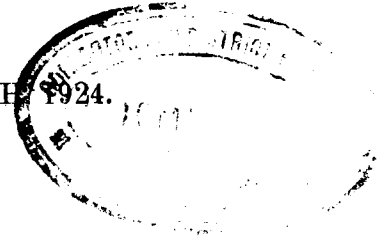
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ANNUAL ADMINISTRATION REPORT OF THE FOREST DEPARTMENT



FOR THE

YEAR ENDING 31st MARCH 1924.



FIRST CIRCLE.

CHAPTER I.—CONSTITUTION OF STATE FORESTS.

1. ALTERATION IN AREA.

Reserved forests and reserved lands.—Twelve square miles of reserved land were transferred to reserved forests. The area on 31st March 1924 was 2,514 square miles under reserved forest and 3 square miles under reserved land.

2. FOREST SETTLEMENT.

2. Twelve square miles were notified under section 16 of the Forest Act. No more settlement work was pending.

3. DEMARCATION.

3. Twenty-three miles were demarcated for the first time. Nine miles were specially repaired at a cost of Rs. 69 and 3,096 miles were repaired by subordinates free of cost. The total length of boundary demarcated at the close of the year was 3,841 miles.

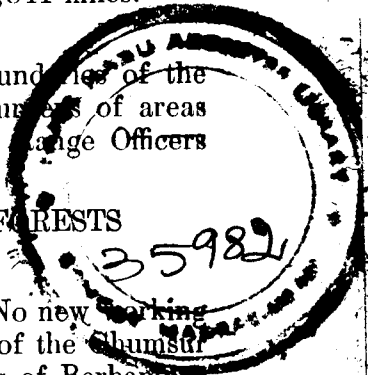
4. FOREST SURVEYS.

4. The Madras Survey Party traversed the boundaries of the reserves in Sorlagondi section in Kistna. Local surveys of areas under working were carried out by the concerned Range Officers in all the divisions.

CHAPTER II.—MANAGEMENT OF STATE FORESTS

1. REGULATION OF MANAGEMENT.

5. *Preparation and control of working plans.*—No new working plans were sanctioned. *Ganjam*—The prescriptions of the Shumshur working plan were carried out. The Mohiri forests of Berhampur Range were worked under Mr. Wimbush's working scheme. *Vizagapatam*—A revised working plan for 62 square miles of forests in Palakonda Range was sanctioned tentatively by the Conservator. A bamboo working plan for the whole district on a four-year rotation was also sanctioned. *Godavari Lower*—A simple scheme for working the teak areas in Kopalli and Kovvada reserves of the Polavaram Range was submitted to the Conservator for sanction last year and was approved by him during the year under report. Steps are being taken to prepare a similar scheme for working the teak areas in the



J B. July 1924.

Papikonda and Kovvada Block II reserves. A revised scheme for working the mangrove forest of the Kandikuppa reserve in Rajahmundry Range received the approval of the Chief Conservator. *Kistna*—The accessible and inaccessible areas in Kondapalli reserve were separated and a simple scheme for working the fuel and bamboos in the accessible areas received the informal approval of the Conservator. The rotation of Goila Brushwood working series in Bandar Range was revised.

The prescriptions of the sanctioned working plans were generally adhered to. For want of demand two fuel coupes and three bamboo coupes in *Lower Godavari*, Ellore Range timber coupes (so called) and two Bandar Range fuel coupes in *Kistna* remained unsold. *Vizagapatam*—Bamboo coupe II of Venkatapuram Series in Sarvasidhi Range due for working in 1924-25 was under Conservator's sanction worked in 1923-24 to meet the urgent demands of the people of Vizagapatam affected by the cyclone in November 1923. Sowing of palmyra seed in the five reserves of Yellamanchili Grazing Working Circle was not carried out.

2. COMMUNICATIONS AND BUILDINGS.

6. *Roads and Bridges*.—The expenditure on "new works" was Rs. 3,113 and on "repairs" Rs. 3,728. Little progress was made under new works owing to financial stringency. The existing roads were in most cases kept in repair. The expenditure on new works includes Rs. 459 spent on the construction of three culverts on the road from Tarasingi to Tilasingi in Kukuluba Range and one bridge across Odangi nala in Pondakhol Range in *Ganjam* and Rs. 163 paid for land acquired for the road from Lingaram to Govindapuram in Rajahmundry Range, *Lower Godavari*.

7. *Buildings*.—Rs. 7,177 were spent on new works and Rs. 10,938 on repairs. The latter figure includes cost of temporary establishment employed—Rs. 2,402. The important works carried out were—*Ganjam*—Rest houses with out houses and stables at Ballinkia and Tarasingi, barbed wire fencing around the compound of the Circuit House at Russelkonda. The Ballinkia buildings were completed. *Vizagapatam*—Inspection shed at Dhonabhai. *Upper Godavari*—Quarters for the Forester at Peddamidisileru, for the Range Officer at Cherla and for the Forester at Tummuleru. The first two were completed. *Godavari Lower*—Tiled tannah buildings at Vizheswaram and Bobberlanka.

8. *Other works*—*Vizagapatam*—Platform around the well at Busilikota. *Upper Godavari*—Well in the compound of the Range Officer's quarters at Cherla. Both these incomplete works of the previous year were completed.

There were no works costing over Rs. 5,000 for which sanction was accorded by Government during the year.

3. PROTECTION OF FORESTS.

(a) General protection.

9. The following statement compares the number and classification of forest offences reported during the year with those of the preceding year and the average of the three preceding years:—

Cases.	Injury to forests by fire.		Unauthorized felling.		Unauthorized grazing.		Other offences.		Total.		Average for three years ending with 1922-23.
	1922-23.	1923-24.	1922-23.	1923-24.	1922-23.	1923-24.	1922-23.	1923-24.	1922-23.	1923-24.	
Cases taken to court.	1	3	275	220	24	41	11	99	311	363	866
Cases compounded.	4	6	1,501	1,473	377	342	78	145	1,960	1,866	1,554
Cases undetected.	112	97	61	42	1	..	1	2	175	141	248
Total	117	106	1,837	1,735	402	383	90	246	2,446	2,470	2,162

New cases of the year.—The figures show a decrease under all heads except under "other offences". The increase under "other offences" occurred in *Vizagapatam* and *Lower Godavari* due to the scarcity of rain in the year which encouraged the people to steal from reserves as a means of livelihood. In *Upper Godavari* there was an increase under "unauthorized fellings" due to the revision of the special rules under section 26 of the Forest Act for the control of the unreserved lands in the Bhadrachalam taluk which were not sufficiently understood by the people concerned. These rules prohibited the cutting and removal of classified trees by people other than the Koyas and Reddis, while the old rules permitted their removal. This gave rise to thefts of classified timber from the unreserved. With the transfer during the year of "Tuniki," "Chirumanu" and "Kodisa" from the list of classified to unclassified trees, it is hoped that forest offences under this head will decrease hereafter.

Cases, old and new, dealt with during the year.—The percentage of cases convicted was slightly less than in the previous year. The punishments inflicted by the magistrates are reported to be generally adequate. Beyond the usual notice of warning published in the District Gazette to the villagers against setting fire to the reserved forest, no other special steps were taken, such as suspension of privileges, closure of reserves to grazing, enhancement of grazing fees, and so forth.

Rs. 18,183 were realized as compounding fees against Rs. 18,345 in the previous year. The decrease was in *Kistna* and was due to the fact that heavy fines were levied in 1922-23 to put down non-co-operation, which state of things did not exist in the year under report.

10. A reward of Rs. 20 was granted to a Koya for information furnished which led to the detection of a forest offence which was ultimately compounded for Rs. 140.

(b) *Protection from fire.*

11. Form 72 shows the area attempted to be protected and that actually protected. The area under special protection was 854,584 acres or 1,335 square miles against 834,323 acres or 1,304 square miles of the previous year. Of this an area of 693,528 acres or 1,084 square miles was successfully protected at a cost of Rs. 14,709. The percentage of failure was 19 against 2.3 in the previous year. The fires were worst in Upper Godavari and Lower Godavari. In the former division the cause is ascribed to unsuccessful early burning in the Lakkavaram and Pulusamamidi Ranges owing to the greenness of the grass at the time the operation was undertaken in February and March 1923 and in the latter division to the failure of timely rains.

The area under general protection shows a decrease of 22,053 acres (34 square miles) compared with that of the previous year. This decrease is due to the transfer of whole reserves of Kondapalli, Kondur, Erraguntapalli, Barrikonda, Bandamcherla of Kistna to special protection in accordance with the prescriptions in the working plans sanctioned in Chief Conservator's Proceedings No. 17, dated 7th February 1920, No. 43, dated 14th October 1919 and No. 44, dated 14th October 1919. The area burnt was 7,741 acres or 12 square miles against 21,635 acres or 34 square miles in the previous year. The reduction is ascribed to fire season in Ganjam being decidedly better than that of the previous two years.

The number and origin of fires are compared in Appendix A.

The average cost per square mile of special and general protection was Rs. 11-0-3 and Rs. 6-2-10 per square mile attempted.

As a measure of retrenchment in Ganjam second burning of fire lines was omitted in all the Ghumsur Ranges except Surada and Majjogoda. In Vizagapatam no fire patrols were employed in Karaka reserve and fire tracing the lines in Madalammakonda reserves was discontinued. Similar economies were effected in Lower Godavari and Kistna but no details are given by the District Forest Officers.

In Upper Godavari early burning was carried out in four out of the six ranges. The total area dealt with was 665 square miles and the area successfully protected was 491 square miles. The cost of the operation during the year was Rs. 6-10-0 per square mile on an average compared with Rs. 8 in the previous year. The decrease is due to smaller expenditure on early burning and smaller rewards on account of fires.

As ordered in Chief Conservator's Proceedings No. 153, Press, dated 28th April 1924, the District Forest Officer, Upper Godavari reports:—

“The system of early burning which at present is only confined to the thinly populated or depopulated hill reserves of the division, has no odium of unpopularity attached to it in this division.

“Very few cattle graze in these distant hill reserves and in the hot weather months, no cattle at all usually visit them, and hence there can be no complaint, and in fact there is none, against the system.

“From the Forest Officer's point of view, however, I might state that there is very considerable difficulty in ensuring a satisfactory early burning of 600.86 square miles of hill reserves which has to be done in less than two months. This difficulty is all the greater in the early burning especially of the Rekapalli and Marri-gura hill reserves, which together form 205.73 square miles, as there are practically no villages on the hills and all labour has to be drawn from distant villages scattered along the foot of the hills.”

The District Forest Officer and I have agreed to modify the early burning system next year.

(c) *Protection from cattle.*

12. 2,300 square miles of forests were open to grazing against 2,298 square miles in the previous year. Goats were excluded from all reserves. The number of cattle impounded was 7,454 against 8,836 in the previous year and 7,372, the average of the three years ending with 1922-23. In Ganjam the grazing incidence rose from 7.02 acres in 1922-23 to 6.76 acres in 1923-24, in Upper Godavari from 3.70 to 3.60 acres, and in Lower Godavari from 2.79 to 2.00 acres. The grazing incidence in Vizagapatam fell from 9.80 acres in 1922-23 to 12 acres in 1923-24.

(d) *Protection against injuries from natural causes.*

13. Nothing of importance was done. Creepers and climbers were cut by beat subordinates free of cost. In Ganjam, Dr. Beeson, Forest Entomologist, visited Russellkonda in February 1924 to investigate whiteant and fungal attack on young sal. Lantana was eradicated free of cost in about one acre of Dowgam reserve. Dense growth of Lantana in about 32 acres and scattered growth in about 125 acres of the unreserves near Gazilbadi was eradicated at a cost of Rs. 100 sanctioned by the Collector from discretionary grant. In Vizagapatam creepers were cut in the sal areas of Antikonda and Burnakonda reserves of Palakonda Range at a cost of Rs. 28.

CHAPTER III.—SYLVICULTURE.

SECTION I.—FORMATION AND REGENERATION OF FORESTS.

(i) *General progress of areas under regeneration.*

14. Natural regeneration of sal in *Ganjam* was excellent. Except in the *Ganjam* sal forests the areas under systematic working are almost entirely regenerated by coppice and seedling coppice.

(ii) *Establishment of reproduction under working plans or schemes.*

(a) Mainly natural.

15. Regeneration was entirely natural in *Ganjam*, *Lower Godavari* and *Kistna*.

(b) Mainly artificial.

16. In *Lower Godavari* an area of 568 acres is to be replanted in the course of 10 years with casuarina. Twenty acres were planted during the year, of which 15 acres was done on contract at Rs. 20 per 1,000 established plants delivered after one year, the distance of planting being 6 feet × 6 feet, and five acres departmentally, planting 9 feet × 9 feet apart.

(c) Afforestation.

17. Nil.

(iii) *Plantations and other forms of regeneration not under working plans or schemes.*

18. *Ganjam*—About ten cents in Napier's Park reserve was planted in September 1923 with red sanders. Most of the plants survived the hot weather. *Vizagapatam*—Sal sowings were done in Chinnamangalapuram tope but the germination was very poor. The Conservator during his last inspection of Palakonda Range ordered that the tree growth in the plantation should be sold after dividing it into four blocks after which the land was to be sold for agricultural purposes. The first block was sold in 1924-25. *Upper Godavari*—Past experiments for raising teak in conjunction with agricultural crop (Taungya) proved a failure and were abandoned. Under Conservator's orders the surviving seedlings in 1922—Taungya 20 acres in the Rekapalli Hill reserve and 20 acres in the Matapalli reserve—were cut back in February 1924 and the whole area burnt and broadcasted with teak seeds in March 1924 at a cost of Rs. 113. On the other hand the clear-felling method followed by broadcast sowing in blanks in ploughed patches introduced as an experimental measure in 1921-22 promises to be a success. An aggregate area of 191 acres was regenerated in this way up to the commencement of the year to which was added 275 acres during the year. The regeneration from coppice, especially teak, is good, the height growth varying from 5 feet to 12 feet for two seasons and maddi coming next with a height growth of about 4 feet for the same period. In all the clear-felled areas there were

a fair number of died back seedlings of the valuable species, particularly of teak and maddi which, on account of the opening caused by the clear felling, shot up vigorously but the rank growth of tall grass which grew subsequent to the clear felling has tended to suppress a great many of the smaller seedlings. Some more drastic method of keeping down the grass until the small died back seedlings are able to hold their own may be necessary. In the burnt patches where the broadcast sowing of teak, maddi and yegisi was made there are a fair number of teak seedlings, but their growth is very poor in the majority of cases, not being more than about 8 inches high after two seasons growth. The aggregate area of all patches sown up to the commencement of the year under report was roughly 19 acres to which 28 acres were added during the year. If the cost of burning the rubbish heaps in each coupe is debited to cultural operations, the cost of establishing coupes of regeneration has been worked out by the District Forest Officer at Rs. 65 per acre which is prohibitive.

(iv) *Tending.*

19. *Ganjam*.—Cleaning at age 9 months and creeper cutting at age 3 years was done in evenaged crops of Plains Sal Timber Working Circle. Creeper cutting was also done in Ravine coupe II. *Upper Godavari*—In the unburnt portions of the clear-felled coupes the tending consisted of creeper cutting. The seedlings in burnt patches were carefully tended, those of one growing season were weeded thrice in the year and those of two seasons twice. *Lower Godavari*—In the teak lankas of Kopalli reserve, Polavaram Range, creeper cutting and girdling soft-wooded and other inferior species were carried out at a cost of Rs. 58-8-0 and climbers were also cut in coupes III and IV of Bedadavole reserve.

(v) *General.*

20. *Vizagapatam*.—*Bambusa Arundinacea* has flowered and died, and seedlings are now springing up vigorously in Narasapatam Range. There was a scattered seeding of *Dendrocalamus strictus* in the same range and seedlings have come up where clumps died in previous years. In Palakonda Range no fresh seedlings of bamboos were observed. *Lower Godavari*—*Dendrocalamus strictus* in Peddapur and Gokavaram Ranges continued to seed and die.

SECTION 2.—TENDING OF THE GROWING STOCK.

21. *Vizagapatam*.—Creeper cutting was done in the sal areas in Palakonda Range at a cost of Rs. 28 to help the growth of sal. In the other areas of the district creeper cutting was conducted by the subordinates free of cost. *Upper Godavari*—In the stock mapped teak areas outside the clear-felled coupes creeper cutting and girdling of inferior species were carried out by the subordinates free of cost.

CHAPTER IV.—EXPLOITATION

(a) *System of Management.*

(i) MAJOR PRODUCE.

22. The different silvicultural systems in force were :—

Clear or regeneration fellings.—*Ganjam*—These were carried out in two felling series of the Plains Sal Timber Working Circle as prescribed in the working plan. 21,610 c.ft. of mill timber were extracted of which 15,079 were carted to the mill and the balance rejected and sold locally at rates varying from 3 annas to Re. 0-6-2 per c.ft. After extraction of mill timber the coupes were sold to contractors for clear felling and removing the resultant timber. *Upper Godavari*—97 acres in Tunikicheruvu reserve of Bhadrachellam Range, 98 acres in Ramachendram reserve of Marrigudem Range, 79 acres in Rekapalli Hill reserve of Pulusumamidi Range were clearfelled. The saleable timber in all cases was extracted and carted to the Godavari river-bank for sale. The refuse wood was collected in heaps 35 ft. to 40 ft. diameter and burnt. Teak seeds were thereafter sown in all the burnt patches in each coupe. The average cost of the entire operation was Rs. 3,974, Rs. 3,514, and Rs. 3,308 or Rs. 40-12-0, Rs. 35-15-0 and Rs. 41-11-0 per acre respectively. Only the timber obtained from the Ramachendram coupes was sold and realized Rs. 91-14-0 per acre or deducting cost incurred Rs. 55-15-0 net per acre. The timber obtained from the two other reserves was not sold for want of satisfactory bids. *Lower Godavari*—Forty-one acres of compartment XIV of the Kandikuppa casuarina plantation were clear-felled.

Selection fellings.—*Ganjam*.—10,474 acres in Rambha reserve, Mjoogoda Range, yield 142,191 c.ft. of which 50,950 c.ft. were to be carted, 50,412 c.ft. was rejected timber of which 30,000 c.ft. carted to Exploitation depot, 40,829 c.ft. of mill timber remained was sold at 0-2-6 per c.ft. after the close of the year. Ten pairs of Government buffaloes were employed in dragging timber from hill slopes to carting centres; Rogodo reserve, Surada Range, yield 15,341 c.ft.; Kriamba reserve, Buguda Range, yield 10,355 c.ft. of which 6,913 c.ft. were carted to the mill.

Improvement fellings.—*Vizagapatam*.—These were carried out in Dhonbhai and Samaralli reserves by felling dead and top-broken sal trees.

Simple coppice and coppice with standards.—The fuel coupes in all divisions were worked under simple coppice except four series in *Vizagapatam* which were worked under coppice with standards. The District Forest Officer has since been ordered to substitute simple coppice in the case of the four series referred to. In *Lower*

Godavari the teak timber coupes of Bedadavole and Kopalli reserves of Polavaram Range, one Pole forest coupe of Vatangi reserve of Peddapur Range were also treated under simple coppice. These small timber coupes fetched an average rate of Rs. 35-9-6 per acre.

Unregulated fellings.—These were as usual confined to unreserved lands and to the Rampa forests. *Upper Godavari*—These were carried out in the unreserved lands under the control of the Forest Department and trees of three feet and above in girth were felled. The fellings were confined to the coupes in Lakkavaram and Cherla Ranges, yield 1,364 and 8,084 c.ft. sold for Rs. 528 and Rs. 6,495 respectively after carting to the nearest river bank. The yepi coupes 1, 2 and 5 in Bhadrachellam Range were leased out for Rs. 1,894. Unreserve coupe 5 in Nugur Range could not be worked, as the transport of timber felled in previous year's coupe four remained unfinished and the timber itself remained unsold for want of fair offer. No fellings were carried out in the unreserves of Marrigudem and Pulusumamidi Ranges, as there were no trees of exploitable girth left.

(ii) MINOR PRODUCE.

23. *Bamboos and miscellaneous produce.*—Three methods of extraction were in vogue, viz.: departmental collection, leasing the right of collection and collection on permits. The first method was resorted to only to meet the petty requirements of the department for repairs to rest houses, etc. The produce was generally leased to contractors. The right to collect seigniorage from purchasers at shandies for minor produce purchased from hill tribes was leased in *Vizagapatam*. Collection on permits was allowed from the Agency tracts in *Lower Godavari* and from some of the forests in *Upper Godavari* which were not leased out.

Strychnos nux-vomica.—In *Vizagapatam* the produce could not be sold for want of demand and small amounts were realized by sale of the produce in the two *Godavaris* and *Kistna*. There is very little *nux-vomica* in the two *Godavaris* and the small price realized in *Kistna* is ascribed to the slump in the market.

Fodder grass and hay.—In *Ganjam* the right to collect grass in Napier's Park reserve was sold. In *Lower Godavari* the removal of fodder and thatch grass was allowed on permits as usual from all the reserves of the division except Coringa and Coringa Extension reserve where the right was leased. The right to cut grass in the cantonment ground at Samalkot in *Lower Godavari* and the collection of fodder grass from the closed areas in *Kistna* were leased.

(b) *Agency of exploitation.*

(i) DEPARTMENTAL AGENCY.

24. The outturn of major produce by departmental agency is compared with that of last year in the following abstract:—

—	Timber in thousands of cubic feet.	Fuel in thousands of cubic feet.	Bamboos.	Minor produce.
1922-23	164	41	RS. 498	RS. 160
1923-24	381	335	886	292

The quantity of major produce exploited was 17.02 per cent of the total outturn and mainly consisted of the timber felled in *Ganjam* for the Sawmill, and the timber obtained from clear-fellings carried out in *Upper Godavari* on a larger scale than in the previous year. The increase under "timber" was due to the fact that fellings in *Ganjam* were stopped in 1922-23 to prevent over-stocking in the Russelkonda depot.

The increase under "fuel" was mostly due to the thinnings done in the Plains Sal Pole Working Circle in *Ganjam* on a large scale under the supervision of a Ranger kept on that duty and the increase under "bamboos" was due to the construction of and repairs to a larger number of departmental buildings in *Lower Godavari*.

(ii) BY PURCHASERS.

25. The following abstract compares the quantity of major produce and the value of minor produce removed by purchasers during the year with those of the preceding year:—

—	Timber in thousands of cubic feet.	Fuel in thousands of cubic feet.	Bamboos.	Grass and grazing.	Other minor produce.
1922-23	450	2,909	RS. 1,40,295	RS. 47,048	RS. 69,762
1923-24	538	2,754	1,31,618	53,972	76,139

The increase under "timber" was due to increase in the area of timber coupes sold in *Ganjam* and to the leasing of a teak timber coupe in Kopalli reserve in *Lower Godavari* under a newly sanctioned working scheme. The increase under "grazing" was due to the influx of delta cattle in greater numbers in *Lower Godavari* and more foreign cattle admitted in *Kistna*. The increase under minor produce was due to credit of revenue relating to other Circles in the Chicacole Sub-Treasury, *Ganjam*, to the lease of Tangedu bark in all the three ranges of *Vizagapatam* and to increased revenue from Tamarind and Soapnuts removed from Rampa. The decrease under

"fuel" was due to less quantity extracted from the coupes in *Lower Godavari* although better prices were fetched. The decrease under "bamboos" was due to failure of the sugarcane crop and less removals from Rampa in *Lower Godavari* and to the fact that in *Upper Godavari* the coupes in the previous year were better stocked and fetched better prices.

(iii) AND (iv) BY RIGHT-HOLDERS AND UNDER PRIVILEGES AND FREE GRANTEES.

26. The quantity and value of forest produce removed under this head were as follows:—

—	Timber in thousands of cubic feet.	Value	Fuel in thousands of cubic feet.	Value.	Bamboos.	Grazing.	Other minor produce.	Total out-turn.
		RS.		RS.	RS.	RS.	RS.	RS.
Right-holders	9	1,550	..	..	143	706	500	2,899
Free grantees	139	14,918	49	1,009	904	12,593	270	29,694

Rights.—*Ganjam*—The Khonds in Chokkapad Khandam have the right of free removal of timber for their domestic and agricultural purposes and free grazing. *Concessions*—The Khonds elsewhere than in Chokkapad were granted concessions in the way of building materials and free grazing for services rendered by them in fire protection and general protection of forests.

Free grants.—Free grants were made to the villagers chiefly for rebuilding their houses destroyed by fire and those blown away by the cyclone in *Vizagapatam*. Free grazing to the extent of Rs. 842 was allowed in Dharakonda, Sanivaram and Karaka reserves to the inhabitants of the neighbouring villages for services rendered by them in fire protection, etc. The estimated value of all grants was Rs. 29,694 against Rs. 23,023 in the previous year.

(c) *Outturn and sources of forest produce.*

27. The total outturn from all agencies is compared with similar details of last year in the following statement:—

—	Timber in thousands of cubic feet.	Fuel in thousands of cubic feet.	Bamboos.	Gross value of minor produce including grass and grazing.
			RS.	RS.
1922-23	879	2,974	1,41,397	1,80,117
1923-24	1,067	3,138	1,33,551	1,41,472

The total number of cattle for which grazing was provided was 226,162 against 200,834 in the previous year.

CHAPTER V.—FINANCIAL RESULTS.

28. The financial position of the year is compared with that of the previous year and the average of the preceding quinquennium in the following abstract :—

	1923-24.	1922-23.	Average of the previous quinquennium.
	Rs.	Rs.	Rs.
Revenue	6,41,230	5,40,426	4,67,581
<i>Expenditure.</i>			
B.—Conservancy and works	1,51,774	2,14,478	2,45,804
C.—Establishments	3,48,750	3,77,442	3,21,444
Total ..	5,00,524	5,91,920	5,67,248
Surplus ..	+ 1,40,706	— 51,494	— 99,667

The financial results of the year shows a distinct advance over the previous three years in that a continued deficit has been converted into a surplus of Rs. 1,40,706. The value of timber supplied to the Russellkonda mill from *Ganjam*, which remained unadjusted since its start, was adjusted by the Accountant-General in his March final accounts. This, coupled with the fact that four of the five divisions in the Circle were in charge of provincial officers, the reduction in the establishment of Foresters and the economy in expenditure effected under travelling allowance and contingencies contributed to the above result. Further the expenditure on "Investments in Government Commercial Undertakings", although sanctioned against *Ganjam* budget, was not shown as a debit against the division. Apparently it was dealt with separately under Mill budget and accounts. This also contributed to the surplus.

Fifty-two per cent of the revenue was derived from major produce, 33 per cent from minor produce, 8 per cent from grass and grazing, and 7 per cent from miscellaneous items. Of the expenditure 25 per cent was incurred on the exploitation of forests, 16 per cent on their upkeep and improvement and 59 per cent on miscellaneous items. The revenue outstanding at the end of the year was Rs. 16,473, of which Rs. 15,878 fell due within the year. There were no sale depots in any of the divisions of the Circle. The important variations under "Revenue" and "Expenditure" are explained below :—

RECEIPTS.

(i) By Departmental Agency.

Timber + Rs. 72,879. Due to the adjustment of the value of timber supplied to the Sawmill above referred to.

(ii) By purchasers.

The increase under "Timber" was due to better prices realized in *Ganjam* for timber coupes sold for clear felling and improvement felling after removal of the mill trees, partly counterbalanced by decrease in *Lower Godavari* due to less timber removed from Rampa. The increase under "fuel" was due to better prices realized for fuel coupes in *Lower Godavari*. The variations under the other subheads were due to reasons already mentioned in paragraph 25 above.

(f) *Rents for trees tapped*.—Rs. 8,815. Due to less revenue realized from tree-owners' fees.

EXPENDITURE.

B. Conservancy and Works	Rs. 62,704.
C. Establishments	Rs. 28,692.

The savings in expenditure under "B. Conservancy and Works" were due to curtailment of temporary establishment under B-II, not debiting the expenditure in connexion with the Sawmill to the *Ganjam* division and under VIII-f to curtailment of rewards due to unsuccessful fire protection in *Upper Godavari* and giving up some fire lines in *Lower Godavari* as unnecessary. The decrease under "C. Establishments" was due to reasons already referred to in the commencement of this paragraph.

CHAPTER VI.—RESEARCH AND EXPERIMENTS.

29. *Research*.—Nil.

30. *Experiments*.—*Vizagapatam*—Sandal seeds were dibbled in Sanivaram and Dharakonda reserves in two plots of five acres each and teak seeds in two plots of one acre each. The results of the experiment are reported as follows :—

Species.	Surviving at the close of the year.
Sandal	2,100
Teak	82

Upper Godavari.—The Chloroxolon sample plots referred to in the last annual report were maintained. The interval for re-measurement has been now fixed at two years and the time for it will be only next year. *Lower Godavari*—Teak seedlings were raised in nurseries and planted in one acre plots in the reserves of Jaddangi, Aminbada, Rajavommangi, Vatangi, Pedagarangi and Lingamparti during 1921 and 1922. Forty-seven per cent of the same are reported to be alive. Seven pounds of sandal seed were sown in Kondapalli, Kondur and Kottur reserves in *Kistna* but there was no germination.

CHAPTER VII.—ADMINISTRATION.

31. *Tours.*—The charge of the Circle was held by Mr. Longrigg from 1st April 1923 to 11th May 1923, Mr. Bennett, from 12th May 1923 to 15th March 1924, and by Mr. Barry for the remainder of the year. The prescribed minimum of touring was done by the District Forest Officers, *Ganjam*, *Upper and Lower Godavari* and *Kistna*. The short touring in *Vizagapatam* is ascribed partly to economy in travelling allowance and partly to Agency disturbances.

The District Forest Officer, *Ganjam*, Mr. Longrigg, paid a visit to the sal forests of Gorakpur in the United Provinces and the Forest Research Institute, Dehra Dun, to study the latest work on sal and discuss silvicultural problems with the local officers there.

32. *Inspections.*—The Conservator inspected all the District Forest offices and found them in good order. Some of the forests in *Ganjam*, *Vizagapatam*, *Upper and Lower Godavari* were inspected and inspection notes written. The Conservator also inspected a small portion of the forests of Balliguda Agency.

The Chief Conservator of Forests paid a visit to *Ganjam* in January 1924.

33. *List of offices audited.*—The accounts of all the District Forest offices except *Kistna* were audited by the Local Fund Staff of the Accountant-General's office and the results were satisfactory.

34. *Vernacular Training School.*—The school was held in *Ganjam* and started with 35 students of whom 5 were from Bihar and Orissa. The school lasted from 7th January to 19th June 1924 and was visited twice by the Conservator of Forests. The health of the students was good and the discipline and instruction were satisfactory.

35. *Health of the establishment including an account of measures of sanitation and casualties.*—*Upper Godavari*, and the Agency portions of *Ganjam*, *Vizagapatam* and *Lower Godavari*, continued to be unhealthy and the subordinates suffered from malaria. In *Upper Godavari*, 21 subordinates went on sick leave and 3 died, and in *Lower Godavari*, 15 went on sick leave and 6 died. One Forest Guard in *Lower Godavari* was murdered while on duty detecting an illicit grazing case. The health of the establishment in *Kistna* was good.

CHAPTER VIII.—GENERAL.

36. *Formation and management of Panchayats (to include the Forest Village System)*—*Lower Godavari*.—The proposal to lease out the management of a portion of the Kandikuppa reserve to

panchayats on a co-operative basis received the approval of the Chief Conservator. The orders took effect after the close of the year. *Kistna*—In addition to the three reserves already under panchayat management since 1915, 11 more reserves, 6 in Bezwada, 2 in Ellore and 3 in Bandar ranges were transferred to panchayat management during the year. No panchayats were formed in the other divisions.

The Forest Village System is not in force in this Circle.

37. *Measures for improving local supplies and facilities (includes water-supply, manure leaves, etc.).*—The wants of people in the matter of fuel and small timber were met in all divisions and there were no complaints. There is no demand for manure leaf from the forests of this Circle. In *Kistna*, the spring near the Kondapalli Palace bungalow and the Pallibhavi and Dongamarlabhavi wells in Kondapalli reserve were improved. Permission granted to private persons to dig a tank in Natchugunta and to repair a tank in Ungatur reserved forest was not availed of.

38. *Timber Transit Rules.*—The rules worked satisfactorily in all the divisions. In *Vizagapatam* the extension of the scheduled area up to Vamsadhara river in *Ganjam* referred to in the last year's report was sanctioned by the Chief Conservator owing to frequent thefts from Palakonda range into *Ganjam*. All the tannah stations in *Ganjam* and four in *Vizagapatam* were abolished as unnecessary.

39. *Jungle tribes.*—These exist in all the divisions except *Kistna*. In *Ganjam* the department continued to be on good terms with the Khonds. In *Vizagapatam* the hill tribes availed themselves of the privileges conferred on them without complaint and without abuse of rules. In *Upper and Lower Godavari* the Koyas and the Reddis continued to be useful to the department as usual. They were employed on the fire protection of the forests as well as on the construction and repair of roads, buildings and demarcation works. They were also employed on clear fellings and extraction of timber from unreserves in *Upper Godavari*. They were granted rewards in addition to the usual wages for the successful protection of forests from fire and were also allowed the concession of free grazing and free removal of forest produce for their domestic and agricultural requirements. They had in addition to the above, the privilege of podu cultivation in unreserves in *Upper Godavari*.

40. *Mining and quarrying*—*Kistna*.—Rs. 2,129 were realized from quarrying rough stone, gravel, etc., in the reserves and unreserves.

41. *Livestock*—(a) *Elephants*—*Upper Godavari*.—The baggage, elephant "Kapila" continued fit during the year, but "Surat Pari" became old and unfit for any further work. She was given away as a gift to the Zamindar of Ellore for use as a temple elephant.

(b) *Other animals*.—These consist of buffaloes and existed only in *Ganjam*. Out of 26 that remained at the commencement of the year, 7 were written off leaving a balance of 19 at its close.

42. *Veterinary establishment*.—Nil.

43. *Wild animals—Ganjam*.—A rogue elephant in Chandragiri reserve attacked Mr. Shelswell, Deputy Conservator of Forests, and his party on February 1, 1924, the former sustaining a broken leg and other injuries, as a result of which he was obliged to go on leave for one year from 7th June 1924. A man-eating tiger killed a man in Gogodo reserve during fellings in January 1924. The presence of man-eating tigers in the forests greatly interfered with the progress of timber operations, fire-protection and other works in Kukuluba and Bontha ranges.

44. *Civil suits—Vizagapatam*.—The decree against the defaulting contractor referred to in the last year's report was pending execution. *Lower Godavari*—The two appeals filed in the Court of the Agency Additional District Judge, *Vizagapatam*, by the Proprietor of the Gangole Estate, claiming certain portions of Kovvada and Kopalli reserves, referred to in the last year's report, were disposed of during the year. In one of the appeals in which the main cause was about the boundary near Chintapalli, the plaintiff was given a little more land near Chintapalli boundary. The rest of the appeal was dismissed. The other appeal was wholly dismissed.

45. *Control of unreserved lands by the Forest Department*.—In *Ganjam*, the Revenue Department has control over the tree growth and is primarily responsible for its protection. Valuable tree growth is disposed of in consultation with or by the Forest Department and the rest by the Revenue Department. The results are generally fair. In *Upper Godavari* the unreserves are under the control of the Forest Department and the local requirements are met from these lands. In *Lower Godavari* the control generally rests with the Revenue Department, but some of the unreserved lands in the Agency portions of *Yellavaram*, *Chodavaram* and *Pola-varam* divisions are under the Forest Department. The produce from the unreserves is removed on permits issued mostly by the Forest Department and in some instances by the Revenue Department. In *Kistna* the management is vested entirely with the Revenue Department.

D. T. BARRY,

Acting Conservator of Forests,
First Circle.

2nd September 1924.

APPENDIX.

SUMMARY OF PROGRESS DURING THE FIVE YEARS 1919-20 to 1923-24.

The following is a summary of the progress made in Forest administration in this Circle during the quinquennium ending 1923-24.

The important events in this Circle during the period under review were:—

(1) The formation of a separate Agency Division from 1st December 1920 with a view to the development of the Agency tracts in the districts of *Ganjam*, *Vizagapatam* and *Godavari* and its abolition from 16th October 1923 as a measure of retrenchment of expenditure.

(2) The division of the Presidency into six Forest Conservators' Circles for purposes of administration with effect from 1st February 1921.

(3) The installation of the saw-mill at Russellkonda. It sawed its first long on 20th February 1922. The mill commenced regular working in April 1922 and continued to work up to the end of the period under review.

(4) The change in the period of the Administration Report from the Forest to the Financial year first introduced in the report for 1920-21.

(5) The revision of salaries of the Gazetted services and of the executive and protective staff.

(6) The introduction of the time scale of pay to the non-gazetted clerical and menial services with effect from 1st March 1921.

(7) *Forest Panchayats—Lower Godavari*.—The proposal of the Conservator to lease out the management of a portion of the Kandikuppa reserve to panchayats on a co-operative basis received the approval of the Chief Conservator. The orders took effect after the close of the quinquennium. *Kistna*—In addition to the three reserves already under panchayat management since 1915, 11 more reserves, 6 in Bezvada, 2 in Ellore and 3 in Bandar Ranges, were transferred to panchayat management during the quinquennium. No panchayats were formed in the other divisions.

(8) The Foresters' cadre was reduced by 15 per cent as a result of retrenchment. A number of temporary subordinates, viz., Reserve watchers, Tannadars, Permit Gumastas, Bungalow watchers, Assistant Range peons have been abolished. The drift-wood establishment in *Lower Godavari* has been largely reduced

As a result of handing over reserves to panchayats in *Kistna*, three Foresters, seven Forest Guards, and eight Watchers were abolished. As regards office establishment the following reductions have been effected :—

Conservator's office.—One clerk, 1 attender, 2 peons and 1 sweeper.

District Forest office, Vizagapatam.—Two clerks on temporary establishment.

District Forest office, Lower Godavari.—One attender.

District Forest office, Kistna.—One clerk on temporary establishment.

Range clerks.—Reduced to 1 in all Ranges.

Administration and control.—The Conservators in charge of the Circle were :—

S. Cox, Esq., from 1st April 1919 to 31 May 1919.

C. M. Hodgson, Esq., from 1st June 1919 to 10th October 1920.

A. A. F. Minchin, Esq., from 11th October 1920 to 8th January 1921.

H. Tireman, Esq., from 9th January 1921 to 28th January 1921.

J. S. Scot, Esq., from 29th January 1921 to 14th April 1921.

A. Wimbush, Esq., from 15th April 1921 to 25th May 1921.

D. T. Barry, Esq., from 26th May 1921 to 7th December 1921.

H. C. Bennett, Esq., from 8th December 1921 to 15th April 1922.

D. T. Barry, Esq., from 16th April 1922 to 18th March 1923.

J. H. Longrigg, Esq., from 19th March 1923 to 11th May 1923.

H. C. Bennett, Esq., from 12th May 1923 to 15th March 1924.

D. T. Barry, Esq., from 16th March 1924 to 31st March 1924.

Changes in the controlling and executive charges.—The formation of the 6 Conservator's circles with effect from 1st February 1921 and the formation and abolition of a separate Agency division were the important changes. There were also some minor changes, viz.: the boundary between the Marrigudem and Bhadrachellam Ranges in *Upper Godavari* was readjusted to nearly equalise the charges in both the ranges; the Driftwood Range in *Lower Godavari* was abolished and merged with the Gokavaram Range as a

measure of retrenchment. The sanction for the trifurcation of *Godavari* was not brought into effect.

Forest legislation.—Nil.

Organization.—The reorganization of the executive and protective staffs sanctioned by the Secretary of State at the end of the previous quinquennium was brought into effect from 1st October 1919 and was further augmented by the revision of their salaries in 1921 given effect to in the case of Rangers from 1st June 1922. Thus the pay of the last grade Ranger rose from Rs. 50 to Rs. 80. A new time scale of pay was introduced for the improvement of the prospects of the non-gazetted clerical and menial services with effect from 1st March 1921.

Hill tribes.—The Khonds in Ganjam were of great help to the Forest Department in the protection of forests. The concession of free removal of forest products was as usual enjoyed by them generally without abuse. Friendly relations existed between the hill tribes and the department. The Koyas and Reddis in the *Godavaris* continued to be serviceable to the department as usual. They were mostly employed in fire protection operations and were granted rewards in addition to wages. They were also employed in the clear-felling operations newly started in *Upper Godavari* from the year 1921.

Changes in area.—The area under the control of the department decreased from 2,523 to 2,517 sq. miles. The decrease was due to disforestation and rectifications of area.

				At commencement of the period.	At close of the period.
				SQ. MLS.	SQ. MLS.
Reserved forests	...	...	...	2,032	2,514
Reserved lands	...	...	...	489	1
Leased forests	...	...	...	2	2
Total				2,523	2,517

In addition to the above the unreserved lands in *Upper Godavari* which are not shown in the returns continued to be under the control of the department.

Further reservations.—In *Ganjam* the proposal for extensive reservation of some of the unreserved lands containing valuable sal growth was shelved. In *Rampa*, four blocks comprising 12 sq. miles were surveyed and mapped by the Madras Survey Party during 1915-16 and these were transferred to reserved forests in

1923-24. No Forest Officer below the rank of Conservator is allowed to enter the Rampa territory and this order is a handicap to active steps being taken in the matter of the reservation.

Forest settlement.—No settlement was pending at the end of the quinquennium under review. The settlement of 489 sq. miles pending at the end of the previous quinquennium was completed.

Demarcation.—The total length of boundary demarcated was 3,841 miles against 3,611 miles at the commencement of the quinquennium. The increase was due to the permanent demarcation of reserves which were declared reserved forests during the period.

Forest surveys.—At the close of the quinquennium the Survey of India Party commenced work in surveying certain Great Trigonometrical Stations in *Upper Godavari*. Local surveys of forests, coupes, etc., were carried out by the Range officers whenever necessary.

Working plans.—Working plans for 141 sq. miles were sanctioned and the existing plans for 165 sq. miles were deleted from the list. The balance area under working plans at the end of the period was 1,426 sq. miles.

Communications and buildings.—The average annual expenditure under this head was Rs. 56,032 during the period under review as compared with Rs. 26,325 during the previous quinquennium. The increase was due chiefly to the construction of sawmill buildings including a motor lorry shed at Russelkonda and two timber storage sheds at Berhampur, *Ganjam* district.

Forest offences.—The average annual number rose to 2,220 from 2,075 during the previous quinquennium. The increase was under "Injury by fire," "unauthorized felling," and "unauthorized grazing" while there was decrease under "other offences." The increase under "Injury by fire" was due to undetected cases of incendiarism.

Fire protection.

	Area attempted. SQ. MLS.	Fires.	Area protected. SQ. MLS.
Previous quinquennium ...	1,959	141	1,818
Quinquennium under review ...	1,910	169	1,741

The percentage of failures increased to 8.9 from 7.2, the increase being due to unfavourable fire seasons and generally to failure of monsoons.

Protection from cattle.—Reserved forests were entirely closed to goats. The average area open to all animals except goats was 2,122 sq. miles and the average number of animals permitted to graze on payment was 206,389 against 1,682 sq. miles and 248,795 of the previous quinquennium.

Yield and outturn.—The average annual outturns of major and minor produce for the two periods are compared below:—

	Timber and fuel in thousands of cubic feet.	Bamboos in value.	Minor forest produce including grass and grazing.
		RS.	RS.
914-15 to 1918-19 ...	4,870	91,802	2,21,905
919-20 to 1923-24 ...	4,158	1,11,688	1,45,472

Financial results.—The average annual financial results for the two periods were as follow:

	Revenue RS.	Expenditure. RS.	RS.
Quinquennium ending 1918-19.	4,82,467	3,65,672	1,16,795 Surplus.
Quinquennium ending 1923-24.	5,07,795	5,86,263	78,468 Deficit.

The deficit was chiefly due to expenditure of a capital nature incurred on sawmill buildings, wells, machinery, stores, furniture, motor car and lorry in *Ganjam* and the revision of salaries of all Government services.

Forest education.—During the period under review eight foresters were deputed to the Madras Forest College for training. Of these 1 returned with Honours, 4 with Higher Standard, and 2 with Lower Standard certificates and 1 is still undergoing training.

Vernacular training school.—A vernacular training school for the training of the protective staff sanctioned for this circle and part of the II circle was held during the five years under review. Five students per year from Bihar and Orissa province were also admitted for training in the school from 1921, the cost of their training being met by that province. The results of training were throughout satisfactory and 169 students were in all trained.

D. T. BARRY,
2nd September 1924. Acting Conservator of Forests,
First Circle.

ANNUAL ADMINISTRATION REPORT OF THE FOREST DEPARTMENT

FOR THE
YEAR ENDING 31st MARCH 1924

SECOND CIRCLE.

CHAPTER I.—CONSTITUTION OF STATE FORESTS.

1. ALTERATION IN AREA.

1. *Reserved forests*.—The area of reserved forests decreased from 4,659 square miles to 4,651 square miles chiefly due to disforestation. An extent of 8,393 acres, or 13.11 square miles, was transferred from *West Kurnool* to *South Kurnool* division.

2. *Reserved lands*.—An area of 89 acres in Alur taluk was constituted as reserved land by the Collector under rule 5 (a) of the rules under section 26 of the Madras Forest Act.

2. FOREST SETTLEMENT.

3. There is nothing to report under this head.

3. DEMARCATION.

4. In *South* and *West Kurnool* divisions eight miles of boundaries along disforested areas were newly demarcated at a cost of Rs. 199, and in *Bellary* Rs. 145 was spent in demarcating panchayat areas formed in the old Adoni Range. 4,642 miles of ordinary boundaries in all the divisions were repaired and maintained free of cost by subordinates, 529 miles by panchayatdars and 51 miles by the department.

4. FOREST SURVEYS.

5. There was no survey either by the Survey of India or by the Madras Survey Party during the year.

Surveys of coupes for sale, of roads repaired and of blocks leased for minerals were as usual carried out by the department. In *Guntur*, the survey of Nimalipuri reserve was completed and a revised map and notification for it prepared.

The reference map and other maps referred to in section 80 of the Code were maintained in all divisions.

CHAPTER II.—MANAGEMENT OF STATE FORESTS.

1. REGULATION OF MANAGEMENT.

(a) *Preparation and Control of Working Plans.*(i) *Preparation.*

6. The revision of the working plan of Gooty range in *Anantapur* division was sanctioned by the Chief Conservator in his Proceedings Mis. No. 503, dated 28th September 1923, and the plan was given effect from 1st April 1924.

The tentative working plan for the Takkelapad reserve in *Guntur* division was sanctioned for its full term of 14 years in Chief Conservator's Proceedings Routine No. 995, dated 22nd November 1923. The revision of the Repalli mangrove working plan and the preparation of simple working schemes to supply fuel, leaf, fodder and agricultural implements in Vinukonda, Sattenapalli and Palnad ranges of the same division were taken up in accordance with Mr. Whitehead's inspection notes of the division of August 1923.

The working plan of Sirvel range in *South Kurnool* division was completed, and was received by the Conservator after the close of the year. The reconnaissance reports of Owk range and Gundlakamma range approved by the Conservator with certain modifications have been submitted to the Chief Conservator.

The revision of the working plan for the forests on the Gundlabrahmeswaram plateau has been held in abeyance. The results of the experimental clear fellings, followed by concentrated regeneration operations referred to in last year's report are not encouraging. Arrangements are being made now to raise teak from stumps in order to test the efficacy of this method against other methods already tried. The proposed revision of the Yerramalais' working plan has not progressed very much. The working scheme for the lower and upper Terrai forests in the Nandyal range is under revision on the lines suggested by Mr. Barry.

(ii) *Control.*

7. The tentative working plan of Harpanahalli range in *Bellary* division was cancelled as it was found to be unworkable, and simple working schemes drawn up for the guidance of future panchayats are now adopted for the sale of fuel coupes.

The provisions of working plans in *Anantapur* were generally adhered to except that, owing to drought, free grazing was allowed temporarily from 1st September 1923 and closed areas were thrown open to grazing.

The Guttikonda and Bollapalle tentative working plan in *Guntur* division was practically suspended during the year as there was no demand for fuel coupes. Other plans were adhered to.

In the three *Kurnool* divisions, sanctioned plans were generally followed. Working plans are urgently needed for the main Nallamalai reserves where very large areas of valuable forest remain unexploited for want of communications. During the last 10 years various schemes for roads and buildings have been put forward but they lack the coherence that settled plans for the whole area would give.

2. COMMUNICATIONS AND BUILDINGS.

(a) *Roads and Bridges.*

8. No new roads were opened in *Bellary* or *Anantapur* or *South Kurnool* division. In *Guntur* and *East* and *West Kurnool* divisions roads to a length of nearly 31 miles were constructed at a cost of Rs. 3,250, against about 35 miles at a cost of Rs. 3,588 in the previous year. The chief of these was the Yeguvacherlopalli-Regatigunta road in *East Kurnool* division 5 miles 6 furlongs in length which cost Rs. 2,132.

Other works were principally alignment of roads, formation of bridle paths around coupes, and construction of Irish bridges.

130 miles of existing communications were repaired at a cost of Rs. 14,878 against 128 miles at a cost of Rs. 16,169 in the previous year.

(b) *Buildings.*

9. The total amount spent on the construction of new buildings was Rs. 3,594 against Rs. 10,556 in the previous year. The amount spent on repairs was Rs. 12,777 against Rs. 11,332 in the previous year.

The chief buildings constructed were:—

Guntur division —

Construction of an inspection shed at Suryalanka;

Construction of a range office at Macherla.

East Kurnool division—

Rest house at Yerragondapalem.

West Kurnool division —

Construction of subordinates' quarters at Sivapuram in progress.

(c) *Miscellaneous.*

10. Sums of Rs. 1,152 and Rs. 594 were spent on new works and repairs against Rs. 1,058 and Rs. 247 respectively in the previous year on works of construction, clearing out wells and digging trial pits for new wells.

3. PROTECTION OF FORESTS.

(a) General Protection.

11. The total number of new cases reported during the year under all classes was 5,508 of which 345 were undetected. The balance of 5,163 new cases, together with 887 pending at the close of the preceding year amounted to 6,050. Of these 4,937 were disposed of and 1,113 cases were pending at the end of the year.

The following statement compares the offences registered during the year under report with those of the previous year:—

	1922-23.	1923-24.
Injury to forests by fire	207	185
Unauthorized felling	2,968	3,354
Do. grazing	1,519	1,767
Other offences	211	202
Total ..	4,905	5,508

The decrease under injury to forests by fire is small and calls for no remarks. There would have been a larger decrease but for the comparatively large number of fires in *East Kurnool* division which showed an increase of 23 cases over the previous year's figures.

Under unauthorized fellings, the increase was mainly in *Guntur* and *South Kurnool*. In *Guntur*, the increase is ascribed to better vigilance displayed by the protective staff, and in *South Kurnool* to the adverse seasonal conditions and consequent unemployment which led to forest crime.

Under grazing the increase is solely in *Guntur* and is ascribed to better protection.

The small decrease under other offences calls for no remarks.

Cases brought to trial.—The total number of cases taken to court for disposal was 1,964, of which 997 ended in conviction and 409 in acquittal, leaving 558 cases pending with Magistrates.

The percentage of acquittals rose from 4.2 in the previous year to 20.8 during the current year. The increase in the number of acquittals is specially noticeable in *Bellary* and *Guntur*. In *Bellary* it is due to the payment of compounding fees in the court in 118 cases and to the withdrawal of 13 cases where the presence of the accused could not be secured. In *Guntur* it is due to the payment

The pendency of cases taken to court at the close of the year was heavy in *Guntur*. Of the 409 cases shown under acquittals, 55 cases were acquitted by the Magistrates after due trial, 31 cases were withdrawn and in 323 cases compounding fees were paid after they were taken on the Magistrate's file.

The number of cases compounded during the year and the amount of compensation fees realized are given below:—

Division.	Number of cases compounded.	Compounding fees collected. Rs.
Bellary	377	5,458
Anantapur	548	9,807
Guntūr	1,428	38,975
East Kurnool	327	7,368
South Kurnool	388	9,718
West Kurnool	431	3,994
Total ...	3,499	75,320

In *Guntur* division, rewards to the extent of Rs. 100 were sanctioned by the Conservator for detection of a goat browsing case in trying circumstances.

In *West Kurnool* Rs. 25 was sanctioned to subordinates for detection of a case of illicit grazing in which they had to face determined opposition and assault by the cattle owners.

The punishments inflicted by Magistrates were generally satisfactory except in *Anantapur* division.

(b) Protection from Fire.

12. The total area attempted to be protected from fire under the three systems of special protection, early burning and general protection was 4,240 square miles, in 4,086 square miles of which protection was successful. The percentage of success is very nearly the same as last year's figure. The total cost incurred for the area of 1,084 square miles treated under the early burning system was Rs. 1,421 or Re. 1-4-10 per square mile against Rs. 1,594 or Rs. 6-6-0 per square mile for the area of 250 square miles under special protection.

The total cost of the fire protection operations of the year was Rs. 3,388 against Rs. 14,561 of last year.

Early burning.—There were no early burning operations in the divisions of Bellary, Anantapur and Guntur. A special report on these operations in the three Kurnool divisions was submitted to the Chief Conservator in this Office No. M-2-1057/2, dated 13th August 1924. The system was not unpopular with the people.

(c) *Protection from Cattle.*

13. The following table compares the areas closed and open to grazing during the year under report with those of the preceding year :—

	1922-23.	1923-24.
Closed to all animals—		
Whole year	946	1,035
Part of year	2	41
Open to all animals except goats—		
Whole year	3,421	3,299
Part of year	Nil.	3

Besides the 3,299 square miles open to grazing for all animals 273 square miles in Guntur were open to all animals except sheep. In Bellary, owing to adverse seasonal conditions, free grazing was allowed in all open areas of Bellary range temporarily from February 1924, and the Moka plantation, 1,100 acres in extent, which was closed to grazing, was also thrown open to grazing on permits. In Anantapur, all the reserved forests were thrown open temporarily to free grazing for all animals except goats from 1st September 1923 on account of drought. In Guntur, 16.54 square miles of reserved forest in Vinukonda range hitherto closed to sheep, were open to them temporarily for 1923-24 in view of the fact that grazing was reduced by the leasing out of some areas as Kanchas. In East Kurnool, all the ranges except Gudem were thrown open temporarily to grazing on account of drought. In South Kurnool, out of 546.34 square miles closed to grazing in the beginning of 1923-24, an extent of 166.69 square miles was opened during the year. In West Kurnool no free grazing was permitted during the year, nor were any closed areas thrown open to grazing.

The number of cattle impounded during the year was 59,706 against 65,059 in the previous year and 57,259, the average for the three years ending with 1922-23. The decrease which chiefly occurred in Anantapur, due to throwing open the reserves to free grazing from 1st September 1923, was partly counterbalanced by an increase in Guntur division. The increase in Guntur division is due to better protection.

(d) *Protection against injuries from Natural Causes.*

14. There is nothing to report under this head.

CHAPTER III.—SYLVICULTURE.

1. FORMATION AND REGENERATION OF FORESTS.

General Progress of areas under Regeneration.

15. In Anantapur, sandal was dibbled in areas already treated in Bukkapatnam and Madakasira ranges in order to fill up blanks. The season was unfavourable and the results were not very successful. However, sandal is established in these reserves and the experiment should be continued.

The same applies to operations in the Chikanahatti sandal area in Kudligi range of Bellary division.

In Guntur, there were no specific areas under regeneration during the year, but regeneration of mangrove from seed in the coastal reserves of Repalli is reported to have been good.

2. ESTABLISHMENT OF REPRODUCTION UNDER WORKING PLANS OR SCHEMES.

(a) *Mainly Natural.*

Natural reproduction from coppice was generally good, but that from seed was poor. In the Nallamalais of Kurnool, natural reproduction of *Pterocarpus Marsupium* was good at first, but seedlings get choked by grass and require a great deal of tending. Early burning appears to favour natural reproduction of teak.

(b) *Mainly Artificial.*

In West Kurnool, in accordance with the prescriptions of the Veldurthi working scheme, cultural operations were undertaken in about 10 acres of black cotton soil. The area was ploughed and sown with field crops—korra and cotton—with lines of forest species 20 feet apart. The germination of the forest species (*Pterocarpus Marsupium*, *Melia azadirachta*, tamarind and *Acacia arabica*) was remarkably good, as was also that of the field crop which gave early promise of success. The North-east Monsoon was a failure, however, and the field crop suffered very badly as also the forest seedlings though to a less degree. The mulching saved a large proportion of seedlings that would otherwise have died. The net result was 311 seedlings per acre.

(c) *Afforestation.*

There is nothing to report under this head.

3. PLANTATIONS AND OTHER FORMS OF REGENERATION NOT UNDER WORKING PLANS OR SCHEMES.

17. In South Kurnool, a coupe of 23 acres near Isukagundam in Gundalakamma range and two coupes in Sirvel range (one of

25 acres in Medambhavi valley and another of 15 acres in Garella valley) were opened for regeneration during the year at a cost of Rs. 694, Rs. 369 and Rs. 349 respectively. The areas were dibbled with seeds of teak, *Pterocarpus Marsupium*, *Gmelina arborea* and *Terminalia tomentosa*. The seedlings successfully germinated to the extent of 50 to 60 per cent, but suffered later from want of rain. They may, however, recover.

Stumps of natural seedling were also transplanted, but suffered from the same cause.

Another coupe of 10 acres was clear felled towards the end of the year and burnt. Of this, an area of about five acres was dibbled with teak seeds in March after loosening the soil in 2 feet squares about 18 inches deep in accordance with the instructions of the Chief Conservator. Though all possible steps were taken to promote the success of the regeneration, the result was not promising.

The regeneration of a coupe in Gazulapalli reserve was undertaken at a cost of Rs. 343. Here the agri-sylvicultural method was tried, a crop of "korra" was sown and seeds of the same tree species were dibbled in lines 12 feet and 6 feet apart.

In *West Kurnool*, no additions to regular plantations were made this year. In accordance with the instructions of the Chief Conservator, the teak plantations are being surveyed with the object of excluding from Form No. 75-B the areas where the planting failed originally or where plants have died in recent years owing to prolonged drought.

An expenditure of Rs. 930 was incurred in the upkeep of the existing plantations and was devoted to weeding and clearing and marking trees for thinnings.

In the emergency coupes, regeneration was undertaken, but with doubtful success.

4. TENDING.

18. *South Kurnool*.—The areas regenerated in the three experimental coupes were tended. The seedlings were weeded three times in the year and the soil around them was aerated and mulched in January.

West Kurnool.—Clearing was done in the teak plantations at Bairluty, Nagaluty, Pasurutla, Rudracode, Sudam and Pecheruvu at a cost of Rs. 864.

Trees were marked for thinning in the Pasurutla plantations of a cost of Rs. 50. Large trees of inferior species which were interfering with the growth of teak and other valuable species were girdled and Atlas solution was applied. Most of these large trees

have succumbed to the treatment. In cases where the first application has not been successful, a second will be given.

5. GENERAL.

19. The last two seasons have been so dry that operations of this nature have not had much chance of success. Natural reproduction in the *Kurnool* Nallamalais is undoubtedly good, but seedlings are either choked by grass or scorched by the sun, so that it is a difficult and costly matter to establish a crop.

CHAPTER IV.—EXPLOITATION.

(a) SYSTEM OF MANAGEMENT.

(1) Major Forest Produce.

20. The subjoined statement shows the total area under working plans and the different systems of management in force during the year :—

Sylvicultural system adopted.	Area in square miles.	Percentage of total area under each method.
	ACS.	ACS.
Clear felling	...	...
Coppice with standards	267.30	36.57
Improvement fellings	...	...
Selection fellings	0.17	0.02
Area closed to exploitation or exploited but not under working plan.	463.47	63.41
Total	730.94 or 731 square miles.	100

Besides the above 44 square miles are covered by tentative schemes of working. The increase of 107 square miles during the year is due to the sanction accorded for the working plan of Gooty range in *Anantapur* division.

In *South Kurnool* division, two coupes of 15 acres each in Sirvel range and one coupe of 10 acres in Gundlakamma range were clear felled for purposes of artificial regeneration.

The system of coppice with standards was adopted mainly in *Guntur* and *West Kurnool* divisions.

Selection fellings were confined to the Takkelapad reserve in *Guntur* division, a very small area.

Unregulated fellings were conducted in some scattered areas of *West Kurnool* division by issuing permits to remove palmyra trees, and by cutting and converting dead timber into spokes and felloes and rafters to meet the requirements of the public.

assigned on darkhast to depressed classes in *West Kurnool* and to a large number of coupes sold in *Anantapur*, *Guntur* and *South Kurnool* divisions.

Minor Produce—Bamboos.—The increase of Rs. 1,793 occurred in *East* and *South Kurnool* divisions partly due to keen competition among the contractors and partly due to the sale of 20 bamboo coupes in both the divisions against 15 during the previous year.

Grazing.—Under this head there was a decrease of Rs. 5,337 due to having allowed free grazing for a period of seven months from 1st September 1923 in all the open areas of *Anantapur* division on account of scarcity of fodder and to the reduction of grazing fees in Harpanahalli range of *Bellary* division to half the rates prevailing in the previous year.

Other minor produce.—This year there was an increase of Rs. 9,957 due to the sale of rela bark (*Cassia fistula*) in *Bellary*, *South* and *West Kurnool* divisions, which was not sold in the previous year; to the bumper crop of tamarind, soapnuts, etc., in the three *Kurnool* divisions; and to the larger number of trees tapped in *Bellary* division. The right to remove fodder grass from four reserves of *Bellary* division covering an area of 7,422 acres was leased out for Rs. 870 to Mr. Howes, who harvested 938 tons of hay during the year.

The Military Grass Farms department continued hay operations in *Bellary* and *South Kurnool* divisions and the total output of hay during the year was 1,570 tons (1,444 tons from *South Kurnool* and 126 tons from *Bellary*) for which a royalty of Rs. 3,142 was realized.

Permits were issued as usual for grazing, stone, gravel, earth and manure leaves.

(3) and (4) *By right and privilege, holders and free grantees.*

23. The following statement shows the quantity and estimated value of produce removed under these heads:—

	Timber.		Fuel.		Bamboos in value.	Grass and grazing in value.	Other minor produce in value.	Total value.
	Quantity in 1,000s of cubic feet.	Value.	Quantity in 1,000s of cubic feet.	Value.				
Right and privilege holders.	1	Rs. 250	154	Rs. 170	Rs. ..	Rs. 4,014	Rs. ..	Rs. 4,434
Free grantees ..	84	9,678	..	..	233	8,716	1,137	19,764
Grand total ..	85	9,928	154	170	233	12,730	1,137	24,198

24. *Rights and Privileges.*—The Chencus of the *Kurnool* divisions availed themselves of the concessions admitted at forest settlement, viz., (1) removing timber for their huts; (2) enjoying minor produce; and (3) grazing their cattle (numbering 947 buffaloes, 1,524 cows and 2,279 sheep) in the reserves without payment of fees.

The scheme for extinguishing the rights possessed by the Chenchus in Palnad range of *Guntur* division, referred to in last year's report, is said to have been taken up.

25. *Free Grantees.*—Grants were made in all the divisions (both from reserves and unreserves) chiefly to rebuild houses destroyed by fire.

In *Guntur* grants amounting to the value of Rs. 736 were also made to the settlers of the Jayapuram Industrial Home for making baskets and mats.

Free removal of grass in head-loads was allowed as hitherto to local people in most of the divisions, but no figures showing the actual number of head-loads removed have been given. The concession has been freely enjoyed.

In *Anantapur* free grazing was allowed, as already stated in paragraph 22 above, but correct figures are not available as to the actual number of cattle admitted free under this concession as no free permits were issued. However, the figures shown in columns 23 to 27 of Form No. 74 have been arrived at by deducting the average number of cattle licensed to grazing during the last five years from those for which permits were taken before 1st September 1923.

(c) OUTTURN AND SOURCES OF FOREST PRODUCE.

The following table compares the total exploitation of the year by all agencies with that of the previous year:—

Year.	Timber in thousands of cubic feet.	Fuel in thousands of cubic feet.	Bamboos in value.	Grazing and fodder grass.	Other minor produce, including tree-tapping fees.
1922-23	664	1,314	Rs. 44,197	Rs. 2,71,211	Rs. 2,30,225
1923-24	913	1,581	Rs. 49,531	Rs. 2,74,937	Rs. 2,45,182

The variations have been explained above.

26. *Application of co-operative methods to forest undertakings.*—Nothing worth mentioning was done in this direction in any of the division during the year.

The Tekur Co-operative Society in *West Kurnool* division (referred to in the previous year's report) which worked a coupe in this division is reported to have applied for preferential treatment to be shown to them from which the District Forest Officer infers that all is not well with the management of the Society.

CHAPTER V.—FINANCIAL RESULTS.

27. The financial position of the Circle was, on the whole, satisfactory as the year's working resulted in a surplus of just over $1\frac{3}{4}$ lakhs against nearly one lakh of the previous year as shown below :—

	1923-24.	1922-23.	Average of the preceding five years.
	RS.	RS.	RS.
Revenue	8,16,978	7,52,310	9,11,705
Expenditure—			
B. Conservancy and works ...	1,26,378	1,35,369	1,55,540
C. Establishment and contingencies.	5,07,583	5,18,002	3,36,031
Total ...	6,33,961	6,53,371	4,91,574
Net total ...	1,83,017	98,939	4,20,131

During the year the gross revenue increased by Rs. 64,668 and the total expenditure decreased by Rs. 19,410 as compared with that of the previous year. But the net surplus exceeded that of the previous year by Rs. 84,078; this is mainly due to the large stock of bamboos and minor forest produce collected and sold departmentally to the general increase under timber and fuel and tree-tapping fees exploited by purchasers from unreserved lands and disforested areas. There was also an increase in the compounding fees levied and collected during the year.

Of the gross receipts—

- 22 per cent was realized from major produce;
- 31 per cent was collected from grass and grazing;
- 30 per cent was contributed by minor forest produce;
- 6 per cent was derived from bamboos and the balance;
- 11 per cent was made up by miscellaneous items.

The financial results of each division are dealt with below :—

There was an increased surplus compared with the results of 1922-23 in the divisions of *Bellary*, *Guntur* and *South Kurnool*.

(1) *Bellary plus Rs. 18,396.*

Due to greater number of trees tapped during the year (which alone brought an increased revenue of Rs. 11,507) and to larger removals of timber and fuel from newly disforested areas and unreserved lands.

(2) *Guntur plus Rs. 57,512.*

Due to large removals of timber and fuel from disforested areas and unreserved lands, and to the sale of large quantity of "pati" earth in *Bapatla* taluk and to heavy compounding fees realized during the year.

(3) *South Kurnool plus Rs. 9,207.*

Due to better prices realized by the sale of timber and fuel coupes and to the sale of rela bark which was not sold in the previous year; and to the special steps taken for collecting grazing revenue during the year.

In two divisions there were deficits in the net results as shown below :—

(4) *East Kurnool minus Rs. 8,688.*

There was a surplus of Rs. 18,756 in gross revenue over that of the previous year but the net result was a deficit of Rs. 8,688. The deficit last year, however, was Rs. 22,615.

(5) *West Kurnool minus Rs. 14,975.*

As compared with the deficit of the previous year (Rs. 37,893), considerable progress was made in the year under report with the result that the heavy deficit of last year was made up to an extent of Rs. 22,918, leaving a deficit of only Rs. 14,975. Even this deficit would not have occurred had it not been for the increased expenditure of Rs. 14,853 under establishments during the year due to payment of hill allowance sanctioned to Forest subordinates and to the debiting of the cost of whole of *Chenchu* establishments to Forests from the year under report.

In one division (*Anantapur*) there was a net surplus of Rs. 50,726, but it fell short of that of the previous year by Rs. 40,824; this was due to free grazing having been allowed during seven months of the year and to the sale of rela bark in the previous year.

The outstanding revenue at the end of the year was Rs. 63,158, of which Rs. 5,292 fell due within the year.

The estimated value of timber and other produce at sale depots at the close of the year was Rs. 29 against Rs. 298 at the beginning of the year.

EXPENDITURE.

B. Conservancy and Works — Rs. 8,991.

28. Due to smaller outlay owing to financial stringency especially under roads and buildings, and planting and early burning operations.

C. Establishment and Contingencies — Rs. 10,419.

29. The decrease was under CI-(a) Pay of Conservators and CII-(b) Pay of superior officers appointed by the Secretary of State. Under CI-(a) it was due to the Conservator of Forests, Third Circle, having held additional charge for nearly three months and to junior Conservators of Forests having held charge for the rest of the year; and under CII-(b) to the *Guntur* division having been held by a Deputy Conservator of Forests drawing a smaller salary than the one in the previous year.

CHAPTER VI.—RESEARCH AND EXPERIMENTS.

(a) Research.

30. No research work was done during the year.

(b) Experiments.

31. No fresh sowings were undertaken in the experimental area devoted to *Cassia auriculata* (Tangedu) in Golla reserve in *Anantapur* division, and the operations were confined to counting the seedlings in small plots in the areas under observation.

Experiments are being carried out in the coastal reserves of *Guntur* division to test the coppicing capacity of mangrove (*Avicennia officinalis*), to find out the best way of regenerating this species, and to determine its rate of growth, but it is too early to report the results.

Taungya plantations were started in *East Kurnool*, but are not yet successful.

Observations in the sample plots in the Nagaluti teak plantations and at Gundlabrahmeswaram referred to in last year's report were continued and the results are being recorded. A nursery has been opened at Gundlabrahmeswaram to raise stumps which when three years old will be put out in these plots and the efficacy of this method will be compared with that of other methods of regeneration already tried.

CHAPTER VII.—ADMINISTRATION.

32. The officers who held charge of the Circle are shown below :—

Name of officer.	Period	
	From	To
A. B. Jackson, Esq. ...	1st April 1923	4th April 1923
C. E. C. Fischer, Esq. ...	5th April 1923	20th June 1923
T. A. Whitehead, Esq. ...	21st June 1923	12th Nov. 1923
D. T. Barry, Esq. ...	13th Nov. 1923	5th March 1923
T. Clear, Esq. ...	6th March 1924	31st March 1924

33. The number of ranges decreased from 32 to 31 owing to the abolition of Adoni range with effect from 1st October 1923.

Tours.

34. Sir Arthur Knapp, Executive Council Member toured in *South Kurnool* division in January 1924.

The Chief Conservator inspected the Kupgal and Banavasi reserves of the old Adoni Range in August 1923 and also visited *Kurnool*. Mr. Whitehead inspected Kupgal and Banavasi reserves with the Chief Conservator. In October and November 1923, he inspected the reserves in the Kadiri, Bukkapatnam, Madakasira and Tadpatri ranges. He also inspected the sandy reserves of Bapatla range and a few of the reserves in Vinukonda and Sattenapalle ranges *Guntur* district. The forests in Gundlakamma, Chelania and Sirvel ranges of *South Kurnool* division were inspected both by Mr. Whitehead and Mr. Barry. In the *West Kurnool* division, the forests of the Yerramalais were inspected by Mr. Whitehead and those of the Nallamalais by Mr. Barry.

All the District Forest Officers did the requisite amount of touring.

Audit of the District Forest Offices.

35. The accounts of all the offices for 1922-23 were audited by the Auditing Staff of the Accountant-General and the general result was satisfactory. The audit of accounts which was hitherto done by the staff of the Examiner of Local Fund Accounts of the Accountant-General's office has been transferred to the Accountant-General's staff itself from 1st April 1924.

Recruitment and Training.

36. Two Assistant Conservators, Messrs. M. K. Nayar and S. R. Rao, were posted to the Circle for training.

Recruitment to the Madras Forest College.

37. One Forester, Arogyaswami Pillai, attached to *Anantapur* district, was deputed to the College for the 1923—25 course.

Recruitment to the Vernacular Training School.

38. There was no school for training in the Circle though there are a very large number of foresters and forest guards remaining to be trained. One forester and five forest guards were deputed from *Bellary* and *South Kurnool* divisions to the First and Third Circle schools for training and they passed the course. One forester and 16 Forest Guards were deputed for training to the schools at *Russell-konda* and *Cuddapah* from the divisions of *East*, *South* and *West Kurnool*.

Health of Establishment, including an account of Measures of Sanitation and Casualties.

39. The health of establishment was satisfactory in *Bellary* and *Anantapur*, and fair in *Guntur* and *East Kurnool*. It was bad in *South* and *West Kurnool* chiefly on account of malaria. There were complaints of guineaworm and malaria in *East Kurnool* also. In *Anantapur*, one Forester and one Forest Guard died, in *Guntur* one Ranger, and in *South Kurnool* one Range Clerk and one Forest Guard. In *East*, *South* and *West Kurnool* divisions many subordinates were granted leave on medical certificate.

No special measures of sanitation were undertaken.

Work and conduct of establishment.

40. *Rangers*.—The work and conduct of the Rangers was generally satisfactory with a few exceptions. One Supernumerary Ranger in *South Kurnool* was reduced to Forester's grade for neglect of duty in connexion with an important building work. In two ranges in *Anantapur* division grazing permits to the value of Rs. 873 were lost. In one case the Ranger was made to pay the full value.

The conduct of the protective staff (Foresters and Forest Guards) was much as usual.

The conduct of the ministerial staff was generally satisfactory. In *Anantapur* one Range Clerk was dismissed for suspicious conduct in respect of the missing permits above referred to in two ranges in which he was working.

The District Forest Officers, *East*, *South* and *West Kurnool* complained that they were unable to maintain a high level of efficiency owing to frequent changes in their clerical establishment.

CHAPTER VIII.—GENERAL.

(i) FORMATION AND MANAGEMENT OF PANCHAYATS.

41. In *Bellary* division 25 panchayats were newly formed in addition to 45 already existing at the beginning of the year; no panchayat was dissolved during the year.

In *Anantapur* no new panchayats were started, but one out of two in existence at the beginning of the year was resumed by the department on account of mismanagement by the panchayatdars.

In *Guntur* 32 panchayats were in existence at the beginning of the year, four were newly formed and two were dissolved, leaving 34 at the close of the year.

No new panchayats were formed in the other divisions of the circle.

The working of most of the panchayats was fair.

Two Panchayat Inspectors were posted during the year, one for *Bellary* and the other for *Guntur*.

(iii) MEASURES IMPROVING LOCAL SUPPLIES AND FACILITIES.

42. In *Guntur* division 35 coupes were advertised for sale, but only 22 were sold owing to the disforestation of large areas which provided fuel. As regards small timber for agricultural implements small coupes in the degraded Palnad forests do not seem to satisfy the requirements of the people, and the proposal of the writer of this report that larger coupes with lease extending over a number of years should be given a trial has since been approved by Government.

For the improvement of the water-supply in the same division two wells were sunk departmentally, one at *Mutukur* and the other at *Kakirala*, at a cost of Rs. 176 and Rs. 133 respectively. The latter had to be abandoned owing to the nature of the soil. Permission was granted to private individuals to repair existing kuntas and spring channels and to construct new tanks. Lopping of leaves of *Hardwickia binata* (yepi) for fodder was also permitted for the reasons stated last year which held good during the year under report. How to work the yepi areas of *Vinukonda* range for timber purposes has become rather a problem. Working schemes are now being drawn up to meet the demand for yepi leaves as fodder.

No new measures in this direction were undertaken in the other divisions.

(iii) Timber Transit Rules.

43. There were no rules in force in *Bellary* and *Anantapur* divisions. In *Guntur* and the *Kurnool* divisions the rules were enforced without trouble.

(iv) Jungle Tribes.

44. *Chenchus*.—A plot of about 100 acres of land near *Ahobilam* temple in *South Kurnool* division was given to the *Chenchus*

living there in order to persuade them to settle down and cultivate. A similar proposal has been made in favour of the Baireni Chenchus in the same division.

In *East* and *West Kurnool* divisions the Chenchus were employed on road works, felling of timber, fuel and bamboos, collection of minor forest produce, sowing and planting and early burning operations; they also worked as Forest Guards and Watchers. The works provided for them were sufficient to maintain the working men and their families. In order to train them to become useful members of society and give up their criminal habits they were given a fair start in agricultural work by the provision of a set of agricultural implements free to those Chenchus to whom loans were granted last year. A sum of Rs. 1,574 was sanctioned for cultivation of 175 acres of land in 17 gudem both in the *East* and *West* divisions. Unfortunately, in consequence of the bad season, there was a total failure of crops in all but three of the plots of land in the *West* division and two in the *East* division. The other occupations in which the Chenchus have been instructed are carpentry and basket-making. Rs. 2,000 was sanctioned for promoting these industries and the revenue realized by the sale of articles, prepared at the Industrial School, was Rs. 777 for carpentry and Rs. 186 for basket-making.

Two new educational elementary schools were opened during the year; the total number is now 15. The school at Panyam for the Yerramalais Chenchus was transferred to the American Baptist Mission, Nandyal. The attendance was good in all except 4 of the schools. The 8 Chenchu boys studying in the various forms in the Markapur Board High School continued to draw a scholarship of Rs. 100 each per annum from Government. Rs. 8,843 was spent on the maintenance of schools. Of this Rs. 553 was spent on clothing supplied to school children and Rs. 1,618 on feeding.

Eight crimes were filed against the Chenchus in which 15 persons were involved. The offences reported were voluntarily causing hurt with dangerous weapons and forest offences under section 21 (e) of the Forest Act. Ten persons were sent to jail, 1 was fined, 4 were whipped and 6 were acquitted.

One Chenchu warrantee was absconding for some months being involved in a murder case. He surrendered himself to the Assistant Chenchu Officer.

With a view to put down crime and to preserve law and order two influential Chenchus in each gudem were appointed during the year under the designation of Forest Police Talaries on a salary

of Rs. 10 per mensem each, in pursuance of a resolution at a conference held in September last by the District Superintendent of Police, the Conservator of Forests, the 3 Kurnool District Forest Officers, the Assistant Chenchu Officer, and the Deputy Superintendents of Police, Markapur and Kurnool. The Chief Conservator having objected to their payment from forest funds, the posts were abolished and it is hardly possible to record any opinion on the system as it was not tried long enough. The introduction of the Criminal Tribes Act for the Chenchus, which was proposed some time ago, has been deferred as it is hoped that they will settle down and behave properly with the facilities now afforded them by the Forest department to earn a living honestly. It is however doubtful whether the present generation can really be reformed, and it is to the rising generation that attention must be paid in the matter of education and discipline if any permanent improvement is to be expected. It is gratifying to note that appreciable progress in this respect has been made during the ten years that have elapsed since the inception of the scheme.

(v) *Mining and Quarrying.*

45. In *Bellary* division, two licensees, one for prospecting manganese or in a portion of Thonsagiri reserve and another for prospecting chemical earths in a portion of Bellary reserve were granted. The 30 years' lease for mining manganese, Alagilwada Block 'B,' granted by the Board was cancelled by Government and the matter is under correspondence. A lease of 30 years for mining manganese in Thummurguddi and Alagilwada 'A' Block was sanctioned. Two licences for prospecting manganese and another for red earth in unreserved lands were also granted.

In *South Kurnool*, a prospecting licence for manganese in Veligonda reserved forest was granted.

In *West Kurnool* two mining leases, one for steatite and the other for barytes, and four prospecting leases for barytes were granted. The right to quarry and remove slab and building stone from 15 blocks in Dhane and Kurnool ranges had been leased out in previous years at an annual rental of Rs. 13,054 for five years. One of the lessees for slab quarrying requested cancellation of the lease and the request was granted.

(vi) *LIVE STOCK.*

(a) *Elephants.*

46. Two baggage elephants are maintained in *West Kurnool* division and they are reported to be in good condition.

(b) *Other Animals.*

In *South Kurnool* division there were two bulls at the commencement of the year. Seven bulls confiscated in forest offences brought the total number to nine. Two were killed by tigers, three died from disease and one was sold, leaving three at the close of the year.

In *West Kurnool* division there are five bulls in stock.

47. (viii) VETERINARY ESTABLISHMENT.—Nil.

48. (viii) SUITS.—Nil.

(ix) CONTROL OF UNRESERVED LAND BY THE FOREST DEPARTMENT.

49. The control of the lease of tangedu bark in all the divisions and of rela bark and nux vomica in *East* and *West Kurnool*, and the general control of unreserves in two villages of *East Kurnool* division remained with the department.

50. *General.*—All the reserves in *Bellary* division, except a few which were proposed to be retained for experimental purposes or on account of their provincial importance as regards the supply of fuel to *Bellary* town, the jails and the troops, and of hay to the Military Grass Farms department are likely to be handed over to panchayat management.

In *Anantapur* division there has been agitation from villagers for disforestation of many of the reserves. It is anticipated that most of the reserves of this division will be handed over to panchayats.

The position in the *Kurnool* division is not quite so definite; the main *Nallamalai* reserves must indubitably remain under the control of the Forest department but a large number of scattered reserves can with advantage be handed over to local management; the Forest Panchayat Officer has not yet extended his operations to *Kurnool* district; it will be advantageous if he can do so at an early date.

In *East Kurnool* division the man-eating tiger referred to in last year's report killed three people during the year, and was not destroyed though a reward of Rs. 500 was offered. A noted man-eating tigress at *Diguvametta* in *South Kurnool* was shot by Mr. Whitehead.

T. CLEAR,
Acting Conservator of Forests,
Second Circle.

BELLARY,
31st August 1924

APPENDIX.

SUMMARY OF PROGRESS DURING THE FIVE YEARS
1919-20 to 1923-24.

1. *Administration and Control.*—To give a Conservator a chance of gaining a more intimate knowledge of the forests of all his divisions during the course of a year and of familiarising himself on the spot with the outstanding questions in each, it was found necessary to create two more circles; these were sanctioned by the Secretary of State and were formed in 1921. Consequently, this circle, designated as the Second Circle, was formed on 5th February 1921 with headquarters at *Bellary*. It contains the following six forest divisions:—

<i>Bellary.</i>	<i>East Kurnool.</i>
<i>Anantapur.</i>	<i>South Kurnool.</i>
<i>Guntur.</i>	<i>West Kurnool.</i>

The first three formed part of the old Central Circle and the rest belonged to the Northern Circle. The fourth division in *Kurnool* district for which Government sanction was accorded, was not formed partly for want of officers and partly as a result of the changed policy of the Government in view of adverse financial conditions and the necessity for retrenchment. The work of the Forest Department was much handicapped during 1920-21 and 1921-22 by the non-co-operation movement which was strongest in *Guntur* and took the form of refusal to pay grazing fees and of boycott and assault of forest subordinates. The measures taken by the district officers resulted eventually in comparative peace and respect for lawful authority.

In pursuance of the recommendations of the Retrenchment Committee, the reclassification of forests has been going on side by side with the progress in the formation of the panchayats under the Forest Panchayat Officer in *Guntur* and *Bellary* districts. As a result of the handing over of all reserves of minor importance for panchayat management, the *Adoni* range of *Bellary* district was abolished with effect from 1st October 1923 and with the extension of the panchayat system, it is probable that before long two divisions in the circle may be amalgamated.

2. *Organization.*—The reorganization of the executive and protective staff sanctioned in the previous period was given effect from 1st October 1919.

Three new Assistant Conservators in 1921-22 and two in 1923-24 joined this circle for training.

The Bellary division which was formerly a major division was classed as a minor division during the period consequent on the handing over of the Sandur leased forests to the Sandur Darbar, the amalgamation of the Hospet range with Bellary and Kudligi ranges, and the abolition of the Adoni range which followed the transfer to panchayat management of most of the reserves in that range.

It was found that the continuance of the reorganized sanctioned strength could not be sustained in view of the financial conditions, and a cut in the foresters' cadre was made by the reduction of 15 posts with effect from 1st March 1924. In the office and menial establishments also some reductions were ordered and two peons and one attender of the Conservator's office were removed. The reallocation of the rangers was also sanctioned in G.O. No. 947, Development, dated 11th July 1923.

The time scale of pay for the clerical staff was given effect from 1st March 1921.

3. *Legislation.*—The Fundamental rules replacing the rules of the Civil Service Regulations were introduced with effect from 1st January 1922.

In respect of travelling and other allowances, a separate set of rules for purposes of travelling allowances called the Madras Travelling Allowance Rules were introduced. Forest officers were brought into line with other officers in this respect and some of the advantages formerly conceded on account of the special difficulties of travelling in forest tracts were lost.

4. *Changes in area.*—The area of reserved forests and reserved lands decreased from 4,710 square miles to 4,659 square miles during the quinquennium due to disforestation in Bellary, Guntur and Anantapur divisions mostly for cultivation purposes.

5. *Settlement.*—Three square miles of reserved land in Bellary district were finally settled during the period.

6. *Demarcation.*—The total length of forest boundaries decreased from 6,960 square miles to 6,694 square miles at the end of the period, the decrease being chiefly due to disforestation.

7. *Surveys.*—The Survey of India Party conducted its operations on 1 inch and 2 inches scales in portions of Guntur, Kurnool and Anantapur districts.

8. *Working plans.*—There were working plans for 1,725 square miles at the commencement of the quinquennium; of these the tentative plans for South and West Kurnool divisions have lapsed

and are being revised. The working plan for Adoni range in Bellary division was cancelled owing to the introduction of the panchayat system of working. The net area for which working plans were in force at the end of the quinquennium was 731 square miles.

The Extra Assistant Conservator who was deputed to prepare a working plan in South Kurnool division for the main Nallamalai reserves, prepared one for Sirvel range.

The reconnaissance reports prepared for Owk and Gundlakamma ranges were submitted to the Chief Conservator of Forests, Madras.

The employment of a special working plan staff for the preparation of working plans for all the main Nallamalai reserves where large areas of valuable forest remain unexploited, is very desirable. This is particularly necessary in order to co-ordinate schemes of roads and buildings in this tract, for with the existing communications systematic work over the whole area is not possible.

9. *Communications and Buildings.*—The average annual expenditure on communications, buildings and other works amounted to Rs. 38,971 during the quinquennium against Rs. 37,768 in the previous period. The increase which is slight is due mainly to the rise in the price of materials and higher wages for labour.

The total length of new roads constructed during the period was about 146 miles at an aggregate cost of Rs. 17,580. Besides this, a sum of Rs. 3,900 was contributed every year by the three Kurnool divisions towards the upkeep of certain Local Fund roads in which the Forest Department is interested.

Range office buildings at Kudligi, Bapatla, Gooty and Macherla, and various rest-houses in the three Kurnool divisions were the important buildings completed during the period.

10. *Forest Offences.*—The average annual number of forest offences fell from 5,919 to 5,093 and the total number of offences reported during the period ending 31st March 1924 was 25,465 against 29,597 for the previous quinquennium. The decrease is perceptible under all heads. A definite reason cannot be given for the fall in the number of cases; this probably varies in different parts of the same district through entirely different causes. It was perhaps mostly due to allowing free grazing in parts of Anantapur, Bellary and Kurnool districts; another cause was the non-co-operation campaign in Guntur district. Fifty-eight cases of assault of forest subordinates in Guntur district and two cases in Anantapur were reported during this period. One case in

Anantapur, ended in the murder of a Forest Guard, whose widow was granted by the Government a pension of Rs. 8 per month. There were also two sensational cases of forced rescue of cattle found illicitly grazing in reserves in Guntur. To quell this lawlessness and the organized social boycott of forest officials, punitive police were stationed by Government in Guntur for several months.

Rewards to subordinates and others who assisted in the detection of forest offences were disbursed during the period to the extent of nearly Rs. 862. With the development of the panchayat system of managing minor forests, it is hoped that forest offences will appreciably diminish.

11. *Fire Protection*.—The following compares the area under systematic protection with that of the previous quinquennium :—

			Attempted to be protected.	Actually protected.
			ACS.	ACS.
Quinquennium ending 1918-19	...	...	3,484	3,048
Do. do. 1923-24	...	...	3,977	3,782

The system of early burning started by Mr. Hodgson in 1919-20 has been working satisfactorily; it is confined to the three *Kurnool* divisions. The system is not unpopular with the people.

The total cost incurred during the period under report was Rs. 70,005 against Rs. 2,11,131 in the previous period. The decrease in the cost of fire protection during the period under report was due to employing the ordinary subordinate staff on early burning, and the gradual abolition of special fire patrol staff.

12. *Protection from Cattle*.—The average area open to grazing for all animals except goats every year during the quinquennium was 3,165 square miles against 2,091 square miles in the previous period. The increase in the extent of open area was due to scarcity of fodder outside the reserves owing to drought during several years of the quinquennium. Free grazing also was allowed in parts of *Anantapur* and *Bellary* districts during periods of drought.

In Guntur steps were taken for the supply of yepi leaves as fodder, owing to the scarcity of fodder last year.

The number of animals licensed for grazing fell from 907,728 to 552,421 animals.

The average incidence worked out to 3.7 acres per cow unit against 1.5 acres of the previous quinquennium.

There was a reduction of grazing fees during the period in the following districts as noted below :—

Guntur—
From 12 annas to 8 annas per cow unit
Bellary—
(Harpanahalli range)
From Re. 1 to 8 annas per cow unit.

A committee to enquire into the forest grievances of *Kurnool* district was sanctioned by Government but had not completed its enquiry at the end of the period.

13. *Yield and Outturn*.—The following statement shows the annual average outturn of the forests for the two periods :—

			Timber and fuel in one thousands of cubic feet.	Bamboos in value.	Minor produce in value
			C.F.T.	RS.	RS.
1914-1 to 1918-19	...	...	3,266	40,247	5,89,275
1919-20 to 1923-24	...	...	2,742	48,901	5,78,971

There was a decrease under timber and fuel due to less removals from unreserved lands, and under minor produce due to high prices realized from tanning barks in the previous quinquennium.

The increase under bamboos is due to exploitation of bamboos by departmental agency through the Chenchus in *East* and *West Kurnool* divisions.

14. *Financial Results*.—The average annual financial results of the last two periods were as follows :—

		Revenue.	Expenditure.	Surplus or deficit.
		RS.	RS.	RS.
Average for 1914-15 to 1918-19	..	9,29,731	4,48,264	+ 4,81,467
1919-20	..	11,57,765	4,16,391	+ 7,41,364
1920-21	..	7,64,740	4,46,135	+ 3,19,605
1921-22	..	6,31,601	6,84,663	- 53,062
1922-23	..	7,52,310	7,00,383	+ 51,927
1923-24	..	8,16,978	6,33,961	+ 1,83,017
		41,23,384	28,80,533	+ 12,42,851
Average for the period	..	8,24,677	5,76,107	+ 2,48,570

The gross revenue decreased by 11.3 per cent, the expenditure increased by 28.5 per cent and the surplus decreased by 48.3 per cent. The decrease in revenue is due to less amount realized under

timber and fuel, and minor produce and the increase under expenditure is due to an all-round increase in the pay of all ranks.

15. *Hill Tribes*.—The Chenchus of Kurnool got very much out of hand in 1919 and 1920 and in 1920 it was found necessary to round them up and capture warrantees who had been at large for years and fancied themselves immune. This was done with great success under the guidance of Mr. W. H. Pitt, Superintendent of Police, who was ably supported by the local officers, and since then the Chenchus have not given much trouble. Education of the rising generation is proceeding on systematic lines and occupation is provided for all the able bodied in the shape of timber, fuel and bamboo felling work, as well as experimental agriculture.

T. CLEAR,

Acting Conservator of Forests,

Second Circle, Bellary.

22nd September 1924.

ANNUAL ADMINISTRATION REPORT OF THE FOREST DEPARTMENT

FOR THE

YEAR ENDING 31st MARCH 1924

THIRD CIRCLE.

CHAPTER I.—CONSTITUTION OF STATE FORESTS.

1. ALTERATION IN AREA.

1. *Reserved forests*.—There is a net decrease of about seven square miles which was chiefly due to disreservation of about two square miles in *Chingleput*, nearly two square miles in *Chittoor* and three square miles in *North Vellore*. Elsewhere the areas disreserved were insignificant. The disreservation was mainly to satisfy the wants and to remove grievances of adjoining villagers, etc., such as extension of cultivation, exclusion of patta lands, tanks and supply channels, provision for village-site and cremation ground, leper settlement, exclusion of conservancy areas and lands adjoining cultivation, etc.

2. *Reserved lands*.—There is a net decrease of ninety acres under this head. Ninety-seven acres were excluded of which 32 were excluded at settlement in *North Cuddapah* and the balance relating to *North Cuddapah*, *Chittoor* and *North Vellore* transferred to reserved forests. Seven acres were added of which four were due to the correction of the area in *South Cuddapah* and the balance to small additions in *Nellore*.

2. FOREST SETTLEMENT.

3. The final settlement of Rapur-Veligonda reserves in the *Nellore* district was complete and the final notification was published about the close of the year with effect from 15th May 1924. No settlement is pending in any of the districts of the Circle.

3. DEMARCATION.

4. Six miles of new demarcation was done in *North Cuddapah* owing to the disreservation of part of a reserve and about seven miles in *Chingleput* and seven and a half miles and an enclosure

in *Chittoor* were permanently demarcated. In *West Cuddapah* Rs. 304-2-0 was spent under B II in cutting boundary lines of about 55 miles and erecting cairns in suitable places in the *Kondapuram* Range reserves for the purpose of dividing them into suitable blocks for panchayat management. In *Nellore* the missing boundary marks around two reserves of the *Kavali* Range were replaced at a cost of Rs. 126-10-0.

Five thousand and sixty-one miles of boundary are reported to have been cleared by forest subordinates without extra cost.

4. FOREST SURVEYS.

5. Two reserves in the *North Cuddapah* and one reserve, one tope and part of another tope in *West Cuddapah* divisions were surveyed by the Survey of India Party on the 1 inch equal to 1 mile scale. The aggregate area covered was 5.48 square miles.

6. The coupes of the year were surveyed and roads aligned, etc., by the local staff. The prescribed reference maps were posted up to date.

CHAPTER II.—MANAGEMENT OF STATE FORESTS.

1. REGULATION OF MANAGEMENT.

Preparation and control of regular working plans.

(a) Preparation.

7. A preliminary working plan for the timber, fuel and bamboo forests of the *Vonipenta* Range of the *North Cuddapah* division received from the District Forest Officer has been returned to him for revision.

A tentative plan for working *Ganganapalle* and *Idupulapaya* reserves (24.397 square miles) in *West Cuddapah* was approved by the Conservator.

The working plan for *Chendragiri* Range in *Chittoor* district was sanctioned by the Chief Conservator. Nothing has been done in the case of the other two working plans taken in hand in 1920-21, due to frequent changes of officers with the result that the intimate knowledge of the area requisite for framing a working plan could not be gained by any one of them.

All the working plans of the *North Vellore* division were replaced by a tentative working scheme which was provisionally approved by the Conservator after his personal inspection of the major portion of the localities.

(b) Control.

8. The prescriptions of some of the existing working plans could not be adhered to owing to lack of demand and the difficulty of transport and in consequence coupes are often in arrears. In several cases deviations from the sanctioned working plans were sanctioned.

2. COMMUNICATIONS AND BUILDINGS.

9. No new work costing over Rs. 5,000 was sanctioned during the year.

(a) Roads and Bridges.

10. The expenditure during the year was Rs. 10,153 against Rs. 14,092 in the previous year. The reduction was due to financial stringency, new work being cut down to the minimum. There is no important new work worth mentioning as only Rs. 658 was spent on new work.

No new purchase of tram materials was made during the year in the *Nellore* district.

(b) Buildings.

11. The expenditure during the year was Rs. 27,618 against Rs. 31,481 in the previous year.

Of this amount, Rs. 12,060 was spent on new work and Rs. 15,558 on repairs and maintenance; the establishment charged under this head fell from Rs. 6,252 to Rs. 5,024 due to the abolition of the post of bungalow watchers wherever possible.

12. The important items of new work were:—

North Cuddapah.—Inspection shed at *Rollabodu*. Stables and kitchen at *Tadugu* and compound wall to the *Vonipenta* Range Office.

South Cuddapah.—Subordinates' quarters at *Marlabylu*. Kitchen and servants' quarters at *Kodur*. Inspection sheds at *Nendragundampenta*, *Kothur*, *Kongamadugu*, *Magdalapalli* and *Chenchannakunta*. Compound wall to the *Chitvel* Range Office.

West Cuddapah.—Inspection shed at *Mangalabailu*.

Nellore district.—Compound wall around Range Officers' quarters, *Kavali*. Outhouses to *Pothur* rest-house. Outhouses to *Kavali* Range quarters (part).

Chingleput.—Subordinates' quarters at *Kambakkam*. A tiled shed over the platform in front of the rest-house at *Sathiavedu*.

Chittoor.—Subordinates' quarters at *Mamandur*.

North Vellore.—Extension to clerks' and foresters' quarters at *Odugethur*.

(c) *Miscellaneous.*

13. Expenditure under this head was Rs. 3,499 against Rs. 2,302 in the previous year.

Rupees 2,369 was spent on new work of which the chief item was the eradication of rank vegetation round Mamandur undertaken with a view to improve the sanitation of the village, at a cost of Rs. 958-6-6.

The other items refer to improvement to water-supply.

3. PROTECTION OF FORESTS.

(a) *General protection.*

14. The total number of cases reported during the year was 7,307 against 8,362 in the previous year, involving a decrease of roughly 12.6 per cent. The decrease occurred under all the heads as noted below:—

Cases.	Injury to Forests by Fire		Unauthorized felling.		Unauthorized grazing.		Other offences		Total.	
	1922-23.	1923-24.	1922-23.	1923-24.	1922-23.	1923-24.	1922-23.	1923-24.	1922-23.	1923-24.
Cases—taken into Court	1	1	1,141	1,244	631	757	72	62	1,844	2,064
Cases compounded	260	154	3,695	3,263	2,170	1,569	242	121	6,108	4,953
Cases undetected			142	121	6	7	2	8	410	290
Total	261	155	4,978	4,628	2,807	2,333	316	191	8,362	7,307

15. A large decrease—26 per cent—occurred in the *Nellore* district; and is attributed to the better and more vigilant protection of unsold kanchas by the forest subordinates and the better protection of sold kanchas by the kanchadars owing to fines levied each time any irregularity was observed in them and to the imposition of heavier compounding fees in grazing cases.

The decrease is not appreciable in *North* and *South Cuddapah* and *North Vellore*.

The decrease in *West Cuddapah* and *Chittoor* was due to the handing over of several reserves to panchayat management and to the opening to grazing of several closed reserves of Palmaner taluk consequent on the dry season; and that in *Chingleput* was due to several reserves having been leased to kancha panchayats.

Under cases taken to Court there is an increase of 220 chiefly under unauthorized felling and grazing.

There were 290 undetected cases against 410 of the previous year, which is a satisfactory decrease.

16. In all Rs. 392 was distributed as rewards to subordinates and others in connexion with the detection of forest offences.

17. Of the 2,057 cases taken to Court, 1,041 were convicted, and 1,016 acquitted.

Of the 1,016 cases acquitted, 909 were acquitted on payment of compounding fees, 29 cases were withdrawn by the District Forest Officer and only 78 on their demerits which gives a percentage of genuine acquittal of seven which is not unsatisfactory.

18. The total number of cases compounded was 5,447 and the aggregate amount of fees was Rs. 57,697 with an average of about Rs. 10-9-0 per case against 5,974 and Rs. 70,201 in the previous year with an average of about Rs. 12 per case.

(b) *Protection from fire.*

19. There was an increase in the area under special protection of 269 square miles, due to a larger area having been taken up for early burning in the *North* and *West Cuddapah* divisions.

20. The total area burnt was 40,419 acres against 458,371 in the previous year.

The aggregate area burnt in the specially protected areas was 25,626 or 2.5 per cent of the area attempted against 285,442 and 32.7 per cent in the previous year.

The decrease was due to the large area burnt in 1922 and the consequent decrease in combustible material.

21. The cost per square mile of successful protection was Rs. 5-9-0 against Rs. 21-12-0 per square mile in the previous year. The cost incurred was less notwithstanding the fact that a greater area was taken up for early burning. Early burning operations in districts such as these are considerably cheaper and more effective, if properly carried out, than the old system of protection from fire by means of fire lines.

22. In the *Cuddapah* and *North Vellore* divisions early burning operations were commenced in January and completed in February; but in *Chittoor* the operations were commenced in February and March. This is not 'early' but 'late' burning. It is hoped that this will not recur.

The attitude of the people towards early burning was on the whole that of indifference. They got their grass as usual by free

removal in sufficient quantity and had also fresh green grass in the forest for their cattle as a result of these early burning operations.

In *North Cuddapah* on two different occasions the ryots asked that early burning operations might be delayed for a month or so; but when it was explained to them why this could not be done they understood and did not press the matter any further.

In *South Cuddapah* early burning is said to be popular and not a single petition from the ryots complaining against it was received.

In *West Cuddapah* only two complaints were received about scarcity of fodder on account of early burning which were found to be more imaginary than real. The first relates to a petition received by the Collector for opening the closed Pentas in reserves for grazing about the middle of March 1924. When the concession was granted they refused to avail themselves of the concession as the grazing year for which the new permits would be valid was drawing to a close. In the second case the petitioners were found to be selling the grass obtained by the concession of free removal to cartmen. No complaints were received from *Chittoor* and *North Vellore*.

(c) *Protection against cattle.*

23. The following table compares the area closed and opened to grazing during the two years, that under report and the previous year :—

Closed to all animals.					1922-23. Square miles.	1923-24. Square miles.
Whole year ...	...	...	...	...	711	647
Part of year ...	...	...	...	...	806	634
Open to all animals except goats.						
Whole year ...	..	...	..	..	2,483	2,712

The reduction in the area closed during the whole year was due to the opening of the old coupes after the prescribed period of closure, and, in some cases, before the expiry of the period for closure with Conservator's sanction.

The increase in the area opened to grazing for the whole year was also due to several reserves in *Chittoor* partly closed being thrown open for the whole year in accordance with the orders of Government on the Forest Committee's recommendations.

24. Out of 427 kanchas in *Nellore*, 384 were sold at different rates of which nineteen were on long lease for three years and 43 kanchas remained unsold for want of demand due to poor rainfall.

The number of cattle for which grazing permits were purchased decreased from 324,267 to 302,757 cow units. This decrease was contributed by *West Cuddapah*, *Nellore*, *Chittoor* and *North Vellore*, due to the dry season and want of pasture in reserves.

The amalgamation during the year of reserves into convenient grazing blocks to afford facilities to villagers who reside at the junction of reserves in the *North Vellore* division also partly contributed to the decrease.

25. There was a decrease from 44,397 to 37,493 in the number of cattle impounded. The decrease was contributed by all the divisions except *North Cuddapah*, in which district the increase was due to the detection of a large number of cases of illicit penning of foreign cattle. The decrease was not very appreciable in *South Cuddapah*, *Chingleput* and *Chittoor*. The decrease in other divisions was due to the increase in the area opened to grazing and to less number of grazing cases reported during the year.

26. The altered system of collecting grazing fees in the *Sriharikota* Range of the *Nellore* division referred to in the previous year's administration report was continued.

(d) *Protection against injuries from natural causes.*

27. *Chittoor*.—A sum of Rs. 988-15-0 was spent in eradicating *Lantana* in the *Horsleykonda* reserve; uprootal, as an experimental measure, was done at a cost of Rs. 11-14-0 in a four-acre plot with a view to frame a programme for clearing *Lantana* in the reserve.

28. All noxious growth round *Mamandur* village is being removed and all prickly-pear killed with poison and buried in pits. The use of atlas preservative for exterminating prickly-pear here is being experimented with to see if this method is cheaper or more costly than others.

29. *Euphorbia* and thorny climbers have been cut in the coupes.

CHAPTER III.—SYLVICULTURE.

SECTION 1.—FORMATION AND REGENERATION OF FORESTS.

(i) *General progress of areas under regeneration.*

30. Generally speaking the year was poor for reproduction by seed and survival of seedlings.

In *West Cuddapah* the regeneration of palmyra trees from seed in the *Idupulapaya* plantation was very good. Many seedlings are found all over the area which have survived the hot weather.

In *Chingleput* the natural reproduction of *Acacia arabica* in *Pulrambakkam* reserve was satisfactory.

In the Palar riverside plantations where selection fellings are being carried out, regeneration of blanks is being effected both by planting and by sowing. The latter operation has not been successful. About 50 per cent of the planted seedlings survived. This operation is, however, very costly and has been abandoned.

Reproduction by copice is satisfactory.

(ii) *Establishment of reproduction under Working Plans or Schemes.*

(a) Mainly natural.

31. Reproduction by seed of important species is on the whole poor; but in *Chittoor* reproduction of sandal and *Pterocarpus santalinus* and *Pterocarpus marsupium* is good and the sandal is spreading fast. In *North Vellore* the working plan contemplates regeneration by natural means, but the type of forest and the heavy grazing incidence make natural regeneration difficult if not impossible.

(b) Mainly artificial.

32. In *West Cuddapah* artificial reproduction is confined to the afforestation of blank areas and abandoned pentas lying within the working circle.

In *North Vellore* artificial regeneration is prescribed for areas exploited for fuel and this is being carried out on a small scale wherever conditions permit it.

(c) Afforestation.

33. Nil.

(iii) *Plantations and other forms of regeneration not under Working Plans and Schemes.*

34. Form 75-B furnishes necessary particulars under this head.

South Cuddapah.—The only regular plantation is *Kodur* red sanders plantation. Seedlings of different species were raised in a nursery formed close to the *Gunjana* river. Young red sanders seedlings, about a year old, were transplanted during September 1923 in two blocks under the old trees and they are coming up well.

West Cuddapah.—About two Madras measures of sandal seeds were sown last year over an area of about half an acre in the *Ganganapalle* reserve in a locality known as *Neerkona* where there is a perennial spring. About 80 per cent of the seeds germinated, but most of these died during the summer with the exception

of 26 seedlings which are reported to be doing well. Of the already established sandalwood plantations, one is in *Pullalamadugu* of *Cuddapah* Range in two small adjacent plots containing 333 plants and another near *Ambabhavi* in the *Mudumpad* slopes of *Sanipaya* Range containing about 12 seedlings.

Nellore.—There is a plantation of 161.65 acres in the *Kollurpad* reserves about a furlong from the *Ulavapad* railway station. The species in the plantation are *Albizzia Lebbek*, *Cassia siamea*, *Nim*, *Pterocarpus santalinus*, *Hardwickia binata*, *Chloroxylon Swietenia*, etc.

Chittoor.—Cultural operations were undertaken in several areas, but in all cases in which they were unsuccessful, they have been excluded from statement 75-B.

North Vellore.—In the *Pichanoor* tope, 162 teak, 162 red sanders and 30 *Hardwickia binata* were transplanted from nursery beds and watered by the tope watcher. In the *Ambur* tope Re. 1-2-0 was spent on baskets for transplanting seedlings of *Hardwickia*, teak and red sanders from the nursery beds to plot II.

In *Palamady* reserve the plantation of exotics was protected but was not extended during the year.

(iv) *Tending.*

35. Cutting of creepers and climbers affecting standards and sandalwood was carried out generally, and felled coupes were fenced.

In *South Cuddapah* tending was carried on in the improvement felling coupes at a cost of Rs. 324-6-0 and clearing of noxious growth was done in all felled coupes of 1922-23.

In *Nellore*, only light thinnings are carried out periodically in the *Kollurpad* plantation.

In *North Vellore* dead and dying trees and those interfering with valuable species were removed. Four hundred red sanders and several *Hardwickia* trees not under experimental observation were pruned by the protective staff free of cost. Prickly-pear was removed from planted areas in the *Palar* riverside plantations.

(v) *General.*

36. *South Cuddapah.*—Sowing of sandal seeds in selected areas in all the ranges proved a failure for want of rain; but plants of the previous years are doing well. The teak plants at *Kangamadugu* are also doing well; the best of which measures 4'8"

in girth at chest height. Some red sanders plants at Kodivengammabhavi were transplanted in the compound of Kodivengammabhavi subordinates' quarters during the rains in November 1923 and they are growing well.

Chittoor.—The Lantana cleared area in Horselykonda reserve was dibbled with tree seeds. Though 70 per cent of the seeds germinated several of them died of drought. Nurseries were also opened at Horselykonda and seedlings of *Eucalyptus*, *Pterocarpus santalinus*, *Odoratisima*, *Dalbergia latifolia*, *Terminalia tomentosa* were raised for the current year's operations.

SECTION 2.—TENDING OF THE GROWING STOCK.

37. *West Cuddapah*.—In the improvement coupes felled during 1922-23 (five coupes covering an area of 556 acres), tending operations were undertaken during the year under report at a cost of Rs. 290-8-0 to help the growth of red sanders, yelama and billu trees. Climbers and thorny species, which interfered with the growth of the above three principal species, were cut and smeared with Atlas preservative to prevent regrowth.

Chittoor.—Improvement fellings for the benefit of red sanders and other timber yielding species were carried out in three coupes, the area worked being 274 acres. In addition to this, two arrear plots of 26 and 6½ acres respectively in the timber felling series were worked. In two coupes of the Improvement Working Circle coppice shoots of timber species, coming up from stems cut back previously, were thinned, retaining one or two shoots. Sandal was thinned in two topes.

CHAPTER IV—EXPLOITATION.

(a) SYSTEM OF MANAGEMENT.

(i) Major Forest Produce.

38. The areas under working are classified as follows:—

			Square miles.	Percent- age.
Simple coppice	...	...	247	25
Coppice with standards	...	...	136	14
Improvement fellings	...	...	103	11
No definite system	...	...	488	50
			—	—
Total	...	...	974	100
			—	—

There is a net increase of 76 square miles over the total reported last year and there are also differences in the detailed figures.

The increase is due to the addition of 85 square miles in the *Chittoor* division due to the working plan for Chendragiri Range under simple coppice system having been sanctioned during the year. This was partly counterbalanced by disreservation of seven square miles and to the reduction in the extent of the annual coupes. The changes in detail are due partly to the above and partly to the change in working.

(ii) Minor Forest Produce.

1. Bamboos.

39. There is no change in the method of working.

2. Miscellaneous.

40. Departmental collection of Nux-vomica was undertaken in *North* and *West Cuddapah*, in two ranges of *South Cuddapah* and in three ranges of *Nellore*, as there were no bids or because the bids offered were unsatisfactory. In *North Vellore*, the right to collect Nux-vomica was sold in auction. In *Chingleput* the produce was not sold, nor was it collected departmentally. In *Chittoor*, owing to the fall in the price of Nux-vomica, a rebate of 15 per cent of the lease amount was given to the contractor.

The price of Nux-vomica was low and the quantity collected was not sold in some of the divisions.

In the Sriharikota reserve of the *Nellore* district, the Minor Forest Produce was collected departmentally by the Yenadis. The produce on patta lands outside the reserve was also collected departmentally as usual to prevent smuggling.

The right to collect Tangedu and Rela barks in *North Cuddapah* was leased for three years. Rela (*Cassia fistula*) bark in *Chittoor* was not leased as the shoots are immature.

Elsewhere all items of minor forest produce were leased for collection.

In the *Cuddapah* division (where the seigniorage for leaf manure has been reduced from Rs. 2 to Re. 1) 1,165 cartloads were removed against 4,608 in the previous year, which was mainly due to the unfavourable season on account of failure of rain and severe drought. As remarked in the previous Administration Report the demand fluctuates with the season, as good rains mean more wet cultivation and a bigger demand for manure leaves.

41. Free removal of grass was generally allowed in all the districts.

(b) AGENCY OF EXPLOITATION.

(i) Departmental Agency.

(1) Major Produce.

42. The *South Cuddapah* division was the only one in which any regular exploitation of major produce took place. As there was no offer for the purchase of standing growth in three improvement felling coupes, they were worked departmentally. Rs. 2,447 was spent on the whole work and the realization amounted to Rs. 2,894 giving a net profit of Rs. 447 with a small stock on hand valued at Rs. 1,723.

Selected red sander trees were felled for despatch to the British Empire Exhibition, but it was subsequently realized that such posts could not be supplied on a commercial scale and they were not sent. The dead and dying red sanders trees in the Kodur red sanders plantation were extracted departmentally.

43. Other items collected departmentally were obtained from the clearing of boundaries or specially felled for departmental works.

(2) Minor Forest Produce.

44. Except in the Sriharikota reserve of the *Nellore* division where all minor forest produce was collected departmentally and the collection of Nux-vomica in four divisions as noted above, and about three tons of Dividivi pods in *North Vellore* division, the only other items collected departmentally on a small scale were bamboos and thatch grass for the construction and repairs of some departmental buildings.

(ii) By Purchasers.

45. The bulk of the exploitation of major and minor forest produce was effected by lessees and permit holders. Four hundred and eighty-six tons of hay were collected by the Military Grass Farm Department from the *North Vellore* and *Chittoor* divisions.

(iii) Free Grantees.

46. Free grants were almost entirely for the construction of dwellings destroyed by fire. The exceptions were for the construction of huts in the Kavalu (*Nellore* district) criminal settlement and for the construction of police talaiyari tannah huts in *South Cuddapah*.

The following statement shows the quantity and values of free grants :—

Timber.		Bamboos.		Grass and grazing value.	Other minor forest produce value.	Total.
In thousands of cubic feet.	Value.	In number.	Value.			
55.2	Rs. 7,912	Rs. 32,558	Rs. 338	Rs. 7	Rs. 545	Rs. 8,802

(iv) Rights and privileges.

47. Two villages in the *North Cuddapah* division have the right of free grazing over an area of 820 acres in the Lankamalai reserve. Two other villages were allowed to graze 220 cows and 4,388 sheep at a concession rate of As. 1-6 each respectively in the Chennupalle reserve. (Reference Board's Proceedings Forest No. 744, Miscellaneous, dated 1st December 1914).

Free grazing of 584 cows and bulls was allowed in the Settigunta reserve of *South Cuddapah* division.

In the *West Cuddapah* division 140 bulls were allowed to graze at the concession rate of As. 1-6 per bull as they are bull-men cattle engaged by the contractors of the department in exploiting the produce in Palakondas of the Vontimitta Range. This has been continued since 1895.

In *Nellore*, the collection of produce from 70 Rokkadayam trees (tree pattas) in the Sriharikota reserve was made by the descendants of the grantees as usual. The Madiga and Mutharaga settlement people at the Udayagiri Durgam Hill reserve were allowed the usual concession of collection of minor forest produce free in the reserves.

(c) OUTTURN AND SOURCE OF FOREST PRODUCE.

48. The sub-joined table compares the results of the past year with those of the previous year :—

Agency of exploitation.	Timber in thousands of cubic feet.		Fuel in thousands of cubic feet.		Bamboos value.		Minor forest produce and grazing value.	
	1922-23.	1923-24.	1922-23.	1923-24.	1922-23.	1923-24.	1922-23.	1923-24.
1. By Government Agency.	24	14	1.6	95	Rs. 224	Rs. 288	Rs. 18,955	Rs. 8,871
2. By purchasers ..	697	710	7,312	7,162	34,056	30,759	3,98,560	3,95,463
3. By free grantees ..	60	55	..	..	370	338	647	552
4. By right holders and privileges.	..	..	..	..	..	..	123	144
Total ..	781	779	7,478	7,257	34,650	31,385	4,13,285	4,05,030

49. The decrease under the departmental removal of timber and fuel was due to the less number of coupes worked departmentally in the *South Cuddapah* division owing to want of demand and to small quantity of fuel obtained in clearing coupe lines in *Chittoor*.

The considerable fall in the revenue from minor forest produce collected departmentally was due to the fall in value of *Nux vomica* and to the consequent non-sale of the produce collected.

The other differences fall within the normal limits of fluctuation.

CHAPTER V.—FINANCIAL RESULTS.

50. The sub-joined statement compares the results of the year with those of 1922-23 and the previous years:—

	1923-24.	1922-23.	Average for five years ending with 1922-1923.
	RS.	RS.	RS.
Revenue	7,02,546	6,92,109	7,18,222
Deduct refunds	4,517	3,114	10,042
Net revenue ..	6,98,029	6,88,995	7,08,180
EXPENDITURE.			
B. Conservancy and Works	1,20,066	1,44,256	1,82,066
C. Establishment and Contingencies	5,31,361	5,41,972	4,48,266
Total ..	6,51,427	6,86,228	6,30,332
Net result ..	+16,602	+2,767	+77,848

51. There is considerable improvement in the surplus as compared with the previous year. Only *Nellore*, *Chittoor* and *North Vellore* showed a surplus, the deficits in other divisions varying from Rs. 587 to Rs. 32,376.

The increase in revenue was chiefly due to the sale of five casuarina coupes during the year against one coupe during the previous year in *Nellore* and to the larger revenue realized from unreserves in *North Cuddapah*, *Chingleput* and *North Vellore* and to the high rates fetched for fuel coupes in *Chingleput*. It was partly counter-balanced by decrease under I (c), II (d) and V (a).

The decrease under I (c) was due to the fall in prices for *Nux vomica* in consequence of which the stock at *Sriharikota* was not sold during the year.

The decrease under II (d) was due to the adoption of a uniform rate of four annas per acre in leasing kanchas in accordance with the kancha rules in *Nellore*, to the stoppage of issue of grazing permits on account of the abolition of *Kondapuram Range* in *West Cuddapah*, to the transfer of more reserves to panchayats in *Chittoor* and *North Vellore* and also to the bad season.

The decrease under V (a) was due to the decrease in the number of cases compounded and to the adoption of low standard of compounding fees.

52. The decrease in expenditure under B and C was due to rigid economy on works, establishment and contingencies and to the restriction on touring and the introduction of the revised travelling allowance rules.

CHAPTER VI.—RESEARCH AND EXPERIMENTS.

53. The experiments detailed in the reports of 1921-22 have not been completed and no useful conclusions can be drawn yet. The "experiment register" for recording approved experiments in the Conservator's office is maintained and has been posted up to date.

54. *Chittoor*.—The sandal experimental area at *Horsleykonda* was maintained and the bund was kept clean of all growth except sandalwood; as many as 12 poles and almost all the seedlings died during the hot weather. At present about 57 of the former and two of the latter are alive.

55. Observations with a view to find out the development of independent roots by coppice begun by the Vernacular Training School in 1922 in the *North Cuddapah* division was continued. Observations tend to show that the development of independent roots is very slow and generally does not take place until the parent roots begin to decay.

CHAPTER VII.—ADMINISTRATION.

56. The proposal to transfer *Sriharikota Range* to the *Chingleput* district mentioned in the last year's report is being kept in abeyance pending the decision of Government on the Chief Conservator's proposals in regard to Minor Forests.

All the reserves of the *Kondapuram Range* in the *West Cuddapah* division were handed over to panchayats and the range was abolished from 1st February 1924.

57. The health of the establishment was not satisfactory in *South Cuddapah* and in parts of *Nellore*, *Chittoor* and *North Vellore*. Precautions were taken in regard to sanitation at *Mamandur*. In

West Cuddapah one Forester died while on long leave. In *Chittoor* district one Forest Guard died of smallpox and one Forester died of malaria contracted during his service at Mamandur.

58. *Tours of inspecting officers.*—The Conservator spent 221 days on tour and visited all the divisions. Inspection notes were submitted to the Chief Conservator wherever there was matter of sufficient importance for record. All the District Forest Offices except *Chittoor*, *West Cuddapah* and *South Cuddapah* divisions were inspected. These were inspected after the close of the year.

59. *District Forest Officers.*—All officers except *Chingleput* spent the prescribed minimum or more on tour.

The short touring in the *Chingleput* division was due to change and illness of officers.

All Range offices except three were inspected during the year and these three were inspected just after the close of the year.

60. *Audits.*—All the District Forest offices were inspected by the Audit Officers with satisfactory results.

61. *Madras Forest College.*—The two students one in the senior and one in the junior divisions were well reported on. The senior student obtained an Honours certificate at the final examination in June 1924 and has returned from the College.

62. *Vernacular Training School.*—The 1923 session was wound up in August and has been separately reported on.

The current year's session began in February 1924 under the direction of Honours Ranger M.R.Ry. S. Ramachandra Ayyar, with 30 students of which six are from the Second Circle.

A separate report will be submitted in due course after the winding up of the session in August 1924.

Five students from *North Vellore* division were deputed to the Vernacular Training School in the Fourth Circle where the instruction is in Tamil.

63. *Conduct of establishment.*—A Ranger who was prosecuted and removed from service for extortion was restored to his appointment on appeal. One Ranger was temporarily reduced to a lower grade for disobedience to orders and another was reduced from I to IV grade for serious neglect of duty.

The conduct of the protective staff continued to be unsatisfactory.

One Forester and one Forest Guard in the *North Cuddapah* division were brutally murdered while in the discharge of their duties. The Government were pleased to grant a life pension of Rs. 15 per month to the widow of the deceased Forester and a gratuity of Rs. 100 to the father of the deceased Guard.

CHAPTER VIII.—GENERAL.

(i) *Formation and Management of Panchayats.*

64. The panchayats are now being managed by a special staff. A list of reserves for which panchayats could be formed was submitted to the Chief Conservator of Forests and approved by him. No new panchayats were formed in *Nellore* and *Chingleput*. Two reserves in *North Cuddapah* and all the reserves of *Kondapuram* Range and two reserves of *Ganganapalle* Range in *West Cuddapah* were handed over to panchayats during the year. Formation of panchayats for three reserves in *South Cuddapah* was sanctioned but the reserves were not handed over to panchayat management.

Thirty-two panchayats in *Chittoor*, five panchayats in *North Vellore* and two panchayats for certain unreserves in *West Cuddapah* were newly formed during the year.

The Special Panchayat Officer has been reviewing the work of the panchayats once every quarter.

(ii) *Conferences and meetings.*

65. In *Chittoor*, a local forest committee was formed during the year under orders of Government to enquire into the grievances of the ryots relating to the proximity of reserves to cultivated fields. The committee submitted its report to Government, and Government orders have been issued.

(iii) *Measures for the improvement of local supplies and facilities.*

66. Repairs were effected to some wells and watering places in all districts except *West Cuddapah* where natural perennial springs exist in the forests.

Owing to drought permission was granted in *West Cuddapah* to cattle licensed in one block to go to the adjoining block or closed areas for water. Where water facilities have been wanting, permission has been granted to all applicants for repairing water sources in reserves at their own cost.

67. In *North Vellore*, in cases of necessity, closed areas were thrown open to grazing. The requirements of the population living close to forests in regard to small timber and fuel are generally met from coupes located nearby and contractors are required to supply their wants at cost price.

68. In *North Cuddapah* one timber improvement coupe and four fuel coupes were leased out to Co-operative Societies of depressed classes at concession rates; the work turned out was satisfactory.

In *Nellore* one new fuel coupe was opened to meet local demand.

In *Chittoor* one coupe was worked departmentally to meet the demands of the ryots for fuel.

In *North Vellore* one fuel coupe was leased to Adi-Dravida Wood Cutters' Society; but the working of the coupe was not satisfactory. Another coupe was leased to a missionary on behalf of the Mission Industrial School, Ambur. This coupe was worked well. All possible facilities are afforded to such societies.

(iv) *Timber Transit Rules.*

69. The special set of rules framed for the transit of sandal-wood for the *Chittoor* and *North Arcot* divisions have not yet been sanctioned. The Chief Conservator called for a further report to be made in September 1924. As regards the Timber Transit Rules existing in *Chittoor* division, the District Forest Officer has remarked that the exclusion of zamindaris from the scheduled area is being taken advantage of by smugglers to illicitly remove and transport sandal-wood through them.

There is no complaint regarding the working of the rules in other divisions.

(v) *Jungle Tribes.*

70. As reported in the previous year, the Yenadis in Sriharkota in the *Nellore* district are employed in the collection of minor produce; they are further encouraged by the grant of inams in the shape of rice and cloth every half year. To keep them from the clutches of the money-lender and to make them lead a more homely and less wandering life they were persuaded to lay by a portion of the rewards and to deposit them in the Postal Savings Bank. Savings Bank accounts were opened on their behalf.

In *North Vellore*, the Javadi Malayalis live in the Ambur, Arsambat, Thellai and Athiyur reserves. They are mostly employed by contractors in exploiting bamboos, minor forest produce, etc.; they are given special concession in the matter of grazing their cattle at a reduced rate of three annas per cow unit against eight annas paid by plainmen in return for assistance in protection of reserves. The protection of reserves on the whole was not quite satisfactory and only a portion of the grazing fees was refunded to the headmen as a punishment for neglect of duty. The headmen have been warned to abide by the conditions of their agreements in regard to the protection of reserves.

(vi) *Mining and Quarrying.*

71. There is nothing of importance to report under this head.

In *Nellore*, mica mining continued in some of the reserves of Rapur and *Nellore* Ranges; but its control is in the hands of the Revenue Department.

(vii) *Live Stock.*

72. The live stock consists of two buffaloes at Horsleykonda, one bullock at Palmaner in *Chittoor* district and one buffalo at Kambakkam in *Chingleput* district. They are kept to meet the difficulties in watering owing to the distance of the water sources from the bungalows. They are looked after by the local staff without extra cost.

(viii) *Veterinary Establishment.*

73. Nil.

(ix) *Suits.*

74. In the Pamaleru suit in the *South Cuddapah* division referred to in the previous year's Administration Report, the arrears due by the insolvent defendant were eventually written off by Government as there was no prospect of recovery by the resale of his property.

A suit has been filed in the District Munsif's Court, *Vellore*, against the tangedu bark contractor Vati Ibrahim Sahib for recovery of the balance of Rs. 2,050 due by him on account of his contract in the *South Cuddapah* division. It has not been heard yet.

The result of the appeal preferred by the Zamindar of Bangarupaliem in the *Chittoor* district is not yet known.

(x) *Collectors' Remarks.*

75. The following forwarding endorsements were made by Collectors when transmitting the district reports:—

Collector of Cuddapah.

Forwarded.

I have no remarks to offer.

Collector of Chittoor.

Forwarded.

2. The period for which the closed reserves of Palmaner taluk were thrown open for free grazing on account of the unfavourable season will expire by the end of this month and the concession should not materially affect the issue of grazing permits for the current fasli.

3. The decrease in the number of fires and in the extent burnt is satisfactory and, I think, rightly attributed by the District Forest Officer to the vigilance on the part of the subordinate staff as well as to their more cordial relations with the public.

4. The loss due to the late burning operations in Palmaner Range in spite of clear instructions is regrettable. It is hoped that persons responsible have been suitably dealt with.

5. The increase in the number of reserves under panchayat management is satisfactory. It seems, however, probable as pointed out by the District Forest Officer that the reduction in the rate of grazing fee may retard to some extent the progress in the formation of new panchayats in the future.

Collector of Nellore.

I do not know what I can usefully add. *Nellore* forests seem useful neither as timber or fuel producers, as grazier areas, nor (except perhaps the *Veligondas*) as water source protectors. However, such as they are, they have been administered as efficiently as possible by Mr. Chengappa.

Collector of Chingleput.

Forwarded.

Forest administration appears to have been carried on smoothly and efficiently. I hope to come very soon to a final arrangement as to the disforestation or transfer to panchayats of reserves not to be retained under the control of the Forest Department.

Collector of North Arcot.

Nil.

T. A. WHITEHEAD,
Acting Conservator of Forests,
Third Circle.

1st September 1924.

APPENDIX.

SUMMARY OF PROGRESS DURING THE FIVE YEARS 1919-20 to 1923-24.

ADMINISTRATION AND CONTROL.

1. The most important change during the period under review was the creation of two new Conservatorships for the Presidency. This necessitated alterations in the circle charges. In consequence, the old Central Circle was formed partly into the Second and partly into the Third Circles about the close of the year 1920-21. The latter comprises the three *Cuddapah*, the *Nellore*, *Chittoor*, *North Vellore* (transferred from the former Southern Circle) and *Chingleput* divisions. It was decided to remove the headquarters of the circle from the Presidency town for several reasons. Temporarily the headquarters of the Conservator was located at *Chittoor* though the office remained in Madras for lack of accommodation; the headquarters of the Conservator was subsequently transferred to Madras in 1923.

2. The following officers were in charge of the circle during the quinquennium ending with the year 1923-24:—

Year.	Name of officer.	Period during which he was in charge.
1919-20 ...	Mr. A. B. Jackson ...	1st July 1919 to 30th June 1920.
1920-21 ...	{ Mr. A. B. Jackson ... Mr. C. E. C. Fischer ...	1st July 1920 to 3rd February 1921. 4th February 1921 to 31st March 1921.
1921-22 ...	Do. ...	1st April 1921 to 31st March 1922.
1922-23 ...	Do. ...	1st April 1922 to 31st March 1923.
1923-24 ...	{ Do. ... Mr. T. A. Whitehead ...	1st April 1923 to 10th October 1923. 11th October 1923 to 31st March 1924.

COMMITTEE.

3. During 1922-23 a committee was formed with a view to effect retrenchment in the Forest Department. It passed certain resolutions recommending transfer of charge of all minor forests to Collectors, pending extension of panchayat system, and the employment of the trained staff on the development of the resources of the very valuable property which the State possesses in its timber forests (major forests).

PANCHAYATS.

4. The system of panchayat management underwent a radical change during the quinquennial period. The old system was to hand over the class V forests which are mostly fitted for grazing

to panchayats whose work was supervised by the local Land Revenue staff. This system having been found unsatisfactory, a change was effected in the year 1922 by appointing a special staff to form panchayats and to control their work. With the appointment of the special staff, even areas under classes II, III and IV were transferred to Panchayat Management and the Panchayatdars were given control not only over grazing but also over the exploitation of the tree growth and Minor Forest Produce in the Panchayat areas. The supervision of the District Forest Officer and his staff over the working of the Panchayat was completely removed and the special Panchayat staff was entrusted with the duty of limiting the grazing incidence to the possibility and with the supervision of cultural operations in Panchayat reserves.

5. At the beginning of the quinquennium fifty-four reserves were under the control of the Panchayats. At its close, eighty-six reserves were managed by Panchayats.

CHANGES IN THE CONTROLLING AND EXECUTIVE CHARGES.

6. All the reserves of the Kondapuram Range in the *West Cuddapah* division were handed over to panchayats and the range was abolished from 1st February 1924.

7. *Organization*.—The Subordinate Forest Service was re-organized in the year 1919-20 with effect from 1st October 1919. The temporary posts of Foresters and Forest Guards were transferred to the permanent scale. The class of 'Deputy Ranger' was abolished. A time scale of pay for the clerical staff was fixed and the pay of Rangers and Foresters was revised from 1st March 1921.

8. *Change in area*.—

		At commencement of the period.	At close of the period.
		SQ. MLS	SQ. MLS.
Reserved forests	...	4,019	3,993
Reserved lands	...	17	12

9. *Reserved forests*.—Seven square miles were transferred from reserved lands but 33 square miles were disafforested. This resulted in a net reduction of 26 square miles of reserved forests.

10. *Reserved lands*.—Two square miles were added of which one was due to rectification, but seven square miles were transferred to reserved forest, thus resulting in a net deduction of five square miles of reserved lands.

11. *Forest Settlement*.—The settlement in the case of small extensions and additions to the existing reserved forests stated to be pending at the close of the previous quinquennium was completed during the period under review. No settlement is pending in any of the districts of this Circle.

12. *Demarcation*.—The total length of boundaries artificially demarcated at the close of 1918-19 was 7,635 miles as compared with 7,556 miles at the close of the quinquennium. The decrease was due to disforestation of reserves.

13. *Forest Surveys*.—117.15 square miles on the 2-inches scale and 308.17 square miles on the 1-inch scale were surveyed by the Survey of India Party during the years under review.

14. In 1919-20, the boundary between the Musureddipalli Shrotriyam and Sancherla reserved forest in Porumamilla Range of *North Cuddapah* as settled in the civil suit was surveyed by a Surveyor deputed by the Deputy Surveyor of the Madras Survey. Departmental surveys call for no remarks.

15. *Working plans*.—At the end of the year 1918-19 there were working plans for 829 square miles; during the quinquennium working plans were compiled for 185 square miles. The area of Palar plantations (two square miles) for which working plans had already been sanctioned was also added. Temporary working schemes for 37 square miles were sanctioned; but working plans for 54 square miles were cancelled on account of the impossibility of carrying out the provisions, disafforestation of areas and revisions. There were 999 square miles covered by working plans at the close of the quinquennium.

16. Many of the existing working plans cannot be worked strictly in accordance with the prescriptions owing to lack of demand. Most of the working plans require revision; but until a special working plans branch is sanctioned no satisfactory progress in the preparation of new working plans or revision of old ones is possible.

17. *Communications and buildings*.—The average annual expenditure on communications and buildings and other works amounted to Rs. 55,240 during the period against Rs. 41,436 during the previous five years as noted below :—

—	Roads.	Buildings.		Total
	RS.	RS.	RS.	RS.
1914-15 to 1918-19 average ..	15,811	24,399	1,226	41,436
1919-20 to 1923-24 ..	17,670	31,881	2,789	55,240

18. The increase was due partly to some of the important works which were kept in abeyance due to financial stringency on account of war having been subsequently undertaken and partly to the increase in the price of materials and labour during the period under review.

19. *Forest offences.*—The average annual number of forest offences during the quinquennium under review was 6,866 against 6,714 during the previous five years as noted below :—

—	Illicit firing.	Illicit felling.	Illicit grazing.	Other offences.	Total.
	No.	No.	No.	No.	No.
1914-15 to 1918-19 ..	185	3,893	2,426	211	6,715
1919-20 to 1923-24 ..	216	4,023	2,368	259	6,866
Difference ..	+ 31	+ 130	- 58	+ 48	+ 151

The increase is not very appreciable.

20. *Fire protection.*—During the period under review the average annual area under systematic protection amounted to 1,576 square miles, the average failure being 13 per cent, whereas the average area during the five years ending with 1918-19 was 1,527 square miles with an average failure of 13.7 per cent. The increase in the area as compared with the previous five years was due to a larger area having been brought under early burning operations in *Cuddapah*.

21. *Protection from cattle.*—Reserved forests were entirely closed to goats. The average area annually open to all animals other than goats decreased by 84 square miles, the average area open to grazing being 3,257 square miles. During the same period the average forest area amounted to 4,006 square miles or 36 square miles less than during the previous quinquennium.

22. The average number of all animals in cow units admitted to graze decreased from 434,075 in the previous quinquennium to 303,088 in the period under review. The decrease was due to poorer rainfall and consequent scarcity of grass.

23. In *West Cuddapah* no attempt was made to limit the incidence to the possibility of the forests nor were any restrictions placed on the penta system of grazing. One special feature in the matter of grazing in this division is the acquisition of all enclosures and pentas from the possession of private individuals to Government. Two thousand eight hundred and sixty-four acres of enclosures were acquired to increase the area of pentas for grazing cattle at a cost of Rs. 9,541.

24. In *Chingleput* the kancha system of grazing which was introduced in 1917-18 has gained popularity and the villagers formed themselves into panchayats and undertook the management of kanchas or grazing blocks on long leases subject to favourable conditions and limited restrictions and their management was generally satisfactory.

25. In *North Vellore* the forest village system was introduced for the Malayalee cattle in the Thellai reserved forest.

26. *Yield and Outturn.*—The following statement shows the average annual outturn of major and minor produce for the two periods :—

—	Timber and Fuel in thousands of cubic feet.	Bamboos. Value.	Minor For Produce. Value.
1914-15 to 1918-19	6,137	Rs. 36,296	Rs. 4,28,569
1919-20 to 1923-24	7,998	26,167	4,81,738

27. The average annual outturn of timber and fuel and the average value of minor produce increased by 23.2 and 10.8 per cent respectively while the outturn of bamboos decreased by 27.9 per cent.

28. The increase under timber and fuel was due to a larger area being worked and that under minor produce to very high prices offered for Tangedu bark and Nux-vomica. The decrease under bamboos was due to the poor growth in the bamboo compartments and to the non-sale of certain bamboo compartments.

29. *Financial results.*—The average annual financial results for the last two periods were as follows :—

—	Revenue.	Expenditure.	Surplus.
Quinquennium ending 1918-19 ..	Rs. 6,81,282	Rs. 4,16,619	Rs. + 2,64,663
Do. ending 1923-24 ..	7,03,865	6,46,931	+ 56,934

30. The increase in revenue was due chiefly to very high prices obtained for Tangedu bark leases in all districts during 1919-20.

31. The increase in expenditure was chiefly under salaries and allowances due to the improvement in the pay and allowances of controlling officers and to the reorganization of executive and protective staff.

32. *Forest education*.—During the period under review one probationary Ranger and 11 foresters were deputed to the Madras Forest College; one of the foresters was sent back from the College for incapacity to follow the course; of the remaining 11 that successfully underwent training, 4 obtained Honours certificate and 7 higher standard certificates.

33. *Vernacular Training School*.—The school has been permanently located in *North Cuddapah* as the division has all facilities for training the students. One hundred and forty-six candidates on the whole were trained in the school during the period under review.

1st September 1924.

T. A. WHITEHEAD,
Acting Conservator of Forests,
Third Circle

ANNUAL ADMINISTRATION REPORT OF THE FOREST DEPARTMENT

FOR THE
YEAR ENDING 31st MARCH 1924

FOURTH CIRCLE.

CHAPTER I.—CONSTITUTION OF STATE FORESTS.

1. ALTERATION IN AREA.

Reserved forests.—Two square miles were disforested and seven square miles were added during the year partly owing to correction of area calculations. The total area at the end of the year was 2,703 square miles against 2,698 square miles of the previous year.

Reserved lands.—The area decreased from 57 square miles to 51 square miles due to transfer of areas to reserved forests mostly in *South Salem* division.

2. FOREST SETTLEMENT.

2. Six blocks with an area of $5\frac{1}{2}$ square miles were finally settled during the year.

3. DEMARCATION.

3. Thirty-eight miles were finally demarcated during the year.

4. FOREST SURVEYS.

(a) *By the Survey of India*.

4. Nil.

(b) *By Madras Survey*.

5. The party completed the work in Vriddhachalam taluk (*East Salem* division). The resurvey of reserves in all taluks of the *Trichinopoly* district has been completed.

(c) *By Departmental Survey*.

6. The survey of fuel coupes was done departmentally as usual, but was practically left unchecked by the District Forest Officers until after the sales.

CHAPTER II.—MANAGEMENT OF STATE FORESTS.

1. REGULATION OF MANAGEMENT.

Preparation and control of regular working plans.

7. *Preparation.*—No regular working plan was sanctioned during the year. A revised scheme for working ten bamboo series, viz., Yerimalai, Mallapuram Ghat, Kurumbapatti, Pannikarudu, Kuttar, Bodakad, Kapputhu, Manjavadi, Kanjeri and Pelapalli and a revised scheme for six fuel series, viz., Kurumbapatti, Pannikarudu, Kanjeri, Pelapalli, Yerimalai and Lokur in Shevaroy's West range, *Central Salem* division, were sanctioned by the Chief Conservator. The Conservator has sanctioned a scheme for working fuel on the lower slopes of Ammapalayam and Sobanapuram series in Musiri range, Ladapuram, Thondamanthurai, and Arasalur series in Perambalur range and Erumaipatti, Bodinayakanpatti and Varagur series in Namakkal range for fuel, a scheme to work the bamboo in Atur-Pachamalai and one for tending sandal on the Pachamalais on a three-year cycle in *South Salem*. The District Forest Officers, *South* and *West Vellore*, have each prepared a working plan for the whole division for all operations, except sandalwood and it awaits the Chief Conservator's sanction. In *South Vellore*, a scheme for working the upper plateau in the Valasamalai reserve was based on sample plots aggregating $1\frac{1}{2}$ acres out of 2,640 acres and requires a good deal more field work before it can be seriously considered.

8. *Control.*—The prescriptions of the following working plans were adhered to except for small deviations:—

(1) Sandalwood working plans of the Javadis and Yelagiris in the *South* and *West Vellore* divisions.

(2) Sandalwood working plans for the Hosur taluk, *North Salem* division, except in areas affected with spike.

(3) Preliminary working plans for the sandalwood areas in the other three *Salem* divisions.

(4) Working plans for bamboo and minor forest produce in *South Vellore* and for bamboos in *West Vellore*.

(5) Working plan for the Kavaramalai working-circle, revised schemes for ten bamboo series and six fuel series sanctioned by the Chief Conservator and five fuel series sanctioned by the Conservator in *Central Salem*.

(6) Working plan for the fuel areas except Varagur fuel series in *South Salem*.

As stated last year, the prescriptions of the Hosur sandalwood working plan for the seven felling series in Denkanikota range were suspended with the sanction of the Chief Conservator, owing to the outbreak of spike as the whole staff was fully occupied by the

extraction of the diseased trees. The other working plans are either obsolete, defective, out of date or not worked for want of demand. Revision of some of the working plans is under consideration.

2. COMMUNICATIONS AND BUILDINGS.

(a) Roads and Bridges.

9. The expenditure on new works and repairs during the year was Rs. 3,897 and Rs. 9,074 respectively against Rs. 5,292 and Rs. 16,093 in the previous year.

Javadi road works.—Both the Amerdi-Nadanur road and Komattiveri-Patrakad road were completed and handed over to the District Forest Officer, *South Vellore*, by the Forest Engineer during the year; the former was found to be unfinished. The more important new works, all really petty ones, were the construction of an improved cart-track from Veeralur to Jambumalai felling series in *South Vellore*, the construction of the deviation of the Denkanikota-Aiyur road in *North Salem*, and in *South Salem*, further extension of Kottapatti-Veeramalai road, construction of a portion of the Mavar-Thammampatti road and the metalling and gravelling the first mile of the Kalpatti-Pillayarnatham road.

The following new works were also taken up during the year:—

West Vellore.—The alignment of a cart-track from Rajapalayam to Sherkanur and of an inspection path from the Andiappanur-Kambugundi road to Vasanthapuram.

Central Salem.—Alignment of a small portion of Pudupatti-Pillayarkoil extension.

(b) Buildings.

10. The cost of new buildings and the maintenance of existing ones (including the pay of watchers) during the year was Rs. 7,707 and Rs. 11,275 respectively against Rs. 2,517 and Rs. 11,191 in the previous year. The important new buildings constructed were:—

South Vellore.—(1) Part construction of Range officer's quarters at Santhavasal.

(2) Part construction of subordinates quarters at Nadanur.

(3) Completing the construction of the kitchen and godown at Pavunjipattu.

(4) Converting the old sandalwood godown at Tiruvannamalai into a forest range office.

(4) Construction of outhouses at Pakkam.

West Vellore.—(1) Completing the construction of Range office at Krishnagiri.
 (2) Construction of Subordinates' quarters at Pudur.
 (3) Part construction of Range Office building at Alangayam.

North Salem.—(1) Conversion of the timber shed at dan-kanikota into sandalwood godown.

South Salem.—(1) Part construction of Subordinates' quarters at Poosaripatti.

(2) Part construction of Inspection shed at Malayalapatti, dismantling the Rest House.

(3) Construction of Inspection sheds at Kanapadi and Periya-Varagur.

(4) Construction of kitchen and servants' quarters at Valappur and Subordinates quarters at Kalpatti.

(c) *Miscellaneous.*

11. The cost of new works and repairs was Rs. 1,017 and Rs. 720 respectively against Rs. 314 and Rs. 672 in the previous year. The important new works undertaken were:—

South Vellore.—(1) Construction of wells at Santhavasal and Nadanur.

(2) Completing the work of covering the well at Patrakad for taking a force pump.

West Vellore.—(1) Construction of a draw well at Pudur.

The expenditure on repairs was mainly on the improvements of the existing sources of water-supply in all the districts and repair of compound walls of the buildings in *North Salem*.

(3) PROTECTION OF FORESTS.

(a) General Protection.

12. The following statement shows the offences registered during the year:—

		1923-24 Number.	1922-23 Number.	
Injury to forest by fire	...	218	319	Decrease.
Unauthorized felling	...	7,717	7,731	"
" grazing	...	1,483	1,636	"
Other offences	...	253	443	
Total	...	9,671	10,129	

The decrease is under all items. The decrease under 'Injury to forests by fire' was chiefly in *South Salem*. This is partly due to the fact that the season was so dry that the grass did not grow, partly to more attention to the clearing of the top boundary lines and partly to the complete prohibition of Ponakad cultivation. The decrease under unauthorized grazing was chiefly in *West Vellore*, *East*, *North* and *South Salem* divisions and due to throwing open two more reserves to Panchayat management in *West Vellore* and in three *Salem* divisions to the dry year and consequent scarcity of fodder in reserves. The decrease under other offences was chiefly in *East* and *South Salem* and is due to a large number of poor people who used to make a living by stealing forest produce, having migrated to Ceylon and other places for work on account of famine condition in *East Salem* and to the prohibition of Ponakad cultivation in *South Salem*. The decrease under unauthorized felling is small.

Cases brought to trial.

Year.	Number.	Convictions.	Acquittals.	Percentage of failure.
1922-23	2,215	1,981	234	10.56
1923-24	2,990	2,668	422	14.11

The increase is chiefly in *South Vellore* due to the withdrawal of a large number of cases as the accused failed to pay compounding fees and left for Penang and other places to eke out their livelihood on account of adverse season.

13. A sum of Rs. 74,035 was collected as compounding fees during the year against Rs. 72,944 in the previous year. The instructions issued in G.O. No. 1990, Revenue, dated 13th June 1910, were generally followed in fixing compounding fees.

Patrol System.

14. The patrol system was in force in *South Salem* only and has given satisfactory results during the year. The Special Patrol Party secured not only better protection by timely prevention of crimes but also worked honestly in reporting a large number of goat browsing cases as 3,192 goats were impounded during the year against 2,087 goats in the previous year. The revenue collected from grazing has risen from Rs. 27,740 to Rs. 29,730 this year. In

an important case of illicit browsing of goats belonging to the Mittadar of Sendamangalam the subordinates were assaulted and the accused were fined Rs. 200.

Rewards.

15. A sum of Rs. 25 was disbursed during the year in *South Vellore* for smart detection of forest offences by subordinates and Rs. 50 was paid to a Forester in charge of a Patrol party in *South Salem* which detected 22 cases involving 1,114 goats, 263 sheep and 27 cows resulting in the realization of Rs. 1,300 as compounding fees.

(b) Protection from fire.

16. *Protection from fire.*—The total area attempted to be protected from fire during the calendar year 1923 was 2,632 square miles of which 2,616 square miles were successfully protected; so we were lucky. The cost was Rs. 5,197. Form 72 shows the area attempted to be protected, cost of protection and that actually protected. Appendix A shows the details and the causes of fires.

Special protection.—The area which was under special protection was 1,082 square miles as compared with 1,096 square miles in the previous year. An area of 1,075 square miles was successfully fire protected during the year against 1,013 square miles in the previous year. The percentage of failure being .64 against 7.57 in the previous year. There was a decrease in all districts due to timely fall of a few showers of rain during the fire season and better protection. In *North* and *Central Salem* divisions, free cutting of grass in open and closed areas was allowed for want of proper rain and fodder grass and this tended to reduce the area burnt. In *South Salem* the decrease is also due to the absence of grass owing to the dry year, to enforcing the prohibition of Ponakkadu cultivation in unreserves adjoining reserved forests and to the clearing of reserve boundary lines running along the top of the slopes.

General protection.—The area under general protection was 1,550 square miles against 1,532 square miles in the previous year, the percentage of failure being .58 against 8.39 in the previous year. The reasons given for the decrease under Special Protection hold good here also. The area burnt was 9 square miles.

Early burning.—In *North Salem*, a start was made at early burning; the District Forest Officer was of opinion that it is not of much use besides proving a great hardship to cattle during the dry

weather. It is doubtful if he has read the papers which led up to the order to burn early. The present District Forest Officer is of opinion that burning of fire lines is not necessary for two or three years as many fires are started by the carelessness of subordinates in burning lines. With an adequate system of roads and cleared lines, it should be possible to control fires within limits. In *Central Salem*, this system was not done apparently on the plea that there were early showers in 1923.

(c) Protection from cattle.

17. There is an increase in the number of cattle impounded in *North, Central and South Salem* and decrease in *South* and *West Vellore* and *East Salem*, and Appendix B shows details. The increase is attributed to the successful detection of cases and the decrease to the vigilant protection by the subordinates and insisting on the usual permit holders to take out permits without evasion.

(d) Protection against injuries from natural causes.

18. *Prickly pear.*—This pest was as usual cleared to a small extent by the Malayalees on the upper slopes and plateau of the Chitteris in *East Salem*. Owing to prohibitive cost no attempt was made to eradicate this pest from this and other divisions. An estimate called for for a particular reserve in *North Salem* amounted to over 18 lakhs of rupees!

Lantana.—This is prevalent in the Sholamathi reserve of *Perambalur* range and in portions of the Musiri-Pachamalais and in the Jambuthu reserved forest of the Namakkal-Kollimalais. Owing to the financial stringency, no attempt was made to eradicate it.

Creeper cutting.—This was as usual done in all sandalwood areas.

Spike.—This is dealt with under research work.

Bison.—Some damage was caused to sandal saplings in Valasa malai reserved forest and on the Javadis in *South Vellore* and Chittlingi and Karungal reserves in *East Salem* division and particularly in special tending areas in the two divisions.

Wild animals.—*South Salem* reports that leopards were busy last year in the Class II and Class V forests in *Perambalur* range and that free licences were issued to two shikaris to shoot them but nothing was shot.

CHAPTER III.—SYLVICULTURE.

SECTION I.—FORMATION AND REGENERATION OF FORESTS.

(i) *General Progress of Areas under Regeneration.*

19. There are no areas under any special system for regenerating any particular species.

(ii) *Establishment of Reproduction under Working Plans or Schemes (with Form 18-A).*

20. (a) *Mainly natural.*—Natural regeneration is alleged to have been generally good in all districts except *North* and *Central Salem*, where the regeneration was poor on account of failure of rain, which failure was common to all districts in the Circle. In *South Vellore* the special tending areas are annually sown with Sandal seeds to assist the natural regeneration of Sandal, and this operation is carried out more intensively in those localities where there are no Sandal trees. In *West Vellore* and *East Salem* Sandal seed germinates readily, but few survive on account of drought and damage caused by wild animals and by the *Malabar* cattle; on the *Yelagiris* in *West Vellore* it promises better. Other species doing well in *West Vellore* are *Chloroxylon swietenia*, *Albizzia amara*, *Pterocarpus marsupium* and *Tectona grandis*. In *Central Salem* plots to the extent of 309 acres in the *Manjavadi*, *Papireddipatti* and *Kurichi Felling Series* containing seedlings of natural regeneration of Sandal were maintained. In *South Salem* the seedlings in the Sandalwood areas of *Perambalur* and *Thammampatti* ranges, which are completely free from spike, are thriving well, and the regeneration of bamboos is fairly satisfactory.

(b) *Mainly artificial.*—Prolonged drought caused a thorough failure of all efforts at artificial reproduction.

(c) *Afforestation.*—None during the year under report.

(iii) *Plantations and other Forms of Regenerations not under Working Plans or Schemes (with Form 18-B).*

21 *South Vellore—Amerdi Plantation.*—The old history of this plantation is practically unknown. It is probable that the jungle conservancy department made a beginning to plant up with exotics the banks near the Amerdi river. In 1912, when planting was started again, all that remained of the old plantation were a block of *Pithecolobium saman* and a patch of about twenty well-grown Red Sanders trees. The area was overrun with prickly-pear and

thorny undergrowth. Teak, *Sissoo*, *Soymida febrifuga*, *Dalbergia latifolia*, Red Sanders, *Hardwickia* and Mahogany were put down, but results were, and have continued to be, patchy. Up to 1920-21 a total area of 85.25 acres had been dealt with and the planting up of fresh areas was abandoned. In 1921-22, however, a small plot in the *Pithecolobium* block was cleared and pitted for an experiment with *Gmelina arborea*; this started very well, but has been practically destroyed by gaur which no fencing seemed to keep out. Thereafter, work has been confined to replacing casualties in the several compartments.

The following is a statement showing the areas attempted to be planted since 1912 and expenditure incurred:—

						Area attempted to be planted	Actually planted.	Expenditure.		
						ACS	ACS.	RS.	A.	P.
1912-13	..	..	..	..	..	7.30	7.30	298	8	8
1913-14	..	..	..	..	..	8.05	8.05	774	8	11
1914-15	..	..	..	..	..	8.90	8.21	722	0	4
1916-17	..	..	..	..	..	5.00	4.68	806	11	6
1917-18	..	..	..	..	..	5.00	1.45	151	1	1
1918-19	..	..	..	..	..	10.00	5.66	536	7	10
1919-20	..	..	..	..	..	21.00	15.72	491	3	7
1920-21	..	..	..	..	..	20.00	10.00	878	10	11
1921-22	..	..	..	..	..	2.00	0.50	421	11	6
1922-23	..	..	..	..	..	..	..	118	11	9
Total ..						87.25	61.57	5,099	12	1

In 1923-24 Red Sanders and *Sissoo* seedlings were put out in blanks by the subordinates without any cost as it was ordered in Chief Conservator's No. 565-Press, dated 12th November 1923, that no money should be spent. It is, of course, obvious that this work was done far too late.

Muttakadu Experimental Plantation, Gingee range.—In 1921 an experimental plantation was started in the plains portion of Muttakadu reserve to see how to improve the plains forests and an area of five acres was selected, demarcated and clear felled, and the existing growth sold to a contractor, and the rubbish was burned. The contractor fenced the area before handing it over. The area was then divided into ten plots, and sowing and planting of the following species were carried out in 1922-23:—

Pterocarpus marsupium, *Gmelina arborea*, *Albizzia lebbek*, *Acacia ferruginea*, *Hardwickia binata*.—In 1923-24 no sowing or

planting was undertaken except that some *Pterocarpus marsupium* and *Azadirachta indica* seeds were sown in blanks in plot I and the experiment of sowing *Hardwickia binata* seed thickly after ploughing was continued in another plot. These last sowings were entirely unsuccessful owing to the failure of rains. The plots are of uneven size and the work done has been haphazard.

The following shows the results of the plantings and sowings:—

Species.	Surviving at the end of March 1923.	Surviving at the end of June 1924.	Remarks.
<i>Pterocarpus Marsupium</i>	148	73	Planted with unbroken pots.
Do.	299	91	Do. in pits.
Do.	98	89	Dibbled in pits.
<i>Gmelina arborea</i> ..	219	218	Planted in pits. These plants are from 3 to 15 feet high but very branchy and badly grown.
<i>Albizzia Lebbeck.</i> ..	21	21	Sown in pits.
<i>Acacia ferruginea</i> ..	238	230	Do.
<i>Hardwickia binata</i> ..	932	932	Sown in ploughed area. Growing very well.

In Kurumbapatti plantation in *Central Salem*, weeding and fencing alone were carried out at a cost of Rs. 34. The experimental stump planting of *Gmelina arborea* ordered by the Chief Conservator was a failure for want of rains. In other divisions there are no regular and Taungya plantations.

(iv) Tending.

22. General tending was done in all the Sandalwood coupes, except in Denkanikota Range Sandal Felling Series where the staff was fully occupied in extracting "spiked" Sandal trees to try and stop the spread of this disease; climbers and creepers were cut and the Sandalwood trees freed from overhead shade. In *South and West Vellore* special tending was undertaken in areas in which young Sandal is promising, and these are tended and watched until the young Sandal growth in them is out of all reach of cattle and of danger from suppression. The special tended areas have been well fenced. Two acres in the special tending area (Coupe II of Verrappanur Sandal Series) in *South Vellore* were opened out as per instructions of the Acting Conservator in his Inspection Notes to see that a greater removal of cover would help the natural regeneration of Sandal and stimulate the growth of young seedlings already existing in the area. The results are being watched. In *East Salem*

special tending was done in Coupes I and II of the Kalroyans Sandal Series over an area of twenty acres in Thumbal extension and Mannur reserved forests and in the sample plots in Tholthukki and Thekkalpatti. In *South Salem* a scheme has been sanctioned during the year under report by the Conservator for taking up regular tending operation in the Sandalwood areas for the whole of Panchamalais with effect from 1924-25 and a similar scheme for Kollimalais was sanctioned after the close of the year.

(v) General.

23. The season was so exceptionally dry that I am unable to believe that any reasonable proportion of the seedlings survived. In the course of tours since November I have only found four tanks in the Circle with water in them prior to the rains in May 1924; and all the rivers were dry too. The result of this state of things has been a large increase in the number of dead and stag-headed trees—in the case of Sandal, seen recently in *North Salem*, the "crowns" are reduced in many cases to a few epicomic branches on the stems. Subject to these remarks the rest of this chapter is based on the local reports (*quantum valeant*).

A copy of this office R.O.C. No. 2451-21, dated 4th December 1921, issuing instructions with regard to the work to be done in Sandalwood areas, is enclosed. In this it was ordered that the number of Sandalwood plots should be limited; five plots in *West Vellore* and four plots in *East Salem* are being maintained.

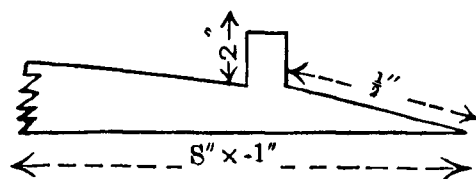
SECTION II.—TENDING OF THE GROWING STOCK.

24. The only other work done has been timber improvements fellings on a small scale in three places in *West Vellore* in 1922-23. The operations consisted of cutting ilnes all round the areas to a width of twelve feet, weeding and tending young and suppressed seedlings, cutting crooked and deformed Teak trees, sowing seeds of Teak and Vengai over the area, and fencing round the mother trees, and scratching the soil. These works were done solely to facilitate the growth of the superior species. The results of these operations are said to have been satisfactory (no figures have been furnished in support of this statement). In 1923-24 the operations were not undertaken in new coupes pending the sanction of new working plan sent to the Chief Conservator. In *East Salem* the selection and marking of trees was done in Coupes V and VI of Kudimaduvu reserved forest solely to facilitate the growth of superior species, but no fellings were done.

Copy of Reference No. 2451-21, dated 4th December 1921, from the Conservator of Forests, Fourth Circle, to the District Forest Officers in Fourth Circle.

Please read the prescriptions in the Sandal Working Plan relating to your district as regards the work to be done. It seems to me that at present a good deal of money is being wasted and unnecessary work put on to the local population which is limited in numbers and is also interested in cultivation.

2. Dibbling of seed is intended to be exceptional and should be confined to small patches which are devoid of Sandal though situated in areas where Sandal is growing well. The seed can be put out in the hot weather when the Malayalies have no other work to do, and should be put about quarter of an inch into the soil. The simplest way of doing this is to cut a stick about one-third inch in diameter, about half an inch below a branch cut off the small branch two inches from its junction, and sharpen the main part of the tool which will then be roughly this shape



To use: poke tool into the ground; put in one seed; then put stick in about three-quarter of an inch away on all four sides, thus:—: the centre being the one with the seed, in order to cover up the seed.

3. Care must be taken that too much tending is not done. Creepers are to be cut, but other trees should only be cut to such an extent as is necessary to give overhead light until the Sandal has reached the level of the rest of the forest, when the branches of the surrounding trees may be cut to allow room for expansion of the crown.

If too much is cut the Sandal tends to bend over; in other cases the plant has no host or very poor ones, or, as has occurred near

Suriyakadai on the Chitteris, *Stenosiphonium* (a sort of *Strobilanthes*) or some other weed may be let in to such an extent that the forest cannot regenerate itself.

4. The number of sample plots in each district should be limited in view of the fact that the District Forest Officer has to measure them up in as many cases as is possible, and this he should do at least once in three years. Probably one in each felling series would be sufficient to give us average measurements which is all that we need.

5. Trenching to get root-suckers need not be done in future until we see whether the work done at Komattiyeri gives useful results in the way of producing plants which will grow to a reasonable size and will produce heartwood, and then only when it is necessary to supplement the natural seedlings which normally one would expect to find as a result of the seedling of the trees whose roots are cut to give root-suckers.

6. The fencing of mother trees is to be stopped as, so far practically, no results have been seen which justify the labour involved.

7. As regards "specially selected" areas, the difference between them and other areas consists in the fact that they are to be fire protected, cattle kept out (i.e., fenced) and some dibbling of seed is to be done. In addition to fire protection and fencing these specially selected areas must be "tended" until the young crop of Sandal is out of all danger of destruction, and this is expected to take about six years. Larger areas should not be taken up than can be looked after. (Please see lines 6 and 7, third clause of paragraph 37, page 29 of Mr. Wilson's Working Plan, for the Javadi and Yelagiri Hills.) The rest of the forest is only "tended" once in six years, i.e., in the summer of the year after felling. (Please see first clause of paragraph 37.) This is for the purpose of assisting the older crop and even big saplings, cutting creepers which do a lot of damage, and so on. In addition to this "regeneration", in the "specially protected areas", creepers are to be cut, seed dibbled in where necessary, tops of seedlings freed more thoroughly than in the rest of the coupe, and this work must be supervised. This is the chief object with which Mr. Wilson put in the prescription regarding "specially selected areas" knowing how difficult it is to get supervision over all the areas.

CHAPTER IV.—EXPLOITATION.

(a) *System of Management.*

25. The total area under working plan during the year was 1,699 square miles and the various silvicultural systems in force are detailed below :—

	Area in square miles.	Percentage to the total area under working plan.
Clear fellings	8	0.47
Simple coppice	522	30.72
Coppice with standards	355	20.90
Selection fellings	227	13.36
Improvement fellings	375	22.07
Pastoral methods	198	11.65
Forests for which working plans have been prepared but are not subject to any definite system of working ...	14	0.83
Total ...	1,699	100.00

(b) *Exploitation by Departmental Agency.*

26. Sandalwood was the chief item extracted departmentally 308 tons being sold as against 269 in the previous year, the average rate being Rs. 1,069 against Rs. 1,201 in the previous year and against Rs. 1,174 in the year previous to the last. The fall in price during the year is so far as can be ascertained due in part to exchange being high at the time of the sale, in part to much of the Tirupattur wood being from green spiked trees with the result that dryage is higher and also perhaps to the fact that the quantity sold in this Presidency rose from 491 tons to 718½ tons.

Timber.—Three hundred and eighty-six cubic feet of timber were extracted from the reserves and unreserves of *North Salem* and supplied to the Hosur Remount depot. In other districts, a little timber was extracted for building purposes.

Fuel.—Small quantities of dead fuel were collected for sale to the pilgrims who attended the Audi festival at Hoganikal and 214 cubic feet of charcoal were manufactured experimentally by the students of the Vernacular Training School in *North Salem*. Two tons 29 quarters of dead *Frenella* wood was extracted from the Sanniyasimalai Plantation on the Shevaroy in *Central Salem* and

supplied to Salem Jail. There is still some of this fuel in stock but there is no demand for it as it burns rapidly and gives little heat. In other districts, small collections were made whilst clearing lines.

Bamboos.—A few were extracted for departmental use.

Minor Forest Produce.—Eight hundred and forty-seven maunds of tamarind produce and 300 measures of myrabolams were collected in *South Salem* as the bids for Minor Produce were unsatisfactory.

(c) *Exploitation by purchasers.*

27. Except in cases referred to in the above paragraphs, fuel and bamboos were, as usual, extracted by contractors who purchased coupes standing. The collection of Minor Forest Produce was also leased out to contractors.

The total outturn from all classes of forests by all agencies is compared with similar details of last year in the following statement :—

Year.	Timber in thousands of cubic feet.	Fuel in thousands of cubic feet.	Bamboos.	Gross value of minor forest produce including grass and grazing.
1922-23	701	1,040	RS. 1,25,819	RS. 3,70,907
1923-24	634	1,176	99,794	3,08,284

Timber is a fluctuating item which varies with the extent of land given on patta and the value of the growth on the land. *Fuel*—Though the outturn is greater than last year, there is decrease in revenue due to poor competition in coupe sales and to a reduction in the value of trees on darkhast lands realized by the Revenue department. *Bamboos*—The decrease is due to the collection of 4 kists in 1923-24, the second year of a 3 years' lease, as against 5 kists in 1922-23, i.e., first year of 3 years' lease in *South Vellore*, want of demand for some coupes and dull competition in others in *West Vellore*, and in *East* and *Central Salem* to the flowering and death of bamboos and increase in railway freight. It is also probably due to the bad agricultural season which reduced the purchasing power of the public and therefore the quantity of bamboos extracted. *Grazing*—The decrease is due to the introduction of forest village system in Gingee range in *South Vellore*, fewer foreign cattle in Chengam range in *West Vellore* and generally to the failure of rain and consequent scarcity of fodder throughout the North Arcot, Salem and Trichinopoly revenue districts. *Minor Forest Produce*—The decrease is due to the failure of monsoon, dullness of market and consequent low bids in *South* and *West Vellore* and *East Salem* divisions and to the fall in prices of Avaram

bark and decrease in the sale of green leaf for manure in *South Salem* as there was no demand on account of scarcity of water for wet cultivation.

Seven coupes in Tiruvannamalai Range were sold by tender to the Co-operative Society during the year at the rates fetched for the coupes last year. Tenders were accepted because the old contractors who are averse from outside competition would have raised the bids so high as to make it impossible for the Society to purchase in open competition. This is in accordance with the policy laid down in paragraph 6 of G.O. No. 1478, Development, dated 4th November 1922.

Grazing.—Of the total area of reserved forests and reserved lands, 92.41 per cent was opened to grazing against 88.96 per cent in the previous year. The incidence of grazing in the several districts of the Circle is given below :—

Divisions.	Acres.	Cow units.	Number of acres per cow unit.
South Vellore	290,560	73,866	3.93
West Vellore	236,160	56,847	4.15
East Salem	315,526	77,448	4.07
North Salem	305,280	58,491	5.22
Central Salem	216,400	68,884	3.57
South Salem	234,880	85,603	2.74
Total ..	1,628,800	421,139	3.87

The number of cattle grazed during the year shows an increase of 7,175 cow units and the area open to grazing an increase of 60,800 acres. The number of cattle permitted to graze on payment was 451,771 against 376,089 and the revenue from grazing was Rs. 1,96,015 against Rs. 2,04,090 in the previous year. The increase in the number of cow units is mainly due to the inclusion of the "calculated" number of cattle grazed in panchayat areas and in forests leased out to grazing being taken into account during the year under report. The increase in the areas open to grazing is due to throwing open to grazing, on account of the dry year and consequent scarcity of fodder and water in unreserves during the year, of areas normally closed to grazing for silvicultural reasons.

Minor produce.—A total sum of Rs. 4,773 has been written off, being the irrecoverable arrears of revenue due in *West Vellore*, *Central Salem* and *North Salem* from a *Nux-vomica* contractor, by Government and the Chief Conservator.

(d) *Exploitation by right and privilege holders.*

28. The rights granted to the villagers at the Settlement in V. Kanapadi and Palamalai Extension reserved forests were partially exercised during the year and free permits for 389 cow units were issued. Similar concessions granted to the villagers in respect of Gundur and Ariyurshola reserved forests were not permitted to be exercised during the year owing to some misapprehension by the Range Officer and the subordinates. The grazing of cattle of the Malayalis on the Javadis on a deposit of 3 annas per cow and the distribution of rewards to hill tribes for the successful protection of reserves continued to work satisfactorily during the year. It is reported that the privilege of allowing Malayalis to carry knives into the reserves to cut creepers was abused by them and they cut bamboos to feed their cattle on the leaves and some petty fines were imposed. The system of grazing either free or on payment of half the grazing fees under the forest village system in force in Tiruvannamalai and Gingee ranges in *South Vellore* in return for effective protection of the blocks entrusted to the villagers has worked satisfactorily. The Malayalis of Hill villages of Tiruppattur, Chenganam and Alangayam in *West Vellore* and 31 villages on the Chitteris in *East Salem* working under the hill village system were allowed as usual the concession of free removal of timber and other forest produce for domestic and agricultural purposes in return for protection.

(e) *Exploitation by free grantees.*

29. The quantity and value of produce removed under the head is given below. The free grants were made chiefly from unreserves and in a few cases from reserves for rebuilding houses destroyed by fire. The usual grant of 10 tons of firewood for Masimakam and Kanthiri festivals were made from the Pichavaram reserve in *East Salem* division.

	Timber in thousands of cubic feet.	Value.	Fuel.		Bamboo value.	Grazing.	Other minor forest produce.	Total.
			In thousands of cubic feet.	Value.				
Right-holders ..	..	Rs.	..	Rs.	Rs.	Rs.	Rs.	Rs.
Free grantees ..	36	4,075	1	50	63	73	108	4,296
Total ..	36	4,075	1	50	63	73	108	4,369

CHAPTER V.—FINANCIAL RESULTS.

30. The following statement shows the financial position of the year under report compared with that of the previous year and the average of the preceding quinquennium :—

—	1923-24.	1922-23.	Average of the preceding quinquennium.
	RS.	RS.	RS.
Revenue	* 10,42,706	10,84,751	10,44,364
Refunds	17,769	25,779	17,711
Net ..	10,24,937	10,58,972	10,26,633
<i>Expenditure.</i>			
B. Conservancy and Works	1,13,216	1,59,939	1,81,400
C. Establishment	4,22,565	4,18,195	3,51,094
Total expenditure ..	5,35,781	5,78,135	5,32,584
Surplus ..	4,89,156	4,80,837	4,94,049

* Excludes Rs. 2,150 relating to other Circles as explained at the foot-note of Form No. 80.

The surplus was maintained in spite of a decrease in the revenue to the extent of Rs. 42,045 chiefly under heads II and V because of the increase under I (d) owing to the larger output of sandalwood from spiked trees from *North* and *South Salem* divisions and to a decrease in the expenditure under B. Conservancy and Work to an extent of Rs. 46,723 which was due to the reduction in expenditure by the Forest Engineer in this Circle from Rs. 57,929 to Rs. 2,608 owing to the stoppage of further work on the Javadi road system.

There was a slight increase of expenditure by Rs. 4,369 under C. Establishment as compared with that of last year.

The various contributions to the gross receipt of Rs. 10,42,706 are as detailed under :—

Major produce	47.27 per cent.	(This includes 33.87 per cent from Sandalwood.)
Grazing	18.80 per cent.	
Bamboos	9.16	"
Minor Forest produce ...	12.99	"
Miscellaneous items ...	11.78	"
Total	100.00	

Under B. Conservancy Works :—

56.63 per cent was spent on exploitation.

41.61 " " on upkeep and improvement of forests, and
1.76 " " on other miscellaneous items.

It will be noticed that the cost of establishment is steadily rising and the cost of works decreasing, the former is due, I think, to the time increment scales and the latter to the financial difficulties in some other Circles.

31. The important variations are explained below.

RECEIPTS.

(i) By Departmental Agency.

Sandalwood.—Plus Rs. 33,408. The increase was due to the extraction and sale of a larger quantity of sandalwood chiefly from *North* and *South Salem* divisions due to the prevalence of spikes in spite of a drop in average sale prices from Rs. 1,201 to Rs. 1,069 per ton.

Minor produce.—Minus 2,884. The decrease was due to the non-collection of Nux-vomica seeds during the year as the net revenue realized was so small.

(ii) By Purchasers.

Timber	— 6,758	} The variations have been explained in paragraph 25 above.
Fuel	— 9,676	
Bamboos	— 28,955	
Grazing	— 8,002	
Minor Forest produce ...	— 13,203	
Miscellaneous V (a) ...	— 9,165	} The decrease is due to reporting fewer offences during the year (paragraph 12 above).

EXPENDITURE.

B. Conservancy and Works.

The chief variation was under head VII (Minus 48,399) and has been already explained in paragraph 28 above. The other variations are :—

I (d)	+ 10,591	The increase was necessary to get the corresponding increase under revenue under this head.
II	+ 11,719	The increase was due to the transfer of the pay of reserve watchers to this head from VIII (g).
VI	— 3,736	The decrease was due to the non-purchase of tents.
VIII (g) Other works.	— 19,536	The decrease was due to the transfer of reserve watcher's pay to B II

C. Establishment.

C I to III ...	+	9,140	The increase was due to the payment of leave allowances of two Extra Assistant Conservators of other circles in South Vellore division while on leave in that division and to the actual establishment employed during the year.
C IV ...	—	6,673	The decrease was due to the restricted touring and to the introduction of the Madras Travelling Allowance Rules.
C V ...	+	1,902	The increase was due to the adjustment of the cost of mapping by the Survey of India.

CHAPTER VI.—RESEARCH AND EXPERIMENT.

32. *Sandal*.—We have regretfully little progress to report in our investigations. There has been a change in the officer in charge since the end of the year and Supernumerary Ranger, S. Rangaswami Ayyangar, is now making notes. Our men are not skilled scientists.

In the *North Salem* observation areas, our figures now are:—

Locality.	Enumerated	Spiked.	Healthy.
Mahadeswarangudi area ...	352	326	26
Jowlagiri cairn 53 area ...	513	395	21
Jowlagiri bungalow area ...	451	414	Nil.

After having kept 1,165 trees till they died, we are now taking out spiked trees as soon as they are affected with a view to reduce the risks of infection. It may be noted—

(a) that not a single one of these spiked trees which were under special observation and all numbered recovered;

(b) that every tree enumerated in “Jowlagiri bungalow” has now died and that apparently all the others are on their way there.

There has been a terrible spread of the disease in the Jowlagiri reserve (area 7,763 acres), the number of spiked trees found (up to 1st August 1924) is 130,695, and the value of the loss of increment which we might reasonably have expected works out to Rs. 60,73,783 in this reserve alone. The sandal area in this circle runs to many square miles. We ought to have a specialist to investigate the disease. Dehra Run seems to have found out now that further field investigations are necessary. The disease continues unabated and we have taken out about 310 tons of heartwood in *North Salem* as against a normal production of about 19 tons according to the working-plan and I see no likelihood of a decrease for a year or two—we are working in 14 localities in this division. The immediate revenue is no doubt grateful and happens also to be forestry.

In *South Salem*, no new localities have been reported—the number of spiked trees taken out, has been 7,629 of which 6,447 contained no heartwood. In Karuppankaduthittu, 90 per cent of the sandal are attacked. In the Nellivasal area in *West Vellore* there has been a further attack of 9 trees. These continue in the same direction. The map shows a definite line south-south-west and another north-north-east of the area originally attacked in 1917. It looks as if the spread to the south-south-west had ceased.

Obligatory parasitism.—The observations in *West* and *South Vellore* divisions continued. In both cases in deepening trenches roots were found entering the earth, the trees were growing in. In *West Vellore*, four out of the five trees seem to have lost vigour as compared with the neighbouring unisolated trees.

Rate of growth.—Recent inspection shows that the numbering of the trees in at least two of the sample plots has not been kept up and the trees being unidentifiable, work will have to be started *de novo*.

Bamboos.—The sample areas in *South Vellore* are being measured still, but a scrutiny of the figures shows that many of the data collected are valueless because the same system of recording figures has not been kept up and work done at prescribed intervals.

Yield of manure leaf.—It is reported that only 72 head-loads were taken out “as there was no further demand”, the fact that we wanted to ascertain the normal yield of a moderately poor dry scrub forest was lost sight of!

Daincha (Sesbania).—Owing to the dry year, the sowings were an almost complete failure and the experiment will be discontinued as the Agricultural Department can get their seed from Bengal and elsewhere far more cheaply than we can supply it.

CHAPTER VII.—ADMINISTRATION.

33. Mr. A. Wimbush was in charge of the circle up to 26th October 1923 and Mr. H. A. Latham for the rest of the period.

34. *Tours*.—None of the District Forest officers spent the prescribed number of days in camp due to various reasons such as illness and change in the personnel of the District Forest Officer, etc.

35. *Inspection*.—By the Conservator—Office.—All offices were inspected.

Forests.—Mr. Wimbush inspected the forests of *South Vellore* (Jawadis), *West Vellore*, *East* and *Central Salem*. Mr. Latham inspected *South Vellore* (Gingee) and *South Salem* (Kollimalais and Pachamalais).

By the District Forest officers.—All range offices, except two (Santhaval and Anchetti), were inspected during the year.

Sandalwood depot.—Only the depot at Vellore was inspected during the year, and the other at Tiruppattur was inspected after the close of the year.

36. *List of offices audited.*—All the District Forest offices were audited and the result was generally satisfactory.

37. *Vernacular Training School.*—The session for 1924 was as usual held in the North Salem division from 1st February 1924 with thirty students on the roll. One was sent down for insubordination and another resigned and the work seems thereafter to have gone on satisfactorily.

During the 1923 session, eleven out of thirty students got first-class certificates. The class, on the whole, was better than the last session.

38. *Health of the establishment, including an account of the measures to improve sanitation and casualties.*—There were the usual attacks of malaria which is common in all the sandal areas.

Casualties.—Three Foresters, one Forest Guard and one Watcher died of malaria during the year.

CHAPTER VIII.—GENERAL.

(1) FORMATION OF AND MANAGEMENT BY PANCHAYATS (TO INCLUDE FOREST VILLAGE SYSTEM).

(a) Formation and Management of Panchayats.

39. *Formation.*—Panchayats under Class V are dealt with by the Forest Panchayat Officer.

Forest Village System.—This system of managing Class II reserves under the control of the Forest Department in the Tiruvannamalai Range continued to work very satisfactorily and the good protection everywhere is very creditable to the panchayatdars. In his Proceedings No. 546, Mis., dated 24th October 1923, the Chief Conservator sanctioned the introduction of the system in all the Class II Forests of Gingee Range in South Arcot. The orders were given effect to in November 1923. Under this system, the reserves in the range were divided into 31 blocks and entrusted to Panchayats, some of the areas were so small that they could not be economically managed. The concessions and privileges granted were as for Tiruvannamalai Range except that the refund which could be earned for satisfactory protection and co-operation with the department was fixed at 50 per cent of the grazing fees on the

number of necessary cattle admitted to graze in the block against the 100 per cent refund on necessary cattle in the Tiruvannamalai Range. In each case, the refund was worth 8 annas per cow unit. In the Tiruvannamalai Range, the scheme for 14 Malayali villages situated at the foot of the Kalroyans was revised and a 50 per cent return of grazing fees on all their cattle allowed in return for protection. The numbers of necessary cattle here were formerly too small to repay the people for the work they had to do.

Working of the Panchayats in the Tiruvannamalai Range.—Regular monthly panchayat and periodical general body meetings were held in most of the forest village blocks according to the by-laws framed for the purpose; in some cases, the Range officer had to convene these meetings owing to the illiteracy of the panchayatdars and record the minutes thereof. One important feature of the year is that all panchayats have been trained to maintain regular accounts showing receipts and charges and a Forester has been placed on special duty to see that the accounts are properly kept and passed at the meetings of the forest villagers and also generally to assist the Range officer to supervise the working of the system. With the approval of the Chief Conservator, the establishment in some of the best worked panchayat blocks was reduced in respect of the Kavuthimalai, Kannamadai, Ladapuram, Ponnaiyar and Poolanjimalai reserves, and four Forest Guards and three watchers looking after areas making up eleven village blocks were dispensed with. In two of the blocks, the subordinates were completely removed and the panchayatdars worked directly under the supervision of the Range officer and the Section Forester. In the remaining nine blocks, the subordinates of the adjoining beats were directed to assist the panchayatdars. The permanent withdrawal of the establishment mentioned above has since been sanctioned. The panchayatdars engaged their own watchers wherever the funds permit and these men have to assist the subordinates. The panchayatdars also frequently visit their blocks and help the establishment.

Working of the system in Gingee Range.—The system has only been in force for five months and it is too soon to form a definite opinion of the working, though it appears to be going on satisfactorily.

Concessions.—Permission to remove dead-fuel for domestic consumption given to women and children was not largely availed of as the panchayatdars did not encourage it for fear of encouraging habitual fuel thieves to enter the forests and endanger the protection. In Gingee Range, one of the blocks was found to have been raided for green fuel and the concession has been temporarily suspended and

the President changed. Where, however, the concession was availed of, the panchayatdars issued permits of their own to regulate the removal and levied a small fee which was credited to the panchayat funds. Permission to remove manure leaves was availed of only in eight of the blocks of Tiruvannamalai Range the reason alleged being the seniorage rate of Rs. 2 per cart-load is prohibitive, the probable reason being that owing to the failure of the monsoon during the year under report wet cultivation was much restricted and consequently the demand for manure leaves could be met from the trees on patta and unreserved lands. Though paper provision was made for the working of small coupes in panchayat areas for agricultural implements and small timbers for the benefit of the forest villagers in areas not under regular fuel working, no coupes were opened partly because the proposals were initiated too late and partly because the papers were wrongly dealt with in the District office. Such coupes are now being opened.

Works of Improvement.—Some of the solvent panchayats have taken up the improvement of water facilities in their grazing blocks. For instance, the panchayatdars of Agaram repaired a tank in their block at a cost of Rs. 50 and those of Rathapuram another tank in their block. Some panchayats also contributed money towards the building of the schools in their villages and providing slates, etc., to poor children. Endeavours were made in the Tiruvannamalai Range during the year to revive the celebration of "arbor days" as part of the forest village system. The panchayatdars of a few blocks got all their ryots together on certain days and took them out to their blocks where seeds of *Pongamia glabra*, *Acacia sundra*, Red Sanders, etc., were sown by them. Owing to the unfavourable season, the operations completely failed except in one block where *Pongamia glabra* seeds were sown along the banks of the stream. The germination here was remarkably good and the seedlings are now from six inches to a foot high and have pulled through the hot weather successfully. The seed ought to be put out in May or June.

Darbar day.—The fifth annual darbars for the Tiruvannamalai panchayats were held at Tiruvannamalai and Thanipadi in February 1924. The more important darbar at Tiruvannamalai was very largely attended by the surrounding village panchayatdars and forest villagers, several officials and citizens of the taluk the Zamindar of Vettavalam and M.R.Ry. Authinarayana Chettiyar Avargal, M.L.C., of Salem being also present. M.R.Ry. Vijiaraghava Mudaliyar Avargal, M.L.C., and President of the District Board of North Arcot, kindly presided and distributed refunds of grazing fees for 1922. The function was a success and went a great way to demonstrate to the lay mind the advantage of the

protection of forest and excellent system of co-operation amongst the ryot population and of the forest village system by which good protection of reserved forests was being achieved. Several requests in the form of resolutions were put forward at the darbar by the panchayats and these are being dealt with.

West Wellore—Forest Village System.—Proposals have been submitted for the formation of the Class II panchayats in Chengam and Krishnagiri Ranges.

East Salem.—The panchayat formed under the forest village system for Godumalai reserved forest had to be dissolved owing to its bad management; some of the members owned goats. The Kuthakudi panchayat referred to in the last administration report was reorganized by the special staff. At the close of the year the writer toured round the Kallakurichi and Atur Ranges and explained to the ryots the system proposed for introduction and Ranger K. R. Subramaniam who was put on special duty, has since formed more than a dozen panchayats. Proposals are being submitted to the Chief Conservator for sanction. Panchayats for the remaining forests of Kallakurichi Range are being formed. In the Harur Range, panchayatdars have since been formed for all the reserves. Ryots have been begun to take an interest in these panchayats and before long it is hoped that all the forests will be managed by panchayats working under the Rangers.

South Salem.—The village panchayats of Gangavalli Class II forests continued with the same members as in previous year and worked fairly well. The protection was satisfactory. The Sobanapuram village panchayat in Musiri Range was sanctioned in Chief Conservator's No. 1956-24, dated 20th March 1924.

(2) MEASURES FOR IMPROVING LOCAL SUPPLIES AND METHODS FOR OBTAINING FOREST PRODUCE—INCLUDING WATER SUPPLY, FUEL, MANURE LEAVES, ETC.

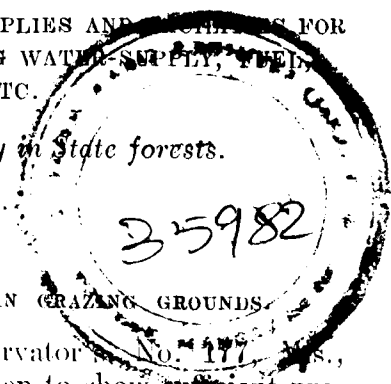
(a) Improvement of water-supply in State forests.

(i) BORING OPERATIONS.

Nil.

(ii) IMPROVEMENT OF WATER-SUPPLY IN GRAZING GROUNDS.

40. In accordance with Chief Conservator's No. 177, dated 7th May 1923, steps have been taken to show sufficient progress in this direction annually. The best way to ensure this would be to allot some percentage of the grazing fees annually. During the year Rs. 374 has been spent in repairing three tanks in East



Handwritten notes at the bottom of the page: "O.E. 211 7 10 24" and "11-11-24".

Salem, Rs. 250 in *North Salem* for repairing five tanks, and Rs. 40 in *Central Salem* on a tank.

(b) *The supply of forest produce to meet the wants of the people.*

41. This was attended to by the coupe contractors. Co-operative societies in Tiruvannamalai continued to work coupes during the year and the working is reported to be methodical and satisfactory. During the year, on account of scarcity of fodder in *Salem* district, concessions were granted to ryots for grazing in closed coupes, free cutting and removal of fodder grass and grazing permits were made valid for the whole range instead of a particular block, for which permit was issued.

(c) *Supply of manure leaves.*

42. The growing of *Sesbania aculeata* (Daincha seed) in *East* and *Central Salem* failed for want of rain. In *South Vellore*, the concession of removal of manure leaves at Rs. 2 per cart-load for non-woody shrubs was availed by eight panchayats in Tiruvannamalai range. In *South Salem*, the manure leaf coupes opened in the Pachamalais of Musiri and Perambalur ranges and in the Namakkal-Kollimalais were sold to contractors and the revenue realized was Rs. 9,642 against Rs. 7,925 last year. The contractors sustained heavy losses during the year as the demand for manure leaves was very poor in the absence of timely rain. Out of 19 manure leaf coupes thrown open in Class V Panchayat Forest only 7 panchayats availed of the concession. The general result of the working is stated to be fair.

(3) **TIMBER AND SANDALWOOD TRANSIT RULES.**

43. There are no timber transit rules in this Circle.

Sandalwood Transit Rules.—The question of revision of the sandalwood transit rules in *Chittoor* and *North Arcot* districts was ordered to lie over until September 1924 in Chief Conservator's No. 678, Routine, dated 10th September 1923.

Revised rules for the *Salem* and *Trichinopoly* districts have been prepared and are under correspondence with local officers as there appears to have been a lot of theft.

(4) **JUNGLE TRIBES.**

44. The Malayali hill village system is in force in the Chitteris in *East Salem* and in the Javadis of *South* and *West Vellore* divisions. The system is reported to have been worked satisfactorily. In the Tirupattur-Javadis, 11 villages are still unwilling to join. As they pay a deposit under this system and can get their grazing fee, their attitude is not intelligible. The Co-operative Stores opened

for the benefit of the Malayalis at Komattiyeri continued to work satisfactorily. The Malayali schools opened at Komattiyeri and Veerappanur are reported to be working satisfactorily. A substantial building was constructed for the school at Komattiyeri by the Taluk Board to which a sum of Rs. 100 was contributed by this department. The Co-operative Department and the Taluk Board have been helped to make these institutions a success.

(5) **MINING AND QUARRYING.**

45. A prospecting licence for quarrying emery over an area of 140 acres in Sanniyasimalai reserved forest was granted by the Collector to Mr. Dickens for one year from 6th December 1923 and an area of about 6½ cents is reported to have been quarried during the year.

(6) **CIVIL SUITS.**

46. A second appeal regarding the ownership of Arana and Thirthagiri blocks, *East Salem* division, referred to in the last report is still pending in the High Court.

In *North Salem*, a suit filed by a coupe contractor was dismissed with costs.

(7) **CONTROL OF UNRESERVED LANDS BY THE FOREST DEPARTMENT.**

47. The land revenue administration of the Javadi Hill villages of Tirupattur taluk, North Arcot district, continued to be under the District Forest Officer, West Vellore. The system has been ordered to be continued for another year in G.O. No. 638, Development, dated 7th May 1923.

A new set of accounts has been prescribed in G.O. Mis. No. 761, Revenue, dated 20th May 1924, after the close of the year.

The unreserves on the Pachamalais and Kollimalais in the *South Salem* division remained under the partial control of the Forest Department.

SALEM,
31st August 1924. H. A. LATHAM,
Conservator of Forests, Fourth Circle.

APPENDIX.

SUMMARY OF PROGRESS DURING THE FIVE YEARS
1919-20 to 1923-24.

The chief features of the quinquennium were :—

- (1) The introduction of a revised scale of pay of all services.
- (2) The introduction of Simplified Leave Rules, Fundamental, and Madras Travelling Allowance Rules.
- (3) The appointment of special panchayat staff for the formation of panchayats for the class V forests, the healthy ones in the circle.
- (4) The appointment of a Chief Forest Engineer.

2. *Administration and control.*—During the period under review, two additional forest circles were formed with headquarters at Bellary and Ootacamund. Consequently this circle was reduced by three district charges. A rearrangement of all the divisional charges in this circle was made with effect from 1st July 1920.

Instructions were issued in Chief Conservator's Reference No. 2779/20-2, dated 6th September 1920, for the future preparation of administration report in a more popular and interesting manner and later on the annual report was ordered to be prepared for the official year instead of the forest year in Chief Conservator's Proceedings No. 13, Press, dated 30th March 1921.

The following officers were in charge of this circle during the period under review :—

Mr. H. A. Latham	...	1st July 1919 to 5th February 1920.
Mr. B. F. Rigold	...	6th February 1920 to 17th October 1920.
Mr. H. C. Bennet	...	18th October 1920 to 26th October 1920.
Mr. J. S. Scot	...	27th October 1920 to 4th November 1920.
Mr. H. A. Latham	...	5th November 1920 to 3rd February 1923.
Mr. A. Wimbush	...	4th February 1923 to 26th October 1923.
Mr. H. A. Latham	...	27th October 1923 to 31st March 1924.

On the appointment of a Chief Forest Engineer, the establishment of the Forest Engineer was transferred to his control.

3. *Organization.*—The reorganization of the executive and protective staff was introduced with effect from 1st October 1919.

4. *Changes in area.*—The area under the control of the department fell from 4,309 square miles to 2,754 square miles, as detailed below :—

			At the commencement of the period.	At the close of the period.
			SQ. MILES.	SQ. MILES.
Reserved forests	...	...	4,243	2,703
Reserved lands	...	...	66	51
Total	...	...	4,309	2,754

The decrease was chiefly due almost entirely to the transfer of North Vellore, Madura and Tinnevely districts to the Third and Fifth Circles, and Tanjore forests to the Collector.

5. *Forest Settlement.*—Fifty and a half square miles were settled during the period.

6. *Demarcation.*—The total length of artificially marked boundaries at the end of the quinquennium was 4,905 miles. During the period under review, 57 miles of boundaries were permanently demarcated.

7. *Forest Surveys.*—During the period, the Madras Survey surveyed the outer boundaries of reserves in South Vellore, East and South Salem divisions. Departmental survey calls for no remarks.

8. *Working-plans.*—During the period under review, working-plans were completed for 196 square miles. An aggregate area of 423 square miles have been taken up for preparing working-plan. An area of 159 square miles is still to be brought under working-plan.

9. *Communications and buildings (including other works).*—The average annual expenditure during the quinquennium was Rs. 85,620 against Rs. 98,445 of the previous period. The decrease was due to financial stringency.

10. *Forest offences.*—The average annual number of offences reported during the period under review was 8,550 as compared with 12,305 of the previous quinquennium. The decrease is due to the transfer of North Vellore, Madura and Tinnevely to the Third and Fifth Circles.

11. *Fire protection.*—The average area under special fire protection amounted to 1,090 square miles, the average failure being 1.29 per cent as compared with 1,301 square miles and 3.9 per cent respectively of the previous quinquennium.

12. *Protection from cattle.*—The whole forest is closed to goats. The average area annually closed to all animals was 300 square miles and that opened to grazing 2,407 square miles.

13. *Yield and outturn.*—The following shows the average annual outturn for the two periods :—

		Timber and fuel in thousands of c.ft.	Bamboos.	Minor produce value.
		C. FT.	RS.	RS.
1914-15 to 1918-19	...	5,502	1,16,779	4,24,721
1919-20 to 1923-24	...	1,694	1,46,885	1,03,846

There has been decrease under timber and minor forest produce by 67.3 and 75.5 per cent respectively due to the transfer of the three divisions above referred to. The increase under bamboo was by 27.8 per cent due at times, it is thought, to unhealthy competition.

14. *Financial results.*—The average annual financial results for the two periods are—

Year.	Revenue. RS.	Expenditure. RS.	Surplus. RS.
1914-15 to 1918-19	13,61,539	6,60,056	7,01,483
1919-20 to 1923-24	10,35,462	5,72,484	4,62,978

The decrease in the net revenue is due to the transfer of *North Vellore*, *Madura* and *Tinnevelly* districts to other circles and largely to increases of salary to the executive and clerical branches. In the districts remaining in the circle, a drop in net revenue occurred in all districts except *South Salem* and aggregated Rs. 2,06,907.

15. *Forest education.*—The results during the quinquennium are shown in the statement below :—

Period of sessions.	Total number trained.	Award of certificates.		
		With honours.	Higher standard.	Lower standard.
Period ending June 1920	5	2	1	2
" 1921	5	..	4	1
" 1922	3 *	..	1	..
" 1923	2	1	1	..
" 1924	1	1	..	..

* One withdrawn, one died.

The Vernacular Training School for training foresters and forest guards was opened annually as usual. The results are summarised below :—

Period.	Total trained.	Award of certificates.		
		First class.	Second class.	Third class.
February to July 1920	29	6	23	..
" 1921	29	3	26	..
" 1922	29	7	22	..
" 1923	30	11	19	..
" 1924	28	16	12	..

SALEM,
31st August 1924.

H. A. LATHAM,
Conservator of Forests, Fourth Circle.

ANNUAL ADMINISTRATION REPORT OF THE FOREST DEPARTMENT

FOR THE

YEAR ENDING 31st MARCH 1924

FIFTH CIRCLE.

CHAPTER I.—CONSTITUTION OF STATE FORESTS.

'ALTERATION IN AREA.

Reserved forests.—The area at the commencement of the year was 3,360 square miles. In *North Coimbatore* an area of 432 acres omitted to be shown last year has been added on during the year; 2,731 acres were disforested and 68,056 acres excluded as result of the correct computation at the time of the revision of the district reference map. In *South Coimbatore* an area of 5.95 acres comprising the bed of the Amaravati river was disforested in order to allow access to water for cattle from the adjoining patta lands and another area of 771.42 acres of poor scrub jungle, in order to provide lands for ex-sepoys and depressed classes. In *Madura* 203.28 acres omitted in previous years were added on and 9.29 disforested during the year. In *Tinnevelly* 1,292 acres were reserved during the year for the protection of Tuticorin harbour and 222 acres excluded as the claim of the Travancore Government that the bungalow site and all such part of the Agastiyar mountain itself as is above the level of the bungalow site should be included in the Travancore territory having been accepted by the Madras Government. The area at the close of the year was 3,251 square miles.

2. *Reserved lands.*—In *North Coimbatore* an area of 6.90 acres was added on to Jaccanari reserve, but as per notification published, the reservation is to take effect only from 1st July 1924. In *Madura* 228.34 acres were notified as reserved lands during the year. In *Tinnevelly* an area of 1,292 acres was finally settled and transferred to the reserved forest.

2. FOREST SETTLEMENT.

3. An area of 2.008 square miles which was pending settlement in *Tinnevelly* was finally settled during the year. In *North Coimbatore* .001 square mile was taken on hand and completed, but the reservation is to take effect only from 1st July 1924. The settle-

ment of an area of .356 square mile was taken up in *Madura* during the year.

3. DEMARCATION.

4. Eleven miles of the boundary line of Edayarhalli enclosure in the Edayarhalli reserve in *Kollegal* district and eleven miles of new boundaries of three reserves in Nattam range in *Madura* district were newly demarcated with stone cairns and pillars at a cost of Rs. 410-6-0 and Rs. 320 respectively. In *North Coimbatore* a sum of Rs. 20 was spent in preparing ten cairns towards the demarcation of an enclosure. In *South Coimbatore* Rs. 83-3-0 were spent on clearing $6\frac{1}{4}$ miles of the reserve boundary line in Pollachi range.

5. The reclearing of the old boundaries and repairing fallen cairns were as usual done in all the districts by the forest subordinates free of cost.

6. The total length of the boundaries still to be demarcated at the close of the year was 532 miles.

4. FOREST SURVEYS.

7. (a) *By the Survey of India Party.*—There was no fresh survey during the year.

8. (b) The surveys of fuel and bamboo coupes, regeneration area, etc., and also other minor surveys were undertaken as usual by the local forest officers.

9. The reference maps are maintained and posted up to date.

CHAPTER II.—MANAGEMENT OF FORESTS.

1. REGULATION OF MANAGEMENT.

Preparation and control of regular working plans.

10. *Tinnevely.*—The revised working plan for all the forests in the district drawn up by the District Forest Officer and sent to the Chief Conservator during the previous year was returned for further revision. This was, however, temporarily approved since for a period of three years from 1st April 1924. The prescriptions of the existing working plan were adhered to generally.

The simple working plan for the ten fuel working series in *Kollegal* district returned for revision could not be completed by the District Forest Officer being mostly engaged from September in assisting the police in the big sandal theft case but the plan has been sanctioned provisionally for three years. The schemes sanctioned last year for the extraction of bamboos, agricultural implements and of dead and spiked sandal trees in *Kollegal* referred to in the previous year's report were followed.

In *North Coimbatore* the provisions of the sanctioned working plan and schemes were followed except in the following few cases. In the Jaccanari fuel working circle, owing to want of a road coupe XVIII was worked during the year instead of coupe XVII under proper sanction. The improvement fellings in Jaccanari timber working circles were stopped while in Kallar creeper cutting alone was done by a special arrangement with a contract free of cost, the contractor being given by way of compensation certain dead trees marked by the department. The removal of prickly-pear and lantana provided for in the sanctioned working plans was not done as the operation was a failure and the cost prohibitive. The fuel working circles covered by working plans were not fire protected for want of funds.

In *South Coimbatore* the prescriptions of the Mount Stuart working plan were followed and the quantity of timber felled during the year was 116,015 cubic feet. Coupe XVII of the Punachi timber working circle was felled departmentally and there was an outturn of 17,717 cubic feet from it, as well as from the regeneration fellings. The fuel coupes of the Udamalpet range and the fuel and bamboo coupes of the Pollachi range were worked under contract agency.

In *Madura* the prescriptions of the sanctioned working plans were fairly followed. The old arrears have almost been cleared and the working plan nearly brought up to date as regards the fuel series.

2. COMMUNICATIONS AND BUILDINGS.

(a) *Roads and Bridges.*

11. The details of new works are given below :—

(1) The construction of the Mount Stuart ghat road in *South Coimbatore* was continued under the supervision of the Forest Engineer departmentally and with petty job workers. The work was pushed on along the entire length of the road—6 miles 3 furlongs—and the expenditure during the year was Rs. 68,235-15-0.

(2) A sum of Rs. 435 was also spent by the Forest Engineer on the investigation of a trace to the felling series via Ulandi road.

(3) Other new works in *South Coimbatore* are the extension of Aliar road, 2 furlongs, at a cost of Rs. 340 and construction of an earth slide in Punachi coupe XVI, Rs. 400.

(4) *Kollegal.*—Conversion of a cattle path of two miles in length leading to the village fuel coupes into a rough cart-track at a cost of Rs. 24.

(5) *Tinnevelly*.—Construction of the Vallam road about 4 furlongs in length to tap a fuel coupe at a cost of Rs. 604.

(6) *Tinnevelly*.—Alignment of inspection paths of 5 feet wide in Kodamady and Kannikatty ranges, 14 miles 4 furlongs, at a cost of Rs. 3,455.

12. *Repairs to roads*.—*Kollegal*—69½ miles of existing road were repaired at a cost of Rs. 912. *North Coimbatore*—98 miles of road at a cost of Rs. 3,265. *South Coimbatore*—48 miles 3 furlongs at a cost of Rs. 12,823. *Madura*—240 miles 6 furlongs at a cost of Rs. 9,292. The District Board contributed Rs. 5,765 towards this amount of Rs. 9,292 but these Rs. 5,765 were as per existing rules credited to V (b). An appeal was made and in vain to get this unfortunate system altered during the year. *Tinnevelly*—9 miles at a cost of Rs. 3,340.

13. The bullock tramway continued to work till the end of the year and the quantity of timber trammed to Topslip during the year was 112,174 cubic feet or 24,482-19/32 tons miles against 18,372-1/32 ton miles in the previous year. The average lead was 7 miles against 3 in the previous year. There is no means of comparison of the cost of extraction as the tramway is the only means of extraction between the worked coupes and the beginning of the cart road.

(b) *Buildings*.

14. A sum of Rs. 7,768 was spent on new works during the year and the important works carried out were—*Kollegal*—Construction of range clerk's quarters. *South Coimbatore*—Erecting sheds in coupe 44, Mount Stuart working circle, and compound wall of Depot Range office at Pollachi. *Tinnevelly*—Construction of a cooly shed at Kuttalam-Kalaruvi and an out-house to the Kodamady inspection shed and construction by the Extra Assistant Conservator, *Tinnevelly Development Scheme*, of a new hut at Kanadavarai hill and four out-houses to three inspection sheds and one rest house.

(c) *Miscellaneous*.

15. The expenditure on new works was Rs. 783, the important works being the deepening of the rest house well at Lingamankarai in *Kollegal*, the digging of two wells and boring one well at Mount Stuart in *South Coimbatore* and the part construction of a well in *Madura*. The water-supply scheme to Mount Stuart was investigated by the Chief Forest Engineer and necessary plans and estimates were prepared and submitted for sanction.

16. *Telephone*.—This was very useful in facilitating the execution of works; but the lines were very frequently out of order and a complaint regarding the bad state of the line was made at

the end of the year to the Deputy Assistant Engineer of Telegraphs. The Government sanctioned the dismantling of the Sethumadai-Tekkadi line and the extension of the line from Anaimalai to Pollachi though no action was taken during the year.

3. PROTECTION OF FORESTS.

(a) *General Protection*.

17. The total number of cases reported during the year was 4,963 both from reserved and unreserved lands against 5,085 in the previous year. The decrease was in all the districts except *Madura* and is reported to be due to the free grazing allowed in reserves for about six months owing to severe drought, to the reduction of cases reported from unreserved lands, to the disforestation of certain reserves lying close to the villages and also to the opening of certain reserves close to grazing during the year. Out of the 4,963 cases reported 4,587 cases were detected. Those together with the 1,626 cases pending at the commencement of the year, i.e., 6,213 cases, were dealt with during the year against 6,073 in the previous year. The number of cases taken to Court was 2,719 and the number compounded 3,494. The total number disposed of during the year was 4,556, leaving a balance of 1,657 at the close of the year.

Of the 2,719 cases taken to Court 1,345 were convicted and 484 acquitted and 890 remained pending at the close of the year. The percentage of acquittal was 26 during the year against 10 in the previous year, the increase being in *Kollegal*, *South Coimbatore* and *Madura* due to the cases withdrawn on payment of compounding fees in Court, having been shown as acquittals as laid down in G.O. No. 2097, Revenue, dated 12th July 1917.

18. The number of compounded cases for which compounding fees were collected during the year is given below:—

District	Number of cases compounded.		Amount of compounding fees.			Grand total.	
	Reserved forests.	Unreserved forests.	Reserved forests.	Unreserved forests.		Number.	Amount.
			RS. A. P.	RS. A. P.			RS. A. P.
<i>Kollegal</i> ..	243	24	3,918 2 0	400 11 0	267		4,318 13 0
<i>North Coimbatore</i> ..	611	111	6,339 0 0	2,410 4 8	722		8,749 4 8
<i>South Coimbatore</i> ..	147	43	1,147 0 0	853 0 0	190		2,000 0 0
<i>Madura</i> ..	646	297	7,812 0 0	3,698 0 0	943		11,510 0 0
<i>Tinnevelly</i> ..	546	302	4,917 0 0	2,370 0 0	848		7,287 0 0
Total ...	2,193	777	24,133 2 0	9,731 15 8	2,970		33,865 1 8

19. Patrol parties were formed in three troublesome sections of the *Kollegal* district. Each party consisted of the Section Forester and the Forest Guards of the few beats in that section. They live in one place and do the patrol work in a body. This has considerably improved the forest protection, but one patrol party was severely assaulted in the Bargur hills by graziers illicitly grazing cattle. Rs. 95 had to be spent in searching for and taking to the Andiyur hospital the injured subordinates. The matter has been put before the Collector and the offenders are being prosecuted. In *Madura* the special patrol party continued to work in Cumbum Range throughout the year and did good work thereby improving considerably the protection of the forests and the collection of grazing revenue. The party was occasionally put to the execution of warrants in cases of evasions with good results. Forty-four cases were detected by the party during the year and these were compounded for Rs. 1,400. The Ranger of Sholavandan Range while inspecting with several subordinates was severely assaulted by goat herds and had to take leave and go to hospital. The matter has been placed before the Collector and the case is being investigated.

(b) *Protection from Fire.*

(Calendar year 1923.)

20. *Special protection.*—The area attempted to be specially protected during the calendar year 1923 was 241,977 acres against 242,360 acres in the previous year and the cost of protection being Rs. 5,285 and Rs. 10,383 respectively. The decrease in the cost is in *South Coimbatore* and *Madura* and is due to the fire-tracing being confined to certain particular areas only. The area burnt during the year was 13,009 acres against 13,498 acres in the previous year, the percentage of successful protection being 94.6 against 94.4 in the previous year.

21. The system of early burning was continued in *North Coimbatore* and *Kollegal*. In *North Coimbatore* an area of $64\frac{1}{4}$ square miles was burnt at a cost of Rs. 446 subsequently there occurred only five fires in this area covering an area of 215 acres and there too the intensity of fire was much minimised. The result of early burning was satisfactory. In *Kollegal* 10 square miles of grassy areas around the sholas in Doddasampagi Reserve was done by subordinates free of cost and 190 acres around the Ponnachi sholas at a cost of Rs. 15. The operation was a success as the sholas escaped from fire. Early burning was also done to a radius of 2 miles round important pens in all the ranges in the division by the

subordinates with the co-operation of the graziers. This induced fresh growth of fine grass on the burnt areas and so the operation was popular with the graziers.

22. *General protection.*—An area of 1,762,825 acres was attempted to be protected under this head against 1,833,373 acres in the previous year, the difference being chiefly in *North Coimbatore* due to certain disforestation and rectification of areas. The area burnt was 14,430 acres against 112,672 acres in the previous year and the percentage of successful protection 99.2 against 98.2 in the previous year.

23. The total number of fires occurred during the year from various causes was 319, the aggregate area burnt being 27,439 acres compared with 503 fires and 126,170 acres burnt respectively during the previous year.

(c) *Protection against Cattle.*

24. An area of 2,270 square miles, i.e., 69.8 per cent of the total area of reserved forests, was open during the year to grazing of all animals except goats and an additional area of 310 square miles, i.e., 9.5 per cent of the whole area, was open to all animals except browsers, i.e., sheep and goats.

25. *Incidence of grazing.*—In *Kollegal* the incidence was 6.08 acres per cow unit against 7.40 in the previous year. Actually the incidence was more as in most of the remote areas many thousands of acres of steep and rocky slopes are not grazed over. In *South Coimbatore* the incidence was 14.86 acres per cow unit; but the area opened to grazing includes shola forests and grass hills of the Upper Anaimalais where cattle are seldom or never taken for grazing. The average incidence in *Madura* and *Tinnevely* was 12 acres and 3.9 acres per cow unit respectively.

The total number of cattle impounded during the year was 17,477 against 19,769 in the previous year and the average for the three years ending 1922-23 being 15,907. The decrease during the year was in all the districts except *Madura*, due to the free grazing concession granted in the three divisions of *Coimbatore* and to the opening for grazing of a portion of the Kudiramoli Teri reserve in *Tinnevely* district. There was increase in *Madura* due to better patrol and supervision.

(d) *Protection against injuries due to natural causes.*

26. *Spike disease of sandal.*—‘Spike’ continues in *Kollegal* and *North Coimbatore*. To check its spread the uprootal of all spiked trees whether containing heartwood or not was carried out

and they were burnt after removing scented wood from those which yielded it. Fourteen thousand three hundred and thirty trees were so treated in *Kollegal* district at a cost of Rs. 743.

27. *Weeds and climbers*.—In *Kollegal* creeper cutting was done in sandalwood working circles over an area of 16,647 acres at a cost of Rs. 322-9-0. In *Tinnevelly* weeding in teak plantations of Kodamady and Kannikatty Ranges was done on an area of 116 acres at a cost of Rs. 919-14-0; regeneration area of 57½ acres in Kannikatty was weeded at a cost of Rs. 167-7-6 and creepers on trees in three coupes of Kalakad working circle were cut over an area of 467 acres at a cost of Rs. 120. Climbers on important species of trees were cut as usual by the subordinates free of cost.

28. *Prickly-pear, lantana and strobilanthes, Kollegal*.—Prickly-pear and thorny bushes are common in the lower slopes of low-lying reserves which are extensively used for grazing of cattle and sheep. The growth, however, is said by the District Forest Officer not to be so thick as to interfere much with the growth of fodder grass but the ground covered by prickly-pear means that the grass is reduced. However, no practical way of dealing with the pest is known. There are other extensive areas for grazing in the higher slopes almost free from these pests. For the eradication of prickly-pear no co-operation can be expected from the villagers and as the labour is scarce the cost would be prohibitive. In *South Coimbatore* lantana forms the chief pest and its eradication is confined only to the regeneration areas and felled fuel coupes. In *Tinnevelly* prickly-pear is not a great pest and the few reserves which were covered with it were since disforested. In moist localities lantana occurs in small patches. *Strobilanthes* is fast spreading but there is no means of eradicating it at a reasonable cost. In *Madura* the right to remove dead *strobilanthes* was leased out.

29. *Damage by animals*.—Elephants continued to do damage to forest growth in *Kollegal, South Coimbatore, Tinnevelly* and *Madura*. Nine thousand six hundred and seventy-two teak plants were damaged in the Vannathiparai plantation in *Madura* district. We are not able to arrange to catch elephants in these remote and widely separated areas and with the advent of the tractor the use of the elephant is likely to become less and less so that where they become a nuisance as they undoubtedly do in many places the reduction of their numbers should seriously be considered.

Bison and sambur caused some damage to the young seedlings in *South Coimbatore*, and sambur continued to damage teak seedlings in the Kodamady and Kariar plantations and also those in the forest.

30. *Damage by rain and floods*.—There were heavy rains in *Tinnevelly* in December 1923 and March 1924 and the flood in the *Tamparaparni* was the heaviest during the last forty years. There were landslips in several roads in two of the ranges and three road dams and one bridge were damaged and one building which was nearing completion, collapsed. In *Kollegal* owing to heavy floods in the streams some of the sandal beds on their banks were washed away.

CHAPTER III.—SYLVICULTURE.

Section I. Formation and regeneration of Forests.

31. *General progress of areas under regeneration*.—(a) *Kollegal division*.—This division is a purely agricultural division, more than three-quarters of which consists of reserved forests which comprise 602,627 acres. The people are very backward and the forests are poor, but very suitable for meeting the ordinary wants of villagers. They contain sandal, which constitutes the only commercial product of the forests except a little minor produce. The forests afford a large amount of grazing. Sandal in spite of spike, which has been destroying it for years, now is spreading in the less dry parts of the forest. This I found specially to be the case in a recent tour around Araipalayam a few miles south of *Kollegal*. A sandal tree has recently been found with a girth of 78 inches and straight hole of 20 feet. This shows what sandal can do in favourable portions of the forest and what great value it is likely to attain to if properly tended. It is hoped that with the regular extraction of spiked trees of all sizes the attack may in time subside. It has been much damaged by fire in the past but this is likely to be less so in the future under the present improved system of fire protection. Rosewood, Satinwood and Vengai (*Pterocarpus marsupium*) regenerate sufficiently well naturally to provide the sort of timber required for meeting villagers' ordinary needs both for construction and agricultural purposes. Coppice growth in the felled areas is satisfactory. Except for measures taken to propagate sandal which are mentioned later and the cutting over of coupes for coppice no special and regeneration work is undertaken in the division.

(b) *North Coimbatore division*.—The District Forest Officer's remarks under this heading are *Nil*. The bulk of the division which contains the *North Coimbatore* hills is much the same as *Kollegal* and the same remarks apply to a considerable extent. These hills contain sandal and bamboos which are dealt with commercially. The sandal has been suffering from spike as in *Kollegal* but it is also spreading naturally and in a recent tour I was surprised to find so much healthy sandal. The rainfall and the soil are both poor

except in the Minchiguli valley with the result that timber is of small size and slow growing and only suited for local village wants. There is a great deal of grazing. The regeneration is sufficient for the type of forest. There are a large number of fuel and small timber coupes on the plains which are regenerated as coppice and except for these, some sandal propagation work and some experimental regeneration in the Minchiguli valley, no special regeneration works have been undertaken in the division.

(c) *South Coimbatore division*.—At Mount Stuart the regeneration of the Mount Stuart working circle under a concentrated system of regeneration by means of clear felling, burning the useless material, dibbling, weeding and tending is proceeding in a highly satisfactory manner. The crop being regenerated is teak which is ideally suited to the locality except that where the ground is too moist for it, *Terminalia tomentosa* and other suitable species are introduced. The system aims at an underwood being established in due course and experiments are being made to ascertain the most suitable species. At present rosewood is being tried as this species is like a shola tree in that it grows very slowly at first and therefore does not in this locality compete with the teak at first as it only grows by inches to the teaks yard. Although rosewood later requires light it is hoped that the frequent and heavy thinnings prescribed for the teak together with the fact that the teak is leafless for a portion of the year will give sufficient light for this valuable species (rosewood) to prove suitable as an underwood. What must be guarded against is the introduction of *Artocarpus hirsuta* and another species at too early a period as they might interfere with the teak whereas it is an underwood which is being sought for. The 1919 plot has been undersown with rosewood and the growth of the plants is being watched. The 1923 plot, 251 acres, has been broadcast sown with rosewood seeds. Similar generation work is being carried out on a much smaller scale in the Punachi range and is proceeding satisfactorily. The District Forest Officer makes no mention in his report of regeneration in forests not under working plans or schemes.

(d) *Madura district*.—Natural regeneration is reported to be fair throughout the district and that by coppice, under which system there are a large number of felling series, good. Sandal saplings are found growing in Kombai reserve of the Cumbum range and this species is spreading naturally in patches on the tops of two hills and in their valleys; none of them have attained exploitable size yet. Sandal is also doing well in the Unjalnachi reserve of Palni range and in the Sirumalai reserve of Ayyalur range. There is sandal in the Sathiar valley which locality is reported to be specially suited to it.

(e) *Tinnevely district*.—In the Kuttalam range, regeneration of coppice shoots is satisfactory in all the fuel coupes.

The growth of teak is generally good particularly where *Strobilanthes* is absent. Seedlings of *Pterocarpus marsupium* (Vengai) (*Albizzia Lebbek* and *Dalbergia latifolia* (rosewood) are found in plenty under the parent trees in the portion of Padarmalai working circle newly added. *Strobilanthes* affects to some extent the growth of these seedlings as well as the coppice shoots.

In the Koilteri working circle in the Kodumady range regeneration of teak, *Pterocarpus marsupium* (Vengai), *Albizzia Lebbek* and *Chloroxylon swietenia* has been good. A majority of the teak seedlings that have sprung up are those that died back in previous years. Coppice growth of all the important species has been good in the Koilteri and the old Sivasailam work circles.

In the Srivilliputtur range natural reproduction from both seedlings and coppice was good. The principal species found are *Albizzia amara*, *Accacia leucophloea*, Teak, *Pterocarpus marsupium* (Vengai), *Terminalia tomentosa* and *Chebularius* and *Dalbergia latifolia*.

Reproduction in the sandalwood area was good.

A large number of Teak and Vengai (*Pterocarpus marsupium*) seedlings are found in the Kalakad and the Vadakarai working circles.

Coppice reproduction of the different species has been good. Natural reproduction from seed is poor in Manpothai, Kolundumalai and Terku Viravanallur reserved forests. Seedlings of *Dalbergia* (spinosa) are found in fair abundance in these forests.

In the Kannikatty regeneration area there is plenty of natural regeneration of *Dichopsis elliptica* in the 1921-22 and 1922-23 areas under parent trees. There are plenty of seedlings of *Messua ferrea* in the first and second strips of the 1923-24 area. Seedlings of *Gluta*, *Cullenia excelsa*, *Eugenia gardineri*, *Lansium* and *Chinnam* are found.

In the Kodumady regeneration area, there is fair amount of *Filicium decipiens*, *Hardwickia pinnata*, *Pygeum* and *Chickeracia tabularis* from self-sown seeds.

32. (ii) *Establishment of reproduction under working plans or schemes (with Form 18-A.)*

(a) *Mainly natural.*

Kollegal.—Nil.

North Coimbatore.—Nil.

South Coimbatore.—For no area under working plans is natural reproduction mainly relied on now. In the Mount Stuart working circle which is an ideal locality for teak, natural reproduction was relied on for about thirty-two years which was a disastrous loss of time. It has since 1918 been replaced by artificial regeneration under the system of clear felling, burning the useless material after the saleable timber has been removed, dibbling, weeding and tending. The same system has been introduced in the Punachi working circle which is the other timber working circle in the district.

Madura.—Nil.

Tinnevelly.—Nil.

33. (b) *Mainly artificial.*

Kollegal.—Nil. In the coupes treated under the coppice systems no artificial filling in of blanks is undertaken.

North Coimbatore.—Ditto.

South Coimbatore.—During the year the 251 acres of concentrated regeneration for teak, and *Terminalia tomentosa* in certain swampy parts which had been cleared and dibbled the previous year became fully stocked $4\frac{1}{2} \times 4\frac{1}{2}$ feet as the result of the operations and subsequent filling up of gaps was weeded as often as necessary. The result is a very fine and fully stocked crop in a locality which produces the finest teak and *Terminalia*. Two hundred and twenty-six acres were cleared and dealt with under the above mentioned system. The area should have been 250 acres the deficit being due to a mistake in survey only discovered too late to be remedied. At the close of the year 431 acres had been established with teak and a small amount of *Terminalia*, Venteak, etc., and 226 acres were awaiting the May showers and June monsoon to bring up the seeds sown and eight acres had been established with pure rosewood except for some natural reproduction of teak sprung from seeds naturally in the ground at the time of clearing. The future normal area of this regeneration work should be 250 acres a year. In Punachi working circle three acres of similarly concentrated regeneration was carried out in 1922-23, eight acres in 1923-24 during which year 25 acres were prepared. The normal area here in future should be fifty acres a year.

No artificial filling in of blanks is undertaken in the coppice series.

Madura.—Nil. No artificial filling in of blanks is undertaken in the coppice series.

Tinnevelly.—Nil.

34. (c) *Afforestation.*

Kollegal.—Nil.

North Coimbatore.—An experiment in shola reclamation or extension has been undertaken near Minchiguli during the last seven years. The experiment has for its object the linking up of four small sholas (plots of ever-green forest) into a larger one whereby the high coarse grass would be suppressed and the conservation of the sholas secured. Trial has been made of dibbling of *Eugenia jambolana*, *Cedrela toona*, sandal, *Accacia dealbata* and other seeds, the planting of posts of *Ficus* and *Macaranga*. It has been shown that *Ficus* and *Macaranga* will succeed, but these are of no value unless all other species fail. The species that will prove of most value are *Cedrela toona*, sandal and perhaps *Eugenia*. *Cedrela* is indigenous to the locality and can be grown successfully from dibbled seed in years of normal rainfall. The sandal plants raised by dibbling seeds are doing well at this elevation of well over 4,000 feet and should prove of value in due course. *Eugenia jambolana* thrives and may stand the cost of transport eventually. It is an interesting experiment and should continue until one compact shola is obtained. Then it can be considered whether an extension of the operation is desirable.

South Coimbatore.—Nil.

Madura.—Nil.

Tinnevelly.—Nil.

35. *Section (iii). Plantations and other forms of regeneration not under working plans or schemes.*

Kollegal. (a) Plantations.—Nil.

(b) The work of sandal extension by means of plots one chain square near water which was started during the previous year was continued and also extended to every district in the circle. The plots are cleared, fenced, dibbled with sandal seeds and watered by the local Forest Guard at no expense and are meant to be oases of sandal trees which will in due course bear fruits which will be spread by birds and result in general extension of sandal. In this division at the end of the year 10,630 seedlings have been established under this system, 5,011 in the previous year and the balance during the year under report. *Kollegal* is a natural sandal district but this system will greatly assist the rapid extension of this valuable species.

North Coimbatore. (a) Plantations.—The experimental work of shola extension has already been mentioned under afforestation. Another experiment has been made in the same neighbourhood, viz., the Minchiguli valley to test concentrated regeneration of teak, rosewood, *Terminalia tomentosa* and *Pterocarpus marsupium* by dibbling on a cleared area. The experiment is a small one and successful. This valley produces fine rosewood timber and fair

Terminalia and *Pterocarpus*. The teak is doing well. The experiment is not being extended for want of funds but the results are there for future guidance when financial times become more propitious.

(b) Similar sandal extension work to that mentioned in *Kollegal* was undertaken during the year and 7,522 seedlings were established during the year which figure would have been considerably higher but for the extreme and prolonged drought which caused some streams thought to be perennial to dry up.

South Coimbatore. (a) *Plantations.*—Nil.

(b) Sandal operations were started at Mount Stuart where no sandal exists at all. It is an experiment as regards this locality which is so different with its fine soil to ordinary sandal country. A few plants were established and their progress will be watched with interest and the experiment continued. Similar operations were undertaken in other ranges of the district with some success.

Madura. (a) *Plantation work.*—Nil.

(b) Sandal seeds were dibbled in all the six ranges in the district and 666 seedlings were established during the year.

Tinnevely.—During the year 26.75 acres of teak plantation at Kariar and 29 acres at Kodamady were established during the year in continuation of the planting done in previous years and in pursuance of the development plan agreed upon. During the year the experimental shola regeneration work was continued but on a reduced scale owing to lack of funds. This is most important work as the whole future of the sholas depends on it. The object of our work in these forests is to utilize the large quantity of valuable timber available and to improve the forest by suitable regeneration operations which will give us a forest composed entirely of the most desirable species. Our work during the last three years extends over 474 acres. The results show that we can effect this regeneration without difficulty, provided sufficient enthusiasm is bestowed on the work, while the overhead crop is on the ground. By felling the large trees, over an area of five acres stocked with the best species some of which had attained a height of over 20 feet, it was found that no undue damage was done. The Conservator in the sixth Circle has shown that dragging the timber from such fellings only caused 7 per cent damage to the saplings. These two experiments show that shola forests can be regenerated with the overwood standing which is so essential for such regeneration and that the final felling of the overwood can be regarded with equanimity. This is a great advance

in our knowledge in this Presidency and the correct policy is to go ahead with the regeneration work as fast as possible until we are five years ahead of the felling. The felling area in these forests may amount to three hundred acres a year but funds were only sufficient to do fifty acres on the Kodamady side where exploitation will commence. Fifty-three acres were also treated in the Kannikatty range.

The areas dealt with in the previous year were treated according to the rules prescribed for dealing with shola regeneration.

As in other districts sandalwood extension work was undertaken on the lines already described and 3,393 seedlings were established.

36. (iv) *Tending.*

Kollegal.—Nil.

North Coimbatore.—Creepers cutting was done free of cost by subordinates in the small experimental teak plantation at Ennamangalam, Bhavani Range.

South Coimbatore.—In the original experimental plot of five and a half acres to prove concentrated regeneration at Mount Stuart some of the large trees left on the plot were removed during the year. This plot received its first thinning last year, the sixth of its establishment. A first thinning in the small teak plot at Topslip established in 1917. The first thinning in the main regeneration areas is due to be done next year.

The prescribed weedings in the regeneration areas at Mount Stuart and Punachi were undertaken. The sandal plot near Thalingi was tended.

Madura district.—The Sirumalai sandal plot was tended by subordinates free of charge.

Tinnevely district.—The necessary weeding was done in the teak plantations and thinning was carried out in the teak plot at Kariar which required it. The sandal growth round Mundanthorai was tended as was the sandal area in Srivilliputtur Range.

37. (v) *General.*

Kollegal.—Nil.

North Coimbatore.—Nil.

South Coimbatore.—Weeding and climber cutting round coppice shoots were carried out in the three fuel coupes of Udampet Range over 196 acres.

Madura.—Nil.

Tinnevely.—Nil.

CHAPTER IV.—EXPLOITATION.

*System of Management.**(a) Major Produce.*

38. The area under working plans, including temporary schemes sanctioned, during the year was 1,099 square miles and the various sylvicultural systems in force are shown below:—

Selection method—	Area in square miles.	Percentage to the total area under working-plan.
(a) As per sanctioned working-plan ...	28	2.55
(b) As per temporary schemes sanctioned for removal of agricultural implements ...	319	29.03
(c) As per temporary scheme sanctioned for the extraction of dead jal timber ...	1	.09
Simple coppice ...	378	34.39
Coppice with standard ...	125	11.37
Extraction of spiked sandalwood ...	248	22.57
Total ...	1,099	100.00

Besides the above, an additional area of 29 square miles is being worked in *Kollegal* under simple coppice system. The working plan for this area is under revision. The forests in Kodaikanal and Palni Ranges in *Madura* district which are not under any working plan are worked under simple coppice system. The dead sandalwood and that damaged by elephants in *Tinnerelly* was collected departmentally and sent for sale to *Vellore*.

(b) Minor Forest Produce.

39. In *Kollegal* the removal of bamboos under the unregulated system continued in one of the ranges as the demand was small, local and scattered in the range, and two coupes in another range were worked under the regulated permit system owing to the absence of contractors to work the areas allotted. The remaining coupes were sold standing to contractors. The bamboo coupes in the other districts were sold as usual.

40. The right to collect all other minor forest produce in all the districts except honey and wax collected departmentally in *Kollegal*, was sold to contractors.

41. In *Kollegal* the system of issuing permits for the removal of grass at 3 pies per head-load was continued and a sum of Rs. 200-2-3 was thus realized during the year. Free removal of

grass was allowed owing to failure of rains and scarcity of fodder. In *North Coimbatore* 1,691 tons of fodder grass were removed by purchasers and consumers for Rs. 1,551 and in *South Coimbatore* Rs. 608 was realized from the same source. Stones, thorns and earth were removed in *Madura* to a limited extent on permits.

42. Grazing was as usual controlled by permits and the number of animals permitted to graze in the reserved forests during the year was 263,494, the fee realized being Rs. 1,26,971.

*2. Agency of Exploitation.**(i) By Departmental Agency.*

43. *Major Produce.*—Timber and sandalwood were extracted as usual departmentally. The extraction of drag poles in *North Coimbatore*, conversion of spokes and felloes from the top ends of teak trees felled in *South Coimbatore*, and collection of dead and wind-fallen trees in *Madura* were also done departmentally.

44. *Minor Produce.*—Collection of seeds required for sowing and bamboos for departmental works was done departmentally as also the honey and wax in *Kollegal*.

(ii) By Purchasers.

45. *Major Produce.*—The fuel coupes in all the districts were as usual sold standing to contractors. The agricultural implements coupes were worked under the regulated permit system. The collection and removal of spokes and felloes in *South Coimbatore* by purchasers were permitted in the regeneration areas.

46. *Minor Produce.*—Bamboo coupes in all the districts and the right to collect other minor produce (except honey and wax in *Kollegal*) were leased out to contractors.

(iii) By right and privilege holders and free grantees.

47. The quantity and estimated value of the different kinds of produce removed by right and privilege holders and free grantees are shown in the following statement:—

	Timber in thousands of cubic feet.	Value.	Fuel in thousands of cubic feet.	Value.	Bamboos in value.	Grazing value.	Other minor produce.	Total.
		RS.		RS.	RS.	RS.	RS.	RS.
Right and privilege holders.	..	..	..	..	..	1,026	264	1,290
Free grantees ..	34	3,560	..	..	16	375	99	4,050

48. *By right and privilege holders.*—In *Madura* the right to graze free in the *Amphill Downs* reserve and the concession to quarry stones and road materials free of charge from the reserved forests and unreserved lands to the departments of Government and local bodies and also the concession to ryots to quarry stones, etc., from unreserved lands for *bona fide* domestic purposes, were continued during the year. In *Tinnevely* the removal of palmyra leaves to the value of Rs. 264 was allowed.

49. *By free grantees.*—The following free grants were made to rebuild houses destroyed by fires and flood. *North Coimbatore*. 6,920 c.ft. of timber valued at Rs. 712 and eighty bamboos to the value of Re. 1. *South Coimbatore* palmyrahs and bamboos to the value of Rs. 102. *Madura* 2,313 c.ft. of timber and 200 c.ft. of fuel to the value of Rs. 345. *Tinnevely* sixteen posts of 24,765 c.ft. valued at Rs. 2,503 and bamboos to the value of Rs. 8.

3. Outturn and sources of forest produce.

50. The subjoined statement shows the total outturn of major produce and the total value of minor produce from all classes of forests by all agencies during the year under report as compared with the similar details for the preceding year:—

Agency of exploitation.	Timber and sandalwood in thousands of cubic feet.		Fuel in thousands of cubic feet.		Bamboos in value.		Minor produce including grazing in value.	
	1922-23.	1923-24.	1922-23.	1923-24.	1922-23.	1923-24.	1922-23.	1923-24.
By Government agency.	207	167	8	2	Rs. 65	Rs. 201	Rs. 2,230	Rs. 8,058
By purchasers ..	890	343	2,487	3,350	41,810	34,695	2,33,962	2,34,721
By right and privilege holders.	..	..	..	..	..	..	2,411	1,290
By free grantees ..	11	34	1	..	226	16	..	474
Total ..	1,108	544	2,491	3,352	42,101	34,912	2,38,603	2,39,543

51. *By Government Agency.*—The decrease under timber was in *South Coimbatore* due to the fact that only logs of those species that would pay to drag, and cart to the sale depot were exploited during the year as there was loss in previous years in exploiting logs of many species for which there was little demand. Further there was no outturn from the Mount Stuart Ghat road unlike last year. The increase under minor produce was in *South Coimbatore* due to the sale of a larger quantity of elephant tusks.

52. *By purchasers.*—The decrease under timber was in all the district except *North Coimbatore* due to the non-sale of timber coupe in *Ayyalur Madura* district and also to the realization of a smaller amount from darkhast lands. The increase under fuel was in *Kollegal* due to the popularity which the village fuel coupes and agricultural implements coupes are gradually gaining in the district, and also in *Madura* and *Tinnevely* due to the increased sale of trees in unreserved lands. The decrease under bamboos was in *Kollegal*, *North Coimbatore* and *Tinnevely* due to a lower price fetched at the sales. Under minor produce including grazing, the increase was in *Kollegal* due to the influx of *Salem* cattle for grazing and in *South Coimbatore* due to the sale of *Konnai bark* (*Cassia fistula*) not sold in the previous year and also to better prices realized by the sale of minor produce.

53. *Right and privilege holders.*—The decrease under *Minor produce* was in *Tinnevely* due to the fact that in the year 1922-23 a large amount of assessment outstanding from previous years was collected from owners of patta palmyrah trees and that there was no such realization during the year under report.

54. *Free grantees.*—The increase under timber in *Tinnevely* is due to larger grants made to the people to rebuild their houses destroyed by floods. The free grazing allowed in *Teri* reserve in *Tinnevely* accounts for the increase under minor produce including grazing.

CHAPTER V.—FINANCIAL RESULTS.

55. The subjoined statement compares the financial results of the year with those of the previous year.

	1922-23.	1923-24.
Revenue	12,43,732	13,23,773
Deduct refunds	— 3,425	— 1,670
Net	12,40,307	13,22,103
<i>Expenditure.</i>		
Conservancy and Works	3,34,194	3,84,203
Establishments	4,34,411	4,24,070
Total	7,68,605	8,08,273
Surplus	4,71,702	5,13,830

56. Seventy-one per cent of the revenue was derived from major produce, 10 per cent from minor produce, 10 per cent from grazing and 9 per cent from miscellaneous sources. Thirty-three per cent of the expenditure was incurred on exploitation, 25 per

cent on upkeep and improvement and 42 per cent on miscellaneous items.

57. The increase under revenue was due (i) to the extraction and sale of a larger quantity of sandalwood in *Kollegal* and *North Coimbatore*, (ii) to the collection of more revenue from sale of trees on darkhast lands and (iii) to the local fund contributions received in *Madura* for the maintenance of forest roads having been credited to V (b). Revenue instead of keeping them under Civil deposits. The revenue outstandings at the end of the year was Rs. 1,09,431, of which Rs. 40,360 actually fell due within the year. The estimated value of the produce at the sale depot was Rs. 1,44,508 against Rs. 67,796 in the previous year.

Expenditure.

58. *Conservancy and Works.*—The increase under this head was due to the extraction of more sandalwood for sale in *Kollegal* and *North Coimbatore*, to the expenditure of Rs. 13,835 incurred by Mr. Clear while in charge of *North Coimbatore* division for despatch of timber for sale at the British Empire Exhibition in London having been included by the Accountant-General in this circle accounts, and also to a larger amount spent by the Forest Engineer on Mount Stuart Ghat road work.

59. *Establishments.*—The decrease was due to junior officers being placed in charge of districts where seniors had been provided for, and also to the restricted touring during the year.

CHAPTER VI.—RESEARCH AND EXPERIMENTS.

60. *Tinnevely* district.—In the *Tinnevely* shola forests the experimental regeneration work was continued. The unsolved questions last year were the extent of the damage that the felling of the gigantic overwood trees and the removal of the logs which would be obtained from them would have on a properly regenerated area. We had proved that there is no special difficulty in getting regeneration of the best species at a moderate cost prior to the final felling of the overwood and it was essential to know what damage would be done to such regeneration by the felling and conversion of the overwood. An area at *Kannikatti* of 4.35 acres, one acre of which had been planted and sown with *Hopea* and *Gluta* so far back as 1,908 was selected. During the last three years this area has been specially tended with a view to giving these trees, some over 20 feet high, more light and space. The whole of the 4.35 acres was fully stocked. The overwood was felled during the year and it is pleasing to find that the damage done to the young crop was small. This was as far as we could carry the experiment in *Tinnevely* as we have no elephants or tractors at

present to drag out the felled timber. The Conservator, VI Circle, Mr. R. D. Richmond, was fortunately able to give us the balance of information required as he was able to both fell, convert and drag the timber felled under a similar experiment and he has shown that the damage by dragging to the young crop only amounts to 7 per cent. This is most satisfactory and shows us that we can regenerate shola forests with the best species in their natural shade and then fell and convert the overwood so as to leave sufficient regeneration of the most desirable species to grow up into a much important shola forest. We now know where we stand as regards this most important silvicultural question which we did not know this time last year.

Test measurements of saplings and seedlings were made on the above mentioned area to show the effect of the renewal of the overwood.

Seventeen and a half tons of green reed were cut in the reed forest which gave 11-1/3 tons of dry reed. These were sent to the Paper Expert at Dehra for testing.

Five thousand eight hundred acres of the shola forest along the route that exploitation is likely to be first undertaken were stock valued and the results recorded. This was deemed to be sufficient for our present purposes.

Sandal propagation on the lines laid down was carried out in all the ranges except in *Tinnevely* range and a considerable amount of success achieved.

North Coimbatore division.—In the *North Coimbatore* division the experimental work of shola extension at *Ainagiri* could not be added to as the trifling amount of funds Rs. 120 could not be allotted but they are being continued during 1924-25. A recent inspection showed that some interesting results had been obtained from the previous two years work. There are four small now disconnected sholas and an effort was being made to bring them back into one solid one. *Eugenia*s and *Ficus* (from posts) have been shown to be successful but much more valuable results may be expected from the success achieved with *Cedrela Toona* and sandal; these are valuable paying species and have been raised from dibbled seeds. The sholas had been well fire protected which in itself had resulted in a quantity of saplings of quick growing species. The experimental cost is very small and if the work is continued for a few years the District Forest Officer should have the satisfaction of securing a valuable block of shola and future operations can be based on the results obtained. Experimental

sandal extension work was continued during the year with good results.

Kollegal division.—The special sandal propagation work was continued during the year and in spite of the great drought 5,619 seedlings were raised in 50 forest guards' beats. Research of the Range Officer, Kollegal, has revealed the fact that there are large sandal trees existing. One is said to have a girth of 78 inches and a straight bole of 20 feet. This fine specimen will be secured if possible for the Forest Museum.

The experiment of burning the grass round the sholas in the Doddasampagai reserve was continued on an extended side and was found to be effective in preventing much of the damage normally caused by fire and in preventing fires reaching the sholas.

South Coimbatore.—The experiment to introduce sandal into the Mount Stuart forests and elsewhere in the district was commenced and 400 plants were raised. The future results will be interesting.

The experiments with rosewood as an underwood to teak are continuing and I do not see why they should not succeed. Their slow growth at first enables the teak to secure a long lead. Although rosewood is later on a light demander the heavy thinnings in the teak combined with the fact that the teak is leafless for several months of the year should give rosewood sufficient light. An attempt to introduce *Artocarpus* as an underwood by means of seeds obtained from a far distance in the sixth Circle was a failure. Even if seeds can be obtained nearer it is not the time to introduce this species at present, twenty-five years hence will be quite time enough as we do not want it to compete with the teak as it might do if successfully introduced at this stage.

Madura district.—In this district 666 sandal seedlings were raised on the approved lines so we may look for the gradual extension of sandal in due course.

CHAPTER VII.—ADMINISTRATION.

61. There was no change in the territorial jurisdiction of the districts during the year. Towards the close of the official year the District Forest Officer, Madura, submitted certain proposals for the redistribution of sections in 4 out of 6 ranges in the district thereby altering the size of these ranges for their proper administration. The proposals were accepted by the Conservator just after the close of the year.

A list of officers who were in charge of the circle and of the several districts therein is appended to this chapter.

62. *Health of the establishment and sanitation.*—The health of the establishment was not satisfactory in all the districts except *Tinnevely* where it is reported to have been good on the whole and several subordinates had to be granted leave on account of ill-health. Plague and influenza were prevalent in *Kollegal* and plague and cholera in *Madura*. Ranger Mr. R. B. Salisbury died in the Madras General Hospital after an operation for appendicitis. Two foresters, 7 forest guards and 2 range peons died of malaria and other ailments.

Sanitation.—In *South Coimbatore* the undergrowth round the Mount Stuart and Attakatti were cleared and burnt at a cost of Rs. 358 as an antimalarial measure.

63. *Tours.*—Mr. Tireman the Chief Conservator of Forests inspected the Mount Stuart forests in September 1923. The Chief Conservator, Mr. Martin Chief Forest Engineer, and Mr. Raitt the Paper Pulp Expert, Dehra Dun, visited *Tinnevely* in February 1924 and inspected the reed area beyond Wood's camp. The regeneration operation at *Kannikatty* and *Kodamady* and the teak plantation at *Kodamady* were also inspected by the Chief Conservator. The Chief Forest Engineer inspected the new ghat road and the proposed water site at Mount Stuart in November 1923.

The Conservator of Forests visited all the districts during the year and the total number of days spent on tour was 252.

All the District Forest Officers spent more than the prescribed period on tour during the year except the District Forest Officer *North Coimbatore*, who toured 161 days only the short touring being due to the change of officers in charge of the district.

64. *Inspection of offices—By the Conservator of Forests.*—All the District Forest Offices in the circle were inspected during the year, the result being generally satisfactory.

By District Forest Officers.—All the Range offices in the circle were inspected during the year by the respective District Forest Officers.

65. *Audit of District Forest office accounts.*—The accounts of all the District Forest offices except *South Coimbatore* and *Tinnevely* districts, were audited during the year by the Assistant Inspector of Local Fund Accounts and the result is reported to have been satisfactory.

66. *Vernacular Training School.*—The school was held at Mount Stuart in *South Coimbatore* division. The session commenced working on 1st June 1923 and ended on 30th November 1923. Of the 29 students deputed from all the districts together one was withdrawn after a few days on account of chronic malaria he was suffering from. The session was successful, the work and conduct of the students being satisfactory. Of the 28 students

trained in the school 10 were placed in the first and the rest in the second class.

Circle Office.

Mr. H. F. A. Wood was in charge of the Circle throughout the year.

Officers in charge of Districts.

Kollegal	...	M.R.Ry. J. Sadasiva Ayyar Avargal, B.A., Extra Assistant Conservator of Forests, throughout the year.
North Coimbatore.	{	Mr D. F. Stileman, Deputy Conservator of Forests, from 1st April to 13th November 1923.
		Mr. M. F. Bridge, Deputy Conservator of Forests, from 14th to 26th November 1923.
		Mr. T. Clear, Deputy Conservator of Forests, from 27th November 1923 to 23rd February 1924.
		Mr. R. S. Browne, Assistant Conservator of Forests, from 24th February 1924 to end of the year.
South Coimbatore.	{	Captain W. G. Dyson, Deputy Conservator of Forests from 1st April to 3rd May 1923.
		Mr. M. F. Bridge, Deputy Conservator of Forests, from 4th May 1923 to end of the year.
Madura	{	M.R.Ry. K. A. Chengappa Avargal, Deputy Conservator of Forests, from 1st April 1923 to 9th October 1923.
		Mr. H. R. M., Law Assistant Conservator of Forests, from 10th October 1923 to end of the year.
Tinnevelly	{	M.R.Ry. George Venugopaul Avargal, B.A., Deputy Conservator of Forests, from 1st April to 28th June 1923, 29th September 1923 to end of the year.
		M.R.Ry. A. Hanumantha Rao Avargal, Extra Assistant Conservator of Forests, from 29th June to 28th September 1923.

CHAPTER VIII.—GENERAL.

(1) Formation and management of panchayats.

67. Three reserves of 2,796.13 acres in extent, were handed over for the panchayat management in *Tinnevelly* district during the year; and no new panchayats were formed in the other districts.

The management of the Andiyur panchayat in *North Coimbatore* is reported to have been unsatisfactory. In *Madura* the District Forest Officer states that the management has been on the whole satisfactory except in the case of Perumalmalai reserve in Nattam Range where some of the panchayatdars were unwilling to continue the management and the Collector has therefore ordered the resumption of the reserve from 1st July 1924. He however adds that panchayatdars do not appear to control grazing in the areas and that the incidence of grazing is very heavy.

(2) Measures for improving local supplies and facilities.

68. *Manure leaf supply.*—The demand for manure leaf in *Kollegal* being very limited, was as usual met from private forests and

unreserves. In *Madura* nothing was done by the department in this direction as the growth of leaf manure by the ryots themselves in their patta lands, is being encouraged by the officers of the Revenue and Agricultural Departments and the Forest Department had been forbidden to offer any facilities as such were considered to be a retrograde step. In *Tinnevelly* permits for the removal of manure leaves of inferior shrub species were issued in the Nanguneri Range. Proposals for the sale of similar species of manure leaves in the Srivilliputtur Range on permits at full market rates were submitted and sanctioned towards the end of the year.

69. *Supply of fuel and agricultural implements.*—The fuel coupes near *Kollegal* were as usual sold standing to contractors; but owing to the incoming of the Jaghir fuel in large quantities the prices fetched were very low. Six small village coupes opened for the benefit of villagers were also worked during the year, 4 on the controlled permit system and two through contractors. The controlled permit system is reported to be very popular with the ryots and the forests are also benefited thereby as the stumps are well trimmed before any removal is effected under the supervision and control of the beat subordinates on fixed days in the week. The inhabitants of *Kollegal* division are so backward at present for any other system. They are charged ten annas a cartload at which rate they make no complaint and usually do their own felling. This has increased the revenue as compared with contractors' working by 50 per cent. The six agricultural implements series opened in 1922-23 were also worked under controlled permit system. On fixed days in the month a forester goes to the forests and sells permits to villagers who also go to the forests on those days, on payment of seigniorage fees. The trees are then felled under the supervision of the forester and his guards who see that coppicing is well done before removal is effected. The villagers are satisfied with this system which has stopped forest offences and improved protection of forests. This is a simple and useful system. There are large areas of uncommercial forests available which contain just the sort of timber villagers require. The coupes are worked in rotation and removals are charged for at a fixed tariff and good coppicing insisted on. As these forests are protective forests the soil is not denuded by such selection fellings.

The concession granted as a result of the Forest Committee's Conference in 1921, in the matter of issuing one grazing permit for the whole range instead of for each block, penning cattle free of cost and reducing the period of closure to grazing of worked coupes to five years, is much appreciated by the ryots who bring their cattle in large numbers for grazing.

North Coimbatore.—Four small timber felling series were opened in Satyamangalam Range for the supply of ploughs and small timber required for plain villages and three coupes in Talamalai Range for agricultural and domestic wants of the hill villages. The demand for these were rather poor, the villagers getting most of their requirements from unreserves. Consequently the felling was not done regularly and stools not trimmed properly. The ryots have evidently not learnt to appreciate this system yet but they doubtless will do so as time goes on. Permits for removal of thorns from fuel coupes and bamboos from three coupes were also issued in Satyamangalam Range. The demands of the villages in the remaining two ranges were met as usual from fuel coupes leased out to contractors.

South Coimbatore.—The right to collect spokes and felloes from the top ends of the felled trees was leased out as usual but the quantity collected was small due to the prohibitive transport charges. Brake poles were collected by the mail cart contractor. The demand for agricultural implements is mostly met by illicit removals from the unreserves. There were two coupes opened for the removal of agricultural implements, one in Pollachi Range and the other in Udamalpet Range. There was no demand from the villages for trees from the coupe in Pollachi; and the removal effected from the coupe in Udamalpet was 353 ploughs, 11 yokes and 17 plough shafts.

Madura.—The demands of the villagers were met by the coupe contractors in accordance with the terms of their agreements. The supply of fuel to Madura town was considerably increased by working more arrear coupes and there was a corresponding fall in price of fuel during the year.

Tinnevely.—As in previous years permits were issued by the Revenue Department for the removal of babul trees for agricultural implements and the seigniorage fees collected were credited to forests. There is no difficulty in *Tinnevely* district as regards agricultural implements as so many ryots own *accacia planifrons* trees or plantations.

70. *Free grazing.*—In consideration of the unusual drought during the latter part of the year the Collector of Coimbatore, with the concurrence of the Chief Conservator, issued orders admitting all cattle excluding sheep and goats, free without permits to all reserves ordinarily open to grazing, except fuel coupes and plantations, in *Kollegal* and *North Coimbatore* districts and *Pollachi* and *Udamalpet* Ranges of *South Coimbatore* district. Free cutting of grass and penning within the reserve without restriction were also allowed.

71. *Improvement of water supply in grazing grounds.*—In *Kollegal* three wells were sunk in the year for the benefit of cattle at a cost of Rs. 2,332. In *North Coimbatore* four tanks in grazing areas were repaired and deepened during the year at a cost of Rs. 785. In *Madura* two wells in grazing grounds were repaired and improved at a cost of Rs. 234 and a fair supply of good water is available always for cattle. In *Tinnevely* district one old tank in the grazing compartment was deepened at a cost of Rs. 315 and it contains water during the hot weather. In *South Coimbatore* no need is felt in this direction as perennial streams flow through most of the grazing blocks.

(3) *Timber Transit Rules.*

72. There was no change in the rules and they continued to work satisfactorily. Under these rules nine cases in *Kollegal*, five in *North Coimbatore* and ten in *Madura* were detected during the year.

The rules framed for the purchase and transport of sandalwood trees from pattadars by private dealers continued to work in *Kollegal* and *North Coimbatore* districts. One of the private dealers in *Kollegal* illicitly removed about 50 tons of Government sandalwood and he is now being criminally prosecuted along with the forest subordinates who connived at the removal.

(4) *Jungle tribes.*

73. The number of sholaga settlement in *Kollegal* rose from 11 to 12 during the year and the total area occupied was 232 acres. The sholagars were allowed as usual free cultivation in the areas occupied by them and they continued to supply labour to the department.

An extent of 26.57 acres in *North Bargur* reserve granted for dry cultivation on an assessment of Rs. 12-13-0 continued to be enjoyed by the sholagars.

In *North Coimbatore* sholagars are being encouraged by the grants of leases of lands within the reserves for cultivation and by being employed in sandal felling and in other departmental operations. They are reported to be habitual forest offenders.

In *South Coimbatore* the mulcers and Kadirs were employed as usual on forest work of some sort. In consideration of services rendered to the department by the hill tribes they were allowed to cultivate lands free of assessment. 12.50 acres of land for wet cultivation and 25 acres for dry cultivation are also held by the hill tribes on lease with assessment.

The Palians, the only jungle tribe in *Madura*, are said to be gradually becoming absorbed among the agriculturists.

In *Tinnevelly* in the forests of *Srivilliputtur* and *Kuttalam* Ranges there live under rocks and trees the Palayars, the real jungle tribes. They are chiefly employed by the minor forest produce contractors for nominal wages and they live generally on roots and herbs.

(5) *Mining and Quarrying.*

74. Nil.

(6) *Live-stock.*

75. *Elephants.*—*South Coimbatore* is the only district in the Circle where there is live-stock. There were 22 elephants at the commencement of the year. One was captured and one born during the year. Six died and one was sold thus leaving a balance of 17 elephants to the value of Rs. 58,000 at end of year.

76. *Other animals.*—There were 37 bulls and 40 buffaloes at the commencement of the year. Twenty-two bulls and 17 buffaloes were purchased during the year at a cost of Rs. 4,599. Six bulls and 3 buffaloes were sold, 2 bulls and 1 buffalo died and 1 bull and 3 buffaloes were destroyed. The number remained at end of the year was 50 bulls and 50 buffaloes, their aggregate value being Rs. 9,671.

(7) *Veterinary Establishment.*

77. The live-stock in *South Coimbatore* was in charge of a Veterinary Assistant and was inspected once by the Inspector of Live-stock during the year.

(8) *Civil Suits.*

78. The decree obtained last year in the Kollegal District Munsif's Court against the avaram bark contractor for the recovery of Rs. 108-10-0 could not be executed during the year as the defendant resides in the Mysore State. Petition for the transfer of the decree to the District Munsif's Court, Mysore, has since been filed.

In *Madura* the suit filed against one Alagiriswami Chetti for the encroachment of 10 acres of land in the Sirumalai North-West slopes reserve referred to in the previous year's report, is still pending.

(9) *Control of unreserved lands by the Forest Department.*

79. The department has no control over unreserved lands in the Circle except over the sandalwood working circles in *Kollegal* and also over an area of 866.8 acres of unreserves, included in the *Bargur* sandalwood working circle and exploited for bamboos along with the *Tamarakarai* bamboo working circle.

H. F. A. WOOD,
Conservator of Forests,
Fifth Circle.

COIMBATORE,
30th August 1924.

APPENDIX.

SUMMARY OF PROGRESS DURING THE FIVE YEARS
1919-20 to 1923-24.

1. In G.O. No. 91, Revenue (Special), dated 18th July 1921, it was ordered that the Forest Administration Report should be compiled since 1920-21 for the official year ending 31st March, instead of for the forest year ending 30th June.

2. *Administration.*—The following officers held charge of this Circle during the period under review:—

Mr. H. Tireman	...	From 12th July 1919 to 29th April 1920.
Mr. C. E. C. Fischer	...	From 30th April 1920 to 19th December 1920.
Mr. H. F. A. Wood	...	From 20th December 1920 to date.

3. *Changes in the Controlling Charges.*—In February 1921 the Presidency was divided into six Circles and accordingly the two Forest divisions of *Madura* and *Tinnevelly cum Ramnad* were added on to this (old Western) Fifth Circle, while the two Forest divisions in *South Kanara*, two in *Malabar* and *The Nilgiris* division with the major portion of the old *Central Coimbatore* division, were transferred to the Sixth Circle.

4. *Organization.*—The pay of the officers of the Imperial Forest Service was improved with effect from 30th April 1921, and those of the Provincial Service from 1st January 1922. The re-organization of the executive and protective staff—increasing their number and raising the scale of pay—was sanctioned with effect from 1st October 1919. The pay of the clerical service also was revised with effect from 1st March 1921.

5. *Changes in Area.*—The area of reserved forests and lands under the control of the Forest department, at the commencement of the quinquennium in the divisions now comprising this Circle, was 3,190 square miles, and the area at the close was 3,251. The increase was due to the addition, to *North Coimbatore* division, of the *Mettupalayam* range in the old *Central Coimbatore* division transferred to VI Circle, and also to the additions made during the period after final settlement.

6. *Froest Settlement*.—The following statement shows the details about the forest settlement:—

In hand at the commencement of the quinquennium period.	Newly taken in hand during the period.	Total.	Finally settled during the period	Balance.
SQUIRE MILES. 2 218	SQUIRE MILES. 0 647	SQUIRE MILES. 2 865	SQUIRE MILES. 2 509	SQUIRE MILES. 356

Of the 2,509 square miles finally settled during the period the reservation of .001 square mile was to take effect from 1st July 1924.

7. *Demarcation*.—The total length of artificially marked boundaries at the close of 1923-24 was 2,881 miles, as compared with 2,985 miles at the commencement of the quinquennium, the decrease being due to disforestation of reserves in *Madura* and *Tinnevely*. The length of boundaries still to be demarcated at the close of the period was 532 miles.

8. *Forest Surveys*.—A party of the Survey of India party was at work in *South Coimbatore* during 1920-21, making 1-in. maps of the hilly tracts of Udamalpet range, and the map was published in 1922-23 on a scale of 1½ in. to a mile. In *Madura* the Ampthill Downs reserve of Kodaikanal range was surveyed by the Survey of India party during 1920-21, and the resurvey of the reserved forests in Cumbum, Palni and Sholavandan ranges was also done in 1921-22.

9. *Working Plans*.—The total area under sanctioned working plans and schemes, at the close of the quinquennium, was 1,433 square miles against 1,090 square miles at its commencement. The increase is due to the temporary schemes sanctioned for the extraction of agricultural implements and small timber, and also the dead and spiked sandal trees, in *Kollegal* and *North Coimbatore*. The revised working plan drawn up for *Tinnevely* forests of 287 square miles in extent, excluding the shola and reed forests of Kodamady and Kannikatty ranges, drawn up by the District Forest Officer, was returned for further revision; but this was temporarily approved for working for a period of three years.

Area for which working plans have still to be prepared is 409 square miles, and that for which working plans are not at present required, as there is no possibility of working the forests concerned for some years, is 1,358 square miles.

10. *Communications and Buildings*.—The average annual expenditure on communications, buildings and other works amounted to Rs. 92,372 during the period under review. Owing

to the changes in the controlling charges referred to in paragraph 3 supra no comparison can be made with the average of the previous five years. There was, however, increase in expenditure on communications during the latter half of the quinquennium under review, due to the construction of the new Mount Stuart Ghat Road in *South Coimbatore*, sanctioned by Government in 1921-22.

11. *Forest Offences*.—The average annual number of forest offences during the quinquennium under review was 4,249.

12. *Fire Protection*.—During the quinquennium period under review the average annual area under systematic protection was 427 square miles. The percentage of failure was 4.6 per cent.

13. *Protection from Cattle*.—The whole forest area is closed to goats. The average area annually opened to grazing of all animals except goats was 2,321 square miles during the quinquennium period under review, and the area open to all animals, except sheep and goats, 218 square miles, i.e., 71 per cent and 7 per cent, respectively, of the total area. The average number of animals permitted to graze in the quinquennium under review was 254,088.

14. *Yield and Outturn*.—The total outturn of the forest during the quinquennium under review is as shown below:—

	In thousands of cubic feet.					
Timber ...	...	...	...	...	...	3,179
Fuel ...	...	...	...	...	...	16,386
Total ...						19,565

15. *Financial Results*.—The gross revenue for the period under review was Rs. 58,37,154, and the expenditure Rs. 35,16,502, leaving a surplus of Rs. 23,20,652. No comparison with the previous five years' figures is possible for the reasons stated in paragraph 10 supra.

16. *Forest Education*.—During the period under review there were three sessions of the Vernacular Training School held in 1920, 1920-21 and 1923-24 in three different divisions, with satisfactory results. In all, 83 Foresters and Forest Guards were deputed for training, and 79 of them obtained certificates.

Fourteen students returned from the Madras Forest College after training during the period, three obtaining Honours, 10 Higher Standard and one Lower Standard, certificates.

COIMBATORE

H. F. A. WOOD,
Conservator of Forests,
Fifth Circle.

9th September 1924.

ANNUAL ADMINISTRATION REPORT OF THE FOREST DEPARTMENT

FOR THE
YEAR ENDING 31st MARCH 1924

SIXTH CIRCLE.

CHAPTER I.—CONSTITUTION OF STATE FORESTS.

1. ALTERATION IN AREA.

(1) *Reserved Forests.*

The total area of reserved forests in the circle was reduced during the year from 1,846 square miles to 1,844 square miles.

The following were the main changes during the year:—

In *The Nilgiris*, an area of 107 acres was added to Kalhatti reserve.

In *North Mangalore*, Chambugudde reserve—an isolated reserve of 74 acres in extent—was disafforested and, in the *Palghat* division, a part of Chennimalai reserve, 85 acres in extent, which had been leased to the London Mission Society for a long time, was disafforested; 627 acres of Bolampatti Block I in the *Palghat* division was also disafforested.

(2) *Reserved Lands.*

The area under this head, with the exception of 109 acres transferred to reserved forests in *The Nilgiris*, remained unaltered.

2. FOREST SETTLEMENT.

The areas under settlement were confined to the *Nilgiri* division.

Two small areas—one of 108.53 acres, additions to Kalhatti reserved forest, and another of 0.50 acre, an enclosure—were finally notified during the year.

The settlement of 74.7 square miles representing the Mudumalai forests, referred to in the last year's report, was completed, but the draft notification, being very defective, was under revision in this office

3. DEMARCATION.

The only original work carried out was the demarcation for two miles of part of Tirunelli reserve in the *Wynaad* division.

The usual reclearing of boundaries was carried out in *North* and *South Mangalore* and in parts of *Wynaad*, *The Nilgiris* and *Palghat* divisions. In *Nilambur*, reclearing of lines was undertaken during the fire-protection operations.

4. FOREST SURVEYS.

The Mysore-Malabar political boundary in Begur range was verified by the Revenue Survey Party No. VIII and completed. In addition, the boundary lines of some reserves were surveyed by the party and the question of reconciliation between the section 16 notifications and the surveyed line is under correspondence.

The survey of coupes, plantations, roads, etc., was carried out by the subordinates.

Reference maps were maintained in all divisions.

CHAPTER II.—MANAGEMENT OF STATE FORESTS.

1. REGULATION OF MANAGEMENT.

Preparation and Control of Working Plans.

The scheme for working the fuel areas in Coondapur and Shankeranarayana ranges of the *North Mangalore* division, comprising an area of 25 square miles, referred to in the last report, was approved of by the Chief Conservator of Forests.

In the *North Mangalore* division, a scheme for the extraction of catechu trees in the reserves and unreserves is under preparation.

An officer was posted to the *Wynaad* division for reconnaissance work, but after a short time was withdrawn for district charge.

In the *Nilgiri* division, a scheme for the conversion of the Coonoor Acacia working circle was prepared by the District Forest Officer and submitted to the Chief Conservator of Forests.

In the *Palghat* division, a preliminary report was drawn up by the District Forest Officer for the revision of the working plan for the Walayar forests, but here again change of officers has resulted in the work not yet being completed.

The prescriptions of existing working plans and schemes were generally followed; but work is to a great extent being conducted without any definite or considered plan, and it is much to be hoped that officers may shortly be available for the all-important work of preparing working plans.

2. COMMUNICATIONS AND BUILDINGS.

Roads and Bridges.

The expenditure on new works and repairs were Rs. 11,444 and Rs. 15,229, respectively. The amount spent on new works mainly represent the metalling of five miles of the Chedleth-Sultan's Battery Road and the construction of inspection paths in the *Palghat* division, to a length of about 25 miles, in the Attapadi and Silent Valleys. The amount spent on repairs represent the maintenance of 377 miles of roads, bridle and inspection paths.

Buildings.

The expenditure on new works amounted to Rs. 33,583 and that on repairs Rs. 9,023. The important works were—

(1) *North Mangalore division.*

Part construction of range office at Karkal, extension of Range officer's quarters at Coondapur, Mudabidri, Shankeranarayana and Karkal.	3,323
Construction of subordinates' quarters at Nellikar, Kodiamale, Nire, Jedkal, Shirur, Vasrahole and Siddapur.	4,805

(2) *South Mangalore division.*

Forester's quarters at Parappa, Range officer's inspection rest-houses at Parappa and Padnur.	3,431
[The floods in August 1923 destroyed the range office at Uppinangadi (it is being rebuilt on another site) and did other minor damage.]	

(3) *Wynaad division.*

Construction of forest guard's quarters at Boothakkal and Muthanga.	966
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(4) *Nilambur division.*

The completion of the reconstruction of the range office, Nilambur, ceiling of District Forest officer's bungalow, part reconstruction of Nilambur Range officer's quarters, District Forest office, Amampalam Range officer's quarters and range office, etc.	7,231
Acquisition of the site for the circuit house, Nilambur ...	1,750
[In this division a great deal remains to be done on reconstruction and on the provision of quarters for the subordinate staff.]	

(5) *The Nilgiri division.*

Construction of subordinates' lines at Kargudi ...	2,730
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(6) *Palghat division.*

Construction of inspection bungalows at Walghat, Aruvamparai, and completion of the range office at Mannar-ghat.	4,005
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Miscellaneous Other Works.

Nearly Rs. 1,000 was spent in the *North Mangalore* division on wells for subordinates' quarters.

The sanctioned improvements to the Paishwani river (*South Mangalore*) have been completed in April 1924 at a total cost of Rs. 35,378. The section of the river improved is seven miles and the transport of timber from the Parappa forests to Kasaragod has been much facilitated.

In the same division the question of improving the Netravati river for floating purposes awaits investigation by the Chief Forest Engineer.

Improvements to the Kumaradhari river—six miles—to facilitate transport of fuel by water from the Narimogar reserve in the Puttur range to Mangalore, were undertaken towards the close of the year, and have since been completed at a cost of Rs. 752: boats are now for the first time being used for transport and this development cannot fail to react upon the revenue.

3. PROTECTION OF FORESTS.

(a) General Protection.

The total number of forest offences reported during the year under review is compared below with that of the previous year:—

Cases.	Fire.		Felling.		Grazing.		Other offences.		Total.	
	1922-23.	1923-24.	1922-23.	1923-24.	1922-23.	1923-24.	1922-23.	1923-24.	1922-23.	1923-24.
A. (taken to Court) ..	17	34	119	145	28	37	48	36	212	252
B. (compounded) ..	53	68	1,140	986	288	272	129	109	1,610	1,436
C. (undetected) ..	116	95	9	1	..	..	..	4	125	100
Total ..	186	197	1,268	1,132	316	309	177	149	1,947	1,787

There is a fall, by 8 per cent, in the total number of offences reported, the decrease occurring under all classes except that of injury by fire, in which there is an increase chiefly in *South Mangalore*, due, so it is stated, to the burning of unreserves for kumri cultivation. Taking the figures by divisions, *North Mangalore* shows an increase of 100, chiefly under unauthorized felling in unreserved lands; *South Mangalore*, a decrease of 230 from unreserves, set off by a small increase of 11 in reserves—it would hardly appear that the decrease in reported cases from unreserves is due to the number of offences reported and the compounding

fees levied last year, for the District Forest Officer states that traces of large scale timber thefts have been observed in the unreserves of the Kasaragod taluk where investigation for further reservation is proceeding, and the indifference of the local village officials has been brought to the Collector's notice; *Palghat*, a decrease of 135 cases, equally in reserves and unreserves; the former is attributed to the offences in panchayat areas (these, in fact, amount to very few) being dealt with by the special staff, while no reason has been furnished in respect of the latter.

Protection in the Mannarghat range of the *Palghat* division was very defective and it was necessary to punish a Ranger on account of continued and extensive thefts of timber in an area which was known to be particularly exposed to this form of danger. These forests march with private jungles, the accessible timber of which has long since been removed. Lessees employ contractors, who in their turn sublet, and no questions are asked as to whether any timber exists on the land leased or where the timber produced actually comes from. But after the commotion made last year it is hoped that there will be improvement and better protection, and this will be so for as long as the District Forest Officer exercises continued vigilance.

Cases brought to trial during the year were 226, of which 170 were convicted and 56 were acquitted, the percentage of conviction being 75 against 86.6 in the previous year.

The decrease in the percentage of conviction was accountable chiefly in the *North Mangalore* division, where, out of 47 cases tried during the year, 29, or 62 per cent, ended in acquittal. It is explained that the acquittals related chiefly to cases of unauthorized fellings in unreserved lands.

The general percentage of conviction is in cases very low—either cases are prosecuted on insufficient enquiry, or the prosecutions are badly conducted. The particular attention of District Forest Officers has been drawn to this, so far as the matter relates to areas with which they are concerned.

The amount of compounding fees realized was Rs. 22,210 against Rs. 19,440 in the previous year. The increase occurred in all divisions except the Wynaad; in *North Mangalore* and *The Nilgiris*, the increase is due to the increase in the number of cases; in *South Mangalore*, it was apparently due to large compounding fees from unreserves on account of burning of unreserves for kumri cultivation; in *Nilambur*, it was due to increase in the offences under the Timber Transit Rules consequent on the increase in timber traffic after the rebellion;

and in *Palghat*, it was due to large compounding fees in offences from unreserves. The average compounding fees realized was Rs. 16.7 per case and Rs. 7½ per person.

Rewards.—A reward of Rs. 10 was sanctioned in *South Mangalore* to a Forester for detecting a case of illicit felling of sandalwood from kumaki land and a sum of Rs. 20 was paid from the funds of the Game Association to subordinates in *The Nilgiris*.

The recording, together, of offences in areas under the control of the Forest Department and in those which are not is not wholly satisfactory; it is difficult to obtain a true picture of the facts in the forests with which the department is principally concerned.

(b) *Protection from Fire.*

Special Protection.—The period dealt with is the calendar year 1923.

During the year, early burning operations were conducted in the ghaut forests of the *North Mangalore* division, in all the ranges of *South Mangalore* division, in practically the whole of the *Wynaad* division and in parts of the *Mudumalai* and *Sigur* ranges of the *Nilgiri* division. There were no fires in such areas in the *Wynaad* and *Nilgiri* divisions and practically none in the *North Mangalore* division (the area burnt in the division being four acres). About one square mile was burnt in the *South Mangalore* division. The success in *North* and *South Mangalore* is partly attributed to the favourable rainfall during the year.

In other parts of the Circle, the old system of protection continued.

2. The following report has been made by officers on the popularity or otherwise of the system of early burning:—

The North Mangalore division (Mr. Lasrado).—“The system of early burning is appreciated by some ryots near Golihole in Coondapoor range who take their cattle up at Koraticalbare and Meginavalley reserves for grazing; but nowhere else in the division do ryots take their cattle for grazing on the hills and the villagers on the whole are indifferent as to whether we do the early burning of grass on the ghaut forests or not.”

The South Mangalore division (Mr. Madan).—“As reported last year, early burning causes some inconvenience to those ryots who do not collect thatching grass in time. But many sensible ryots like this system, as it produces fresh grazing grass with early showers, without their having to set fire clandestinely to achieve the same object. The ryots themselves burn grass in their kumakies during the hot weather and our having already burnt grassy

patches at edges of reserves is therefore of some help in reducing danger from fires accidentally escaping from kumakies to reserves.”

The Wynaad division (Mr. Master).—“The system of early burning did not meet with any opposition from the adjoining population.” [There is practically no grazing to consider.]

The Nilgiri division.—It is stated that so far as the *Mudumalai* range is concerned the question of popularity or otherwise of the early burning system does not arise, as there are no villages close by and there is not much grazing in the reserved forests.

As regards early burning in the *Sigur* range, there was a complaint from a large number of graziers that all the grass was being burnt by the department in the course of early burning operations. As a result of enquiry it was ordered in January 1924 that early burning should not be carried out in the plains portions of *Sigur*, *Bokhapuram*, *Singara* and *Kalmalai* reserves and in *Avarahalla* reserve.

3. The area over which protection was attempted was 1,132 square miles against 1,056 in the previous year; the increase was chiefly in the *Nilambur* division due to the inclusion of the *New Amarampalam* reserve under special protection operations. The area successfully protected was 99.9 per cent, the area burnt being only 804 acres. The cost of protection was Rs. 15 per square mile (for all areas under special protection, early burning as well as the old method); the cost of early burning varied from Rs. 4 to Rs. 7 per square mile, while the lowest rate for protection under the line clearing system was Rs. 23½ per square mile.

General Protection.—The area under general protection was 495,983 acres, of which 892 acres were reported to have been burnt: the correctness of this latter figure is more than doubtful.

(c) *Protection against Cattle.*

The area closed to grazing increased from 343 to 346 square miles (against 1,950 square miles of reserved forests and reserved lands in the Circle). The whole of the forests in the *Nilambur* division continued to be closed to grazing. Of the total area of reserved forests and reserved lands, 69 per cent was open to the grazing of all animals except browsers. There has been an increase of a little over 5 per cent in the number of cattle authorized to graze, the number during the year being 142,964 against 135,831 in the previous year. The *Nilgiri* division shows an increase of 9 per cent: this means that the amount of illicit grazing is being reduced.

The grazing incidents was—

North Mangalore	146 acres per cow unit.
South Mangalore	13.5 " "
Wynaad	18.0 " "
Palghat	7.4 " "

The grazing incidence in *the Nilgiris* has not been worked out for want of proper data and it is impossible, in any division, to arrive at a figure representing the facts. Of all areas open to grazing, much is never used at all, while much is heavily overgrazed.

Owing to drought the reserves in the Bolampatti range of the *Palghat* division, lying in the Coimbatore district, were thrown open to free grazing by the Collector in February 1924.

The number of cattle impounded during the year was 2,602 against 3,709 in the previous year. The decrease was in all divisions except *North Mangalore*.

(d) *Protection against Injuries from Natural Causes.*

In *South Mangalore* division, in Jalsur East, an insect, identified as *Sphacrotripes* by Dehra Dun, was found to be the cause of the death of *Hopea* seedlings.

Specimens of a caterpillar, said to damage teak seedlings and nursery plants in the *Wynaad*, have been sent to Dehra Dun for identification.

Defoliators of teak continued to do damage in *Nilambur*, separate attacks being observed in May, June and October. Experience shows that what was considered to be one attack in the past may be two, or even three. The Forest Entomologist visited *Nilambur* in January 1924 and systematic investigation by one of his assistants has been started in the current year. Such an investigation must take time, it being first necessary to determine the precise amount of increment lost (this will apparently entail control trees and the artificial defoliation of others) when the estimated cost of preventive measures, if any are found possible, must be compared with the assessed value of the loss in wood.

Elephants do considerable damage in the young teak plantations at *Nilambur*; but it is observed that they seem to avoid fully stocked plantations, and the damage they do is repaired by cutting back. Similarly in the *Wynaad*, bison and elephants are a source of trouble, while in the Mudumalai regeneration area Sambur and deer do a good deal of damage by trampling on the seedlings.

CHAPTER III.—SYLVICULTURE.

I. FORMATION AND REGENERATION OF FORESTS.

(i) *General Progress of Areas under Regeneration.*

In the *South Mangalore* division, *Hopea* sowings were carried out over an area of 336 acres. In *North Mangalore* an area of 535 acres was prepared for *Hopea* regeneration. In the *Nilambur* division, planting of teak was undertaken over 154 acres and sowing over 18 acres as an experimental measure. In the *Wynaad*, dibbling of teak seed was undertaken over 61 acres and stump planting over 9 acres; also *Hopea* sowings were done over 129 acres. In the Chenai Nair forests (*Palghat*) regeneration work of various kinds was done over scattered areas amounting in all to about 125 acres. In *the Nilgiris*, preparation (burning a clear-felled area, pitting and so on) for the regeneration of 100 acres in the deciduous forests in Mudumalai was undertaken, and a nursery was formed in the Sigur range for the raising of teak, ultimately to be stumped and used for the regeneration of 22 acres to be clear-felled in 1924-25.

(ii) *Establishment of Reproduction under Working Plans or Schemes [form 75 (a)].*

(a) *Mainly natural.*—Nil.

(b) *Mainly artificial.*—In *Nilambur* 49 acres of original teak plantation on which the final fellings had been conducted were regenerated: 28 acres were planted with teak in the usual way. The result of planting is not too good as has before been observed is the case with re-planting old plantation areas. The young plantation also suffered from floods in August and heavy rains. This bad weather was succeeded by a very hot season and the replacement of casualties was difficult due to lack of seedlings in the nursery. Sowing was undertaken over 21 acres partly at 6 ft. by 6 ft. and partly at 12 ft. by 12 ft. espacement as an experiment. The results were not satisfactory. The cost of regeneration was Rs. 52-9-0 per acre.

In the conversion working circle (after the clear felling of natural forest) 51 acres in Kanakutha was planted with teak 6 ft. by 6 ft. at a cost of Rs. 36-8-0 per acre. Unfortunately the area was full of bamboo regeneration which it will take a great deal of trouble to prevent interfering with the teak. Another area of 75 acres was regenerated—the planting of teak 6 ft. by 6 ft.—

and three acres, being wet and unsuited for teak, were sown with *Lagerstroemia Flos-Reginae* and *Terminalia tomentosa*. The cost was Rs. 53-8-0 per acre.

(c) *Afforestation*.—Nil.

(iii) *Plantations and other Forms of Regeneration not under Working Plans or Schemes*.

North Mangalore division.—An area of 535 acres in Hale-meshwar reserve was prepared for sowing of *Hopea*.

South Mangalore.—In Parappa reserve over an area of 334 acres, the exploitable timber on which had been extracted in 1922-23, *Hopea* seed was sown, the cost being Rs. 2-14-0 per acre. The espacement adopted was 19 ft. by 19 ft., each pit being 1 ft. diameter and 10 in. deep and ten seeds being sown in each pit. Casualties were estimated to be 25 per cent at the end of the hot weather. Sowing (in prepared patches) of deciduous species—*Terminalia tomentosa*, *Pterocarpus marsupium* and Rosewood—was undertaken over 32 acres of a clear felled timber and fuel coupe in Nerankimale reserve at a cost of Rs. 98-8-0, or Rs. 3-1-0 per acre. Germination at the beginning was good, but at the end of the hot weather only some 10 per cent of the plants survived.

In the *Wynaad*—no definite scheme has been prepared—clear fellings in natural mixed deciduous forest are undertaken and these areas are re-stocked in various ways, the best of which has not yet been determined. An area of forty acres was clear-felled and 26 acres were dibbled with teak seeds 6 ft. by 6 ft., two acres with *Terminalia tomentosa* and three acres with Rosewood and *Pterocarpus marsupium*. An area of nine acres was planted with teak stumps 1½ years old, 12 ft. by 12 ft., at a cost of nearly Rs. 12 per acre.

In the Chedleth range, about forty acres were clear-felled and 35 acres dibbled with teak seed 6 ft. by 6 ft., the perimeter of the area being dibbled with Rosewood and *Pterocarpus marsupium*.

One hundred and twenty-nine acres in Kannothe reserve was undersown with *Hopea* seed in prepared patches at a cost of Rs. 3-14-0 per acre in May 1923. In March 1924 the casualties amounted to 20 per cent only.

An area of seventeen acres, which had been subject to shifting cultivation (at Naduthana in the Wynaad), was cleared, burnt and planted with teak stumps at a cost of Rs. 13-4-0 per acre. This was the most successful area of the year in the Wynaad.

Chenai Nair forests.—Regeneration works were carried out as detailed below at a total cost of Rs. 2,967. The results were not on the whole satisfactory. The North-east Monsoon failed entirely and there were very few showers during the hot weather.

The area was divided into different classes and different treatment was accorded for each such area.

A plot of fifteen acres in deciduous forests.—*Terminalia tomentosa* seeds were sown in prepared pits 6 ft. by 6 ft. Germination was good, but trouble was caused by seedlings being washed away from pits. Pits were subsequently ringed with stones. Survivals after the hot weather amounted to about 41 per cent.

A plot of seven acres.—Blanks along drag-paths were lined and sown with *Terminalia tomentosa* seed. Germination was bad and the result unsatisfactory, work done with a second supply of this seed being more successful.

A plot of 37 acres in the Dhoni valley.—This area had been felled already and regeneration works carried out in 1920-21, 1921-22 and 1922-23. The result of the previous operations amounted to nothing but 1,017 Mahogany seedlings surviving.

Xylia xylocarpa was sown in May 1923 and *Terminalia tomentosa* in June 1923. Germination of *Xylia* was good and that of *Terminalia tomentosa* poor—here again the seed was bad. Blank pits, where the latter species had been sown, were re-sown in August 1923, but germination was again poor. *Xylia* seedlings damped off during the rains. The result was a failure.

A plot of eighteen acres on the Sappal ridge.—Stump planting of *Aini*, *Hopea* and *Vateria Indica* was done. *Hopea* and *Vateria* failed, but *Aini* showed 16 per cent survival.

Ridge area eighteen acres.—*Vateria* stumps were planted 12 ft. by 9 ft. over nine acres. The result was unsuccessful. *Xylia* and *Hopea* were sown over the rest of the area. Germination of both species was good, but the seedlings of the former damped off during rains and those of the latter died of drought.

A plot of 9.57 acres.—Sown with *Aini* and *Hopea*. Germination was good, but many of the seedlings died of drought. Survivals at the end of the hot weather amounted to 8.6 and 14.6 per cent respectively.

A plot of sixteen acres.—This area was first sown with *Terminalia tomentosa* 12 ft. by 9 ft. in May 1923 and again in June 1923 with *Aini* 15 ft. by 15 ft. Germination of *Aini* was fair, but that of *Terminalia tomentosa* poor. At the end of the hot weather, survivals of *Aini* ranged from 5 to 8 per cent and those of *Terminalia tomentosa* 3 to 6 per cent.

The Nilgiris.—*Hardwood Eucalyptus* plantation.—These, first commenced in 1912, were extended by planting the most promising of the nine species first tried, namely *Eucalyptus Eugenioides* and *Eucalyptus paniculata*.

Eucalyptus Eugenioides planting was continued on Doddabetta in the Ootacamund range. During the year, planting was done over an area of fifteen acres and casualties in the previous year's work were replaced. In Coonoor, casualties among *Eucalyptus paniculata* over an area of sixteen acres in the Black Bridge were replaced. The result was a failure, as the locality is not suitable.

Blanks in fuel compartments as they were felled over were replanted with *Eucalyptus globulus*. The yield from coppice is falling off in these compartments many of which have been felled four times; the question of replanting is therefore of importance.

Dibbling of sandal seeds, 20 ft. by 20 ft., was done at Kargudi over $26\frac{1}{2}$ acres, the total area so treated to the end of the period being 109 acres. The percentage of success in the sowings of the year was 64 per cent. The total number of established seedlings in the whole area on 1st April 1924 was 3,160; cost of sowing during the year was Rs. 4 per acre, and the total expenditure incurred on the work to the end of the year being Rs. 1,757.

(iv) Tending.

In North Mangalore, areas sown with *Hopea parviflora* in Jatkmatmale, Someshwar and Halesomeshwar reserves, 1,940 acres, were tended. In South Mangalore, similar areas in Jalsur East, Porkala and Padnur reserves were undertaken, the area treated being nearly 3,700 acres.

In the Wynad, the tending and replacement of casualties were done in plantations over an area of 134 acres. Lantana was uprooted for a second time from eleven plantations in Begur and five in Chedleth ranges.

In Nilambur, all the plantations sown and planted during the year were weeded thrice, all casualties being replaced in the second weeding.

(v) General.

The best method of ensuring the regeneration of true evergreen remains undetermined; the intensity of the fellings required by methods of concentrated exploitation renders it most difficult to restore the original species at once; but it is found that, in Chenai Nair for example, there is often a considerable amount of mixed

natural regeneration on the ground and which will bear exposure. In such places, all that is required is to tend the young crop formed by the most valuable, at the expense of the worse, species, an operation which will be facilitated if a use can be found for the top and top which makes access to these areas difficult. Where such regeneration does not exist, it would appear that it must be introduced artificially some time ahead of felling, and it is therefore important that a scheme of fellings be prepared. It has been shown by experiment that the removal of the overwood, even by the most aggressive means, does not result in appreciable damage to the regeneration.

The year 1924 was a bad teak-seed year, while the seeding of *Hopea parviflora* was also disappointing.

II. TENDING GROWING STOCK.

In South Mangalore, improvement works were carried out in coupes I and II of Nalkur reserve. In coupe I, an area of 772 acres, where lines 4 feet wide and 16 feet apart had been cut and undergrowth and trees up to a height of 40 feet were felled and girdled, was gone over and the lines already cut were kept clear. Similar line-clearing work was carried out in coupe II over 725 acres at a cost of Rs. 1,086 or Rs. 1-8-0 per acre. The felling of trees was not undertaken, as it was thought it would be better to let it in light more cautiously and gradually.

In the Wynad, thinning was done in twelve old plantations—area about 250 acres.

In Nilambur, thinning was carried out over 604 acres of plantations. Thinnings are in arrears in some cases by one year due to the cessation of work caused by the recent Mappilla disturbances.

Climber cutting and removal of parasites were done in some of the plantations. The programme for this work, too, has fallen into arrears, but the lee-way is being made up. Lantana over 37 acres was also eradicated from Aravakode 1921 plantation.

In the Nilgiris the Benne teak plantation was thinned and various small plantations were cleared and tended.

Improvement Fellings.

North Mangalore.—Departmental felling of timber trees of and above $4\frac{1}{2}$ feet girth, though carried out with the main object of securing revenue, has done a good deal towards improving the growth of young poles, which were suppressed by the more mature trees.

Similar work was done in the Parappa and Porkala forests of the *South Mangalore* division, the fellings being mainly for revenue and the sowing of *Hopea parviflora* in restoration of the crop being also in mind.

Dead and dying trees were cut in a part of Mavinhalla reserve (245 acres) and in Kannothe extension reserve (500 acres) all dead and dying trees of miscellaneous species were cut and removed by a contractor.

CHAPTER IV.—EXPLOITATION.

The control of the Chenai Nair Exploitation work was transferred to the Chief Forest Engineer in the middle of March 1924.

During the year fourteen consignments of timber of the species noted below, aggregating 11,327 c.ft., were despatched to Messrs. Howard Bros. and Co., London, for sale and for the British Empire Exhibition.

	Number.	C. ft.
<i>For sale—</i>		
Teak planks....	678	817
<i>Terminalia tomentosa</i> logs	21	1,760
<i>Dalbergia latifolia</i> logs	40	924
<i>For the British Empire Exhibition—</i>		
<i>Lagerstroemia lanceolata</i>	15	565
<i>Cedrela toona</i>	30	2,077
Ditto.	9	739
<i>Pterocarpus marsupium</i>	30	1,093
<i>Mesua ferrea</i>	30	1,144
<i>Calophyllum tomentosum</i>	20	2,062
<i>Eugenia Gardneri</i>	3	99
<i>Hopea parviflora</i> sleepers	9	28
<i>Eugenia Gardneri</i> planks	5	16
	11,327	

In addition, six planks of *Lagerstroemia* (Venteak), *Cedrela* and *Pterocarpus marsupium* were despatched to the Forest Economist, Dehra Dun, and ten Venteak logs of 356 c.ft. were consigned to the Forest Utilization Officer, Madras, in connection with the Exhibition.

The Rosewood from *Wynaad* and the *Terminalia tomentosa* from *Nilambur* were noted by Messrs. Howard Bros. and Co. to be of excellent quality.

Timber from the *Wynaad* and the *Nilgiris* was, during the year, taken to Mysore and Nanjangud for sale. Comparatively better

prices have been obtained than by sales in the forest, or in intermediate depots. It is probable, too, that a rather worse class of timber, than was first transported from the *Nilgiris* in connection with this experiment, will prove to be saleable on rail.

(a) SYSTEM OF MANAGEMENT.

(i) Major Forest Produce.

The following silvicultural systems were in force:—

Clear-felling.—One hundred and one acres in *South Mangalore* (for fuel as well as timber), 55 in *Wynaad* and 161 acres of natural forests in *Nilambur* were clear-felled during the year.

Final clear-fellings in teak plantations in *Nilambur* were carried out in 33 acres.

Selection method.—1,140 acres in *North Mangalore* and 312 in *South Mangalore* were worked under a system for which no other title is available. In practice, what is done is to remove saleable material to an extent which it is thought is most favourable to existing, or contemplated, regeneration of *Hopea parviflora*.

Improvement fellings.—Dead, dying and unsound teak over 245 acres in the *Wynaad* was marked for improvement fellings and sold standing, and 500 acres were similarly dealt with for extraction of dead and wind-fallen trees in the *Kannothe* range of the same division. In the *Nilgiris*, thinnings were carried out over an area of 129 acres for timber and fuel.

Simple coppice.—This was confined to fuel coupes in *North Mangalore*, *Palghat* and the *Nilgiris*, the area worked being 1,270 acres.

Coppice with standards.—Fuel coupes, aggregating 252 acres were worked under this system in *Palghat* and *South Mangalore*.

Unregulated fellings.—These were carried out chiefly in connection with the extraction of sandalwood in *North* and *South Mangalore*, and the *Nilgiris*, the outturn being about thirty tons.

(ii) Minor Forest Produce.

Bamboos.—The right to collect bamboos was leased out to contractors except in *Nilambur* and *South Mangalore*, where they were extracted departmentally for floating timber. There was also departmental extraction in *North* and *South Mangalore* in connection with flood measures.

Miscellaneous Produce.—Minor produce was collected departmentally only in the Mudumalai range of the *Nilgiris*; the right to remove it elsewhere in the Circle was sold to contractors.

Fodder grass continued to be leased out in parts of the *Palghat* division. Hay was not made anywhere in the Circle.

Grazing was, as usual, controlled by permits.

The revenue realized from areas under departmental management (i.e., other than those under panchayats) was Rs. 35,089, against Rs. 33,026 in the previous year. The increase chiefly occurred in the *Nilgiris*, where the number of cattle grazed on payment increased from 63,547 in 1922-23 to 69,465 in 1923-24.

(b) AGENCY OF EXPLOITATION.

(i) Departmental Agency.

With the exception of small quantities obtained from fuel fellings, the mass of the timber exploited was extracted by departmental agency, and this is the policy which will be followed in the future. There remain current during the year, however, certain old contracts for standing and other timber. Sandalwood was extracted departmentally in the *Nilgiris* and *South Kanara*.

The departmental felling of fuel was reverted to in the *Nilgiri* plantations; the profit obtained by this method has been shown to be greater than if the crops are sold standing, but lack of funds has resulted in the latter system being again resumed. The bamboos required for floating timber in *Nilambur* are felled departmentally. In connection with the flood relief measures, bamboos were felled departmentally in *North* and *South Mangalore* and supplied at cost price in relief of the people rendered homeless. Bamboos felled in the *Wynaad* division were also utilized for a similar purpose.

(ii) By Purchasers.

Major Produce.—Standing timber in certain areas of the *Wynaad* division and fuel coupes in *North* and *South Mangalore* and *Palghat* were worked by contractors.

Minor Forest Produce.—The working of the bamboo coupes in *North Mangalore*, *Palghat* and the *Nilgiris*, and the collection of minor produce in all the divisions, except a part of the *Nilgiris*, were in the hands of contractors.

(iii) and (iv) By Right-holders and Free-grantees.

—	Timber in thousands of cubic feet.	Value.	Fuel in thousands of cubic feet.	Value.	Bamboos.		Grazing value.	Other Minor Forest Produce value.	Total value.
					Number.	Value.			
Free grantees ..	2	685	..	7	97,928	2,785	751	644	4,872
Right-holders ..	27	10,221	..	..	..	..	..	..	10,221
Total ..	29	10,906	.	7	97,928	2,785	751	644	15,093

* Includes Rs. 625 being the value of metal removed by the Public Works Department and Local Fund Department for repairing roads.

(c) Outturn and sources of forest produce.

Agency of exploitation.	Timber in thousands of cubic feet.		Fuel in thousands of cubic feet.		Bamboos value.		Minor forest produce and grazing value.	
	1922-23.	1923-24.	1922-23.	1923-24.	1922-23.	1923-24.	1922-23.	1923-24.
1. By Government agency.	595	544	641	732	Rs. 13,291	Rs. 34,073	Rs. 2,598	Rs. 1,536
2. By purchasers ..	634	375	3,714	3,451	6,730	17,780	65,048	64,941
3. By free-grantees.	5	1	..	..	12	2,785	1,313	1,395
4. By right-holders	9	27	..	..	..	..	..	..
Total ..	1,243	947	4,355	4,183	20,033	53,638	68,959	67,872

The *Nilgiris* is principally responsible for the decrease of timber exploited departmentally; large unsold stocks having accumulated, and the area clear felled already amounting to more than it could reasonably be hoped to regenerate in a year, further felling was suspended.

The apparent decrease in the quantity removed by purchasers is chiefly caused by the change in the factor of conversion for timber from unreserved lands in *North Mangalore* taken at three annas per cubic foot instead of one anna adopted in the previous year.

The increase in the quantity removed by right-holders is attributed to increased grants from kumaki lands in *South Kanara* on account of the floods; the quantities then might have been more appropriately shown under free grants. In any case, the "right-holder" item is never representative of actuals for no record is or can be, kept of what these kumakidars remove.

Bamboos.

By Government agency.—One lakh five thousand two hundred and forty-three bamboos were collected departmentally in *South Kanara* and were stored for sale at flood relief depots at convenient centres. This extra work, for which there was no organization at the outset, caused much additional strain on the establishment and was carried out at the expense of normal duties; some ordinary works had also to be deferred on this account, and the sacrifice of bamboos for the purpose referred to, at a time when, due to periodical flowering, the bamboo is not easy to come by, will shortly react on departmental operations in that floating will be impossible and the more expensive carting will have to be undertaken. The staffs of the two divisions were considerably pressed in this work and performed the task creditably and in good time. Happily the number of bamboos first indented for by the Revenue authorities proved to be an overestimate of what was actually required, the fact no doubt being that when the estimates of demand were framed it was supposed that the bamboos would be given free of collection and transport charges as well as of those on account of seigniorage.

By Free-grantees.—The amount shown against this item mostly sold in the previous year, were sold in the year under report, resulting in a revenue of Rs. 6,939.

By Free Grantees.—The amount shown against this item mostly represents the seigniorage fee on bamboos felled departmentally and supplied in connection with flood relief measures in *South Kanara*, the department recovering the bare cost of collection and delivery at the various depots.

Grazing.

The number of cattle admitted to graze on payment was 142,964 against 135,831 in the previous year. The increase was chiefly in the *Nilgiris*.

General.

The outturn in timber from reserved land, reserved and leased forests, exclusive of the *Chenai Nair Exploitation* division, increased from 700,000 c.ft. to 739,000 c.ft., of which Government agency was responsible for 544,000 c.ft. against 595,000 c.ft. in the previous year. Only 440,000 c.ft. was disposed of and the stock on hand at the end of the year exceeded the opening balance by 96,000 c.ft. The *Nilambur* division was very largely responsible for this increase, as, towards the end of the year, the prices offered in auction were so low as to be considered unfit for acceptance.

CHAPTER V.—FINANCIAL RESULTS.

The revenue and expenditure for the year are compared below with those of 1922-23 :—

					Rs. 1922-23.	Rs. 1923-24.
Revenue	...	...	...	...	8,29,383	8,48,190
Refunds	...	...	...	...	4,135	2,590
			Net	...	8,25,248	8,45,600
Expenditure—						
B. Conservancy and works	...	...	...	...	4,57,985	4,34,981
C. Establishment	...	...	...	...	4,53,421	4,53,912
			Total	...	9,11,406	8,88,893

The *Chenai Nair Exploitation* division is excluded from the figures of both years.

The expenditure shown includes the entire expenditure on account of the Forest Research Officer (Rs. 26,000) and of the Inspector of Livestock (Rs. 7,500) not fairly debitable to this Circle alone. The cost of the reconstruction of the *Nilambur* buildings, Rs. 7,200, is also included.

There was an increase in revenue from timber in *North Mangalore* (Rs. 15,000), the *Wynaad* (Rs. 8,000), and *Nilambur* (Rs. 64,000), and a decrease of Rs. 18,000 in *South Mangalore*. The revenue from sandal increased in the year by Rs. 7,000. There was also an increase of Rs. 27,000 from timber and fuel removed by consumers or purchasers (chiefly in the *North Mangalore* and *Palghat* divisions). Bamboo coupes in *Palghat*, sold in the year under report, account for an increase of Rs. 6,000; there was no such revenue in the previous year as bamboo coupes had been sold for three years at a time, the revenue being collected in advance. The increases detailed were partly set off by decreases of (i) Rs. 26,000 in the *Nilgiris* due to a change in the system of the sale of fuel (the amount will be made up in 1924-25), (ii) Rs. 4,000 in minor produce not sold in the *Nilambur* division for want of proper offers, and (iii) Rs. 70,000 on account of fewer elephants sold in the year and a decline in the prices fetched.

The value of timber at sale depots at the end of the year was Rs. 2,38,000, which exceeded the value of the stock held at the end of the previous year by Rs. 70,000. This is principally accounted for by stocks of about 10,000 c.ft. with Messrs. Howard Brothers and Co., London, and to large stocks at the *Beypore* depot, sales in the latter part of the year not having been confirmed on account of low prices offered. The value of timber

fell steadily, and, particularly in *Nilambur* and *South Mangalore*, it was difficult to effect sales. The stocks of teak held privately in Calicut are believed to be large, and until these are absorbed a recovery is unlikely. There is also the competition of Burma teak, which is placed on the market at a low figure, and it remains to be seen to what extent the sale of Nilambur teak to Arab traders will be effected by the placing in the Gulf of stocks of teak by Burma merchants. It is not suggested that it is not possible to sell Nilambur teak at a profit, but that profit is, for the moment, considerably less than it was. A development of the year was in transporting timber from the *Wynaad* and the *Nilgiris* for sale at Mysore and Nanjangud respectively. This is resulting in comparatively better prices being realized, but it is only the better class timber which will bear the long road lead. Some 50 per cent of the yield from the clear-felled areas, in the form of small sizes and inferior species, is left to be burnt in the forest. That much of this might profitably be converted *in situ* is probable, and the introduction of portable mills in these and other places is indicated.

The outstandings of revenue decreased from Rs. 2,31,956 to Rs. 1,22,210. The decrease was chiefly in the *Wynaad* and *Palghat* divisions due to remissions granted to timber contractors in the former and to the sale of fuel and bamboo coupes in April instead of in March in the previous year. Following the procedure adopted in Coorg and Mysore it has been necessary to grant remissions and to show other consideration on account of contracts, for the sale of timber in the forest, made when prices were high. Even so, the contractors have not all been able to act up to their obligations, and it is likely that some of these old contracts in the *Wynaad* will have to be cancelled, the department resuming the timber and exploiting it departmentally. The decrease in expenditure, under B. Conservancy and Works, was chiefly due to less expenditure on feed and keep of livestock, due to a smaller number of elephants maintained in the year. There was also a decrease in the expenditure on bamboo operations in *Nilambur*, purchase of stores, tools, and fire protection works in general. Against this there was an increase in expenditure on timber operations.

Of the revenue realized in the year, 80 per cent was from major produce, 6 per cent from minor produce, 4 per cent from grazing, and 10 per cent from other sources.

Of the expenditure, 50 per cent was on exploitation, 27 per cent on upkeep and improvement of forests, and 23 per cent on miscellaneous items.

The capital expenditure of the year may be placed at Rs. 45,000.

CHAPTER VI.—RESEARCH AND EXPERIMENTS.

Sylvicultural research work in the hands of a special officer attached to this Circle, and all the important experiments, are in his charge. There are observation areas in the *Palghat*, *Nilambur* and *South Mangalore* divisions in this Circle. A special report on the experiments conducted by the Research Officer is separately prepared and submitted to the Chief Conservator of Forests and to the Research Institute, Dehra Dun.

As usual, minor experiments were carried out by the District Forest Officers. Amongst these may be mentioned:—

Wynaad division.—The sowing of Daincha seeds (*Sesbania aculeata*) over six acres in a plantation where teak seeds were dibbled to see if the weed growth can thus be kept down. The result is reported to be unsuccessful owing to the bad quality of the seed, but it is probable that the sowing was undertaken too early. Similar work was also undertaken in *Nilambur* after the close of the year.

Nilambur division.—Some of the Rosewood trees in the division flower in August and September, while the majority of the trees flower during the period February to April. In order to ascertain the botanical difference, if any, in the two varieties, botanical specimens were sent to the Forest Botanist. His report is awaited.

Dendrocalamus Brandisii seed was sown in 1899 plantations, Amarampalam range, in patches twenty feet apart. The experiment was a failure due to late receipt of the seed and complete failure of the North-east Monsoon. In the regeneration area in Amarampalam range, an area of three acres was thought to be lowlying and not fit for teak. Half the area was sown with *Terminalia tomentosa* and half with *Lagerstroemia Flos-Ragina* at stake 6 ft. by 6 ft. The germination of the latter was excellent and of the *Terminalia* moderate, the former coming up in some cases under water. Casualties were numerous and were replaced by transplants. The *Terminalia* proved the more satisfactory on the whole, and the District Forest Officer considers it advisable to confine attention to this species for areas too wet for teak.

A series of experiments were conducted: (1) to study the effects of ploughing, instead of hand-weeding; (2) to compare the efficiency and cost of sowing instead of planting; (3) to study the effect of wider spacing; and (4) to study the effect of leaving an area fallow for a year before re-planting.

In regard to the ploughing experiment it seems probable that hand-weeding round the plants is also necessary and although, in November, the growth of the teak in the ploughed portion was not markedly better than that treated normally, in the second rains there appears to be a very marked improvement. Unfortunately, accurate records of cost were not maintained and the experiment is being repeated. The sowing was undertaken too late and this experiment too is being repeated.

As regards wide spacing, the experiment was only tried by sowing, and sown seedlings did not do as well as planted; the experiment is inconclusive. Weeding expenses are very much higher with wider spacing, both at the time of formation and in subsequent years. The Nilambur working plan shows that the cost of establishing a crop by sowing is higher, the growth poorer, and the period prior to realizing revenue prolonged; but it is possible that these conclusions apply to Nilambur alone.

Nilgiri Division.

What remain of the *Pinus Khasya*, planted in 1922, show excellent growth. The *Pinus merkusii* is not so promising.

The few seedlings of *Juniperus procera* and *Podocarpus*, planted out in Cairn Hill, are doing fairly well, as are those of seven species of *Quercus* put out in the Ketu plantation.

A nursery of *Alnus Nepalensis* formed on the Kundhas in connection with experiments in reforestation these high level areas has been most disappointing, the growth being extremely slow and comparing very unfavourably with that of the older in other nurseries on the plateau.

CHAPTER VII.—ADMINISTRATION.

During the year under report, the Forest Engineering Branch was organized and the control of the Chenat Nair Exploitation Unit was transferred to the control of the Chief Forest Engineer in March 1924. Towards the close of the year, sanction was received for the bifurcation of the Chedleth range in the Wynaad division into Chedleth and Sultan's Battery ranges and the formation of an additional range—Beltangadi—in the South Mangalore division. In the Nilambur division, Kariem and Muriem blocks were transferred from Amarampalam to Nilambur range as provided for in the working plan.

Tours.

The Inspector-General of Forests, who was on an inspection tour in Coorg, inspected the *Hopea* regeneration area in Jalsur

East reserve in the South Mangalore division. The Chief Conservator of Forests visited parts of the South Mangalore, Wynaad, Nilambur, the Nilgiris, and Palghat divisions.

The writer inspected the forests in the North Mangalore, South Mangalore, the Wynaad, Nilambur and the Nilgiri divisions and also the Chenat Nair and Walayar forests in the Palghat division.

The Sylviculturist, the Entomologist and the Pulp Expert of the Research Institute, Dehra Dun, and two officers from the Central Provinces visited the Nilambur division.

The touring of District Forest Officers in all divisions except Nilambur and Palghat fell short of the minimum required, chiefly owing to the inadequacy of the travelling allowance allotment.

Inspection of District Forest Offices and Range Offices.

All District Forest offices were inspected in the year. All range offices were inspected by District Forest Officers.

District Forest Officers' Accounts Inspection.

The accounts of all District Forest offices for 1922-23 were audited by the Local Audit Establishment and the results were reported to be generally satisfactory.

Vernacular Training School.

No school was held in the Circle.

Health of Establishment and Sanitation.

The health of the establishment was not satisfactory in the case of those working in the Ghaut forests of North Mangalore, in parts of South Mangalore, the Wynaad, Palghat, and the slopes of the Nilgiris.

Two guards, one plantation watcher, and two elephant-men died of fever; one forest guard died of smallpox and another of cholera.

In South Mangalore, by arrangement with the Collector and the District Board, the Sub-Assistant Surgeon at Sullia periodically visits Elimale near Nalkur reserve, the most feverish place, where large scale works are in progress. A similar arrangement has since been made for the Mudumalai range and is in contemplation for the Begur and Chedleth ranges of the Wynaad division.

CHAPTER VIII.—GENERAL.

(i) *Formation and Management of Panchayats. (To include the Forest Village System).*

The panchayat system was in operation in the *North* and *South Mangalore* and *Palghat* divisions. The panchayats in *North* and *South Mangalore* are under the Forest Village System.

Of the nine panchayats in *North Mangalore*, two for the *Mujimale* and *Panambéri* reserves were dissolved during the year on account of extensive illicit fellings. These people are not really interested, for there still remain, in their neighbourhood, un-reserves the growth on which has not yet been completely destroyed. Three panchayats in the *Coondapoor* taluk failed to renew their agreements, clamouring for added concessions. The privilege of the removal of litter—one of the concessions applied for—was granted, but even then they did not renew and have laid claim to what amounts to complete ownership of the forest. Recently, however, two of the panchayats have been induced to renew their agreements; but one, that for *Kursegudde*, declines to renew. The remaining four panchayats, in *Mangalore*, *Udipi* and *Shankaranarayana* ranges continued to manage the reserves in their charge satisfactorily. Towards the close of the year a new panchayat for *Durgamale* reserve in *Udipi* range was formed.

In *South Mangalore* the panchayats for the *Bellare* and a part of *Porkala* reserves were continued, and are reported to have worked satisfactorily.

In the *Palghat* division, the panchayats of *Ettimadai*, *Madukarai* and *Sundakamuthur*, under the control of the Revenue Divisional Officer, the period of which expired on 31st December 1923, were extended up to 31st December 1926 by the Collector of *Coimbatore*. Their working is stated to have been indifferent.

The forest panchayats of the reserves in the *Erode* taluk were, with effect from 1st July 1923, transferred to the control of the Special Panchayat Officer. A special report on these was, at the instance of the Government, submitted by the Conservator after the close of the year.

(ii) *Measures for improving Local Supplies and Facilities.*

North and South Mangalore Divisions.—The most urgently pressed demand is for leaf manure. This was allowed to villagers under the management of panchayats and orders have been issued recently allowing the removal of leaf, both dry and green, as well as clearing of undergrowth in all reserves (except those near the

coast) to a distance of half-a-mile from the limits of private holdings and in the case of reserves near the coast to a distance of 200 yards from the limits of private holdings and clearing of undergrowth in all areas sown with *Hopea* and the free removal of dead fuel without the obligation to come under the Forest Village System.

In connection with the floods of August 1923 the department was called upon to supply bamboos in large quantities in *South Kanara*. Fortunately the demand first made, but on which the arrangements and organization for coping with it had to be framed, was subsequently considerably reduced, no doubt as a consequence of its becoming known that the cost of collection and transport would have to be paid by the grantees, but over 100,000 bamboos were supplied at various centres. Similar work was undertaken in the *Wynaad* for sale to the public at *Tellicherry*, the number of bamboos so sold being 18,500.

(iii) *Timber and Sandalwood Transit Rules.*

These rules are reported to have worked satisfactorily.

Consequent on the transfer of the *Silent Valley* forests from *Nilambur* to the *Palghat* division, the revision of the rules for the two divisions is necessary and proposals received from the District Forest Officers are under consideration.

(iv) *Jungle tribes.*

Wynaad Division.—In order to maintain a steady supply of labour, and to induce *Kurumbers* and others to live in the forest, small areas are given for temporary cultivation. A further advance was made in this direction during the year by a special loan of Rs. 270 sanctioned by the Government, free of interest, to eight *Kurumbers* for the purchase of cattle, in addition to assignment of three acres of land each for three years free of assessment.

Proposals for the opening of a school for *Kurumber* children were under consideration and sanctioned after the close of the year. The school was opened in *Muthanga* in June 1924 with forty pupils.

Palghat Division.—There are seven mulcer settlements in *Mannarghat* range, with a population of about sixty men, and some *Irular* settlements in *Bolampatti* range. The lands assigned to them are free of assessment and they are expected to supply labour to the department. One settlement which refused to supply labour in the *Mannarghat* range was evicted.

(v) *Mining and Quarrying.*

Nil.

(vi) *Livestock.*

(a) *Elephants.*—There were 87 elephants at the beginning of the year, 18 were captured during the year, 9 were born, making a total of 114. Of these, 9 died and 22 were sold leaving 83 at the close of the year, valued at Rs. 2,74,650.

Rs. 31,255 was realized by the sale of elephants during the year. The prices realized were not as good as usual, and it is probable that the market has been overstocked.

(b) *Other animals.*—There were 25 bullocks and 44 buffaloes at the beginning of the year, and 12 buffaloes were transferred from Chenat Nair. Of these, 4 buffaloes and 1 bullock were sold, 4 buffaloes died and 3 buffaloes and 2 bullocks were destroyed, leaving a stock of 22 bullocks and 45 buffaloes valued at Rs. 6,444.

(vii) *Veterinary Establishment.*

The Veterinary Assistant in Nilambur was in charge of the livestock in that division and the Veterinary Assistant at Gudalur was in charge of the animals of the *Nilgiris* and the *Wynaad* divisions. The work of both these subordinates was supervised by the Inspector of Livestock. Arrangements were made, in consultation with the Civil Veterinary department, to regulate, and to improve, the work of these officers.

(viii) *Civil Suits.*

North Mangalore.—The institution of a suit to recover the loss of Rs. 1,701, on account of the re-sale of nux vomica lease, was sanctioned during the year by the Government.

South Mangalore.—The appeal in the High Court, referred to in the last report, is still pending. The suit filed by a timber merchant, and referred to in the last report, is stated to have been decided against the Government.

The Wynaad.—The suit against contractor Venkatarama Shetty for the recovery of Rs. 5,656 was decided in favour of Government in the District Court, Mysore, but an appeal is stated to have been preferred to the Chief Court.

Nilambur.—The civil suit in respect of the boundary of Kariem and Muriem blocks ended in favour of the Tirumalpad, Nilambur.

Statement showing sanctions for works exceeding Rs. 5,000 accorded under the powers delegated in G.O. No. 1755, Development, dated 17th September 1921.

Name of work.	Total cost.	Expenditure incurred in the year.	Remarks showing how the cost was met—portion met from the budget allotment—portion met from other sources.
Construction of Range Officer's quarters at Pulleyil (Amaranipalan range), Nilambur division.	Rs. 5,200	Rs. 800	Met from the budget allotment for 1923-24.

OOTACAMUND
5th September 1924.

R. D. RICHMOND,
Conservator of Forests,
VI Circle.

APPENDIX.

SUMMARY OF PROGRESS DURING THE FIVE YEARS

1919-20 to 1923-24.

The Circle was formed on 4th February 1921 with headquarters at Ootacamund, and consisted, at that time, of the following divisional charges:—

- | | |
|----------------------|---------------|
| (1) North Mangalore. | (4) Nilambur. |
| (2) South Mangalore. | (5) Palghat. |
| (3) The Nilgiris. | (6) Wynaad. |

The last three, corresponding to the old South Malabar, North Malabar and Central Coimbatore districts, respectively, except for the transfer of Mettupalayam range to the *North Coimbatore* division of the Fifth Circle, and of the transfer of the Mannarghat range from *Nilambur* to *Palghat*.

A special officer was placed in charge of silvicultural research work in the Presidency in 1919 and is attached to the Circle.

The intensive exploitation of the Chenat Nair evergreen forests in Malabar was organized in 1921 and was separated from the *Palghat* division, in which they lie, and formed into a separate unit under a special officer, with engineering qualifications, in 1922. The control of this unit passed to the Chief Forest Engineer towards the close of the quinquennium.

The Erode range in the *Palghat* division was abolished in 1921 and the formation of two additional ranges, one in *South Mangalore* and another in the *Wynaad*, was sanctioned towards the close of the period.

The work in the *Nilambur* division was completely disorganized in 1921 as a result of the Mappilla disturbance in August of that year. If any confirmation were required of the necessity for weeding and tending young plantations at that time of the year, it is to be found in the condition of the plantations which had of necessity to be neglected for the cause named. There can never be complete recovery and the money loss must be considerable. Also the thinning and final felling programme fell into arrears and the leeway is not yet made up. Other losses, incurred as a result of the rebellion, were through the burning of most of the buildings belonging to the department.

The special "Forest Year", July-June, was abolished in 1920-21 and the administration reports from 1921-22 correspond to the official year.

2. *Administration*.—Messrs. H. Tireman and R. D. Richmond held charge of the circle except for short intervals when Messrs. Whitehead and Wimbush acted.

3. *Area*.—The area at the commencement and close of the period are given below:—

				Beginning of 1919-20.	Close of 1923-24.
				Sq. miles.	Sq. miles.
Reserved forests	...	...	...	2,032	1,844
Reserved lands	...	...	...	104	106
Total				2,136	1,950

The decrease in the area under reserved forests is chiefly accounted for by the transfer of the Mettupalayam range to the Fifth Circle.

4. *Forest Settlement*.—The area shown at the end of the quinquennium, which is practically the same as at the beginning, has been finally settled, with the exception of nineteen square miles of leased forests in *Nilambur* and five square miles of Todapatta lands in the *Nilgiris*; but the issue of the notification under section 16 was pending revision of the draft notification prepared by the Forest Settlement Officer.

5. *Demarcation*.—The total length of artificially demarcated boundaries at the close of the period was 5,442 miles against 5,845 miles at the beginning, the decrease being chiefly due to the transfer of the reserves of the Mettupalayam range to the Fifth Circle. Fifty-nine miles of original demarcation work were carried out during the period.

The Mysore-South Kanara boundary was settled by a commission and finally demarcated during the period.

6. *Working Plans*.—The only important working plan prepared and approved during the period was that for the Nilambur Valley Forests by Mr. R. Bourne. The area under sanctioned working plans at the commencement of the period was 1,251 square miles, but that at the end of the period was 365 square miles. The decrease represents the area of sanctioned working plans in *North Mangalore*, *South Mangalore* and *Wynaad* divisions which have become obsolete and have been cancelled. One of the most pressing needs of the moment is working plans, and it is to be hoped that an increased staff will shortly allow of officers being provided for this all-important work.

7. *Communications and buildings*.—The average annual expenditure on communications, and buildings and on other works was about Rs. 88,000. During the period large outlay was incurred on the construction of buildings and roads and on the formation of the Sappal station in connexion with the exploitation of Chenat Nair forests. A sum of Rs. 26,000 was spent on reconstruction of

buildings destroyed or damaged by rebels in the *Nilambur* division, but these works are not yet completed.

8. *Forest offences*.—The average annual number of offences reported during the period was 1,778 against about 2,000, the average for the previous quinquennium.

9. *Fire protection*.—The principal feature of the period under this head was the introduction of the early burning system in four out of the six districts in the circle. It is reported to be successful and there is no opposition to it from graziers except in one place. The area under special protection increased from 796 square miles at the beginning of the period to 1,132 square miles at the end. The result in 1923-24, the last period of the quinquennium, was very good, the percentage of success being 99.9. But it is perhaps a little early to pronounce on the success or otherwise of this new method of protection.

10. *Protection from cattle*.—The whole forest area was closed to goats. No grazing is allowed in one of the districts—*Nilambur*. An area of 57 square miles in the *Wynaad*, previously closed to grazing, was opened in 1921-22, no harm being anticipated in a part of the country where cattle are few in number.

Of the area of 1,950 square miles of reserved forests and lands at the end of the period, 1,341 square miles were open to grazing of all animals, except goats, and 263 square miles to all animals, except goats and sheep, the percentage of area so opened being 69 and 13, respectively, of the total area.

Except in a few localities the necessity for affording facilities for grazing in the circle is of little importance.

11. *Yield and outturn*.—Efforts to arrive at a fair comparison between the outturn in the previous period and the one covered by this report are of little use, due to changes in the allocation of the areas when the circle was formed.

It is obvious, without resource to figures, however, that departmental timber operations have developed considerably, and in the last year of the period the outturn by this agency amounted to 544,000 c.ft., or, taking into consideration all timber removed from reserved forests, leased forests and reserved lands, by whatever agency, to 739,000 c.ft., or 276 c.ft., per acre only. One of the principal features of the period under review has been the development of exploitation, principally through departmental agency. In this direction a good deal remains to be done, but the start has been made and the principal requirement for further development is the preparation of working plans, the evolution of schemes of extraction, the development of markets and the organization of better utilization, for which special agencies are being

brought into being. The slump in timber prices of recent years is becoming an adverse factor, but this decline may not be an altogether unmixed evil, provided that the department is able to sell at a small profit all that it is able to exploit. The country imports timber and articles made of wood to an exceedingly high gross value and there seems little reason why it should not be self-supporting in this direction.

12. *Financial results*.—Here again no comparison is possible for the reasons explained in the previous paragraph, and any attempted comparison is vitiated by the fact that direction expenditure cannot be debited to the previous quinquennium. It must suffice to say that the average net annual revenue of the period was about Rs. 45,000, but even this gives an incorrect picture of the present position for the reason that directly after the war the price of timber rose unprecedently, while since 1920 it has fallen steadily. In the year 1923-24 a deficit of Rs. 43,293 appears; but here again this hardly discloses the true state of affairs for work is in the stage of development and no differentiation is made between capital and ordinary expenditure. During the period the scales of pay of the lower ranks were very largely increased.

13. Another notable feature of the period under review has been the extension of measures of regeneration and a complete revision of the old systems of working. Broadly speaking, it may be said that the so-called selection and improvement felling methods in deciduous forests are dead, their place being taken by clear felling and concentrated regeneration; while it has been amply demonstrated, over considerable areas in South Kanara, that it is possible to introduce, at small cost, so valuable a species as *Hopea parviflora* under an existing mixed crop of less value than that which will ultimately take its place.

The problem of how to be sure of regenerating the true ever-green type in which the development of intensive exploitation must principally take place is not solved; research in such matters is necessarily slow, but sufficient has been done to show that it may not be so difficult as was at one time supposed.

14. The quinquennium may be summed up briefly as one of highly-important progress and development, particularly in respect of what may be called a sylvicultural revival. The work done hitherto is not, for reasons already given, yet reflected in increased profits, but these will come and the principal and imperative need of the moment is the preparation of working plans.

OOTACAMUND,
28th September 1924.

R. D. RICHMOND,
Conservator of Forests,
Sixth Circle.

ADMINISTRATION REPORT OF THE MADRAS FOREST COLLEGE, COIMBATORE, FOR THE PERIOD FROM 1st APRIL 1923 TO 31st MARCH 1924.

CHAPTER I.

CONSTITUTION.

Staff.

Principal.—Mr. C. C. Wilson held charge from 1st April 1923 to 5th August 1923 and Mr. W. G. Dyson succeeded him for the remainder of the year.

Instructors.—The posts of Senior and Junior Instructors were held as follows :—

Name of officer.	Period.
<i>Senior Instructors.</i>	
Mr. G. C. Robinson ...	From 1st April to 4th May 1923.
" W. G. Dyson ...	From 5th May to 5th August 1923.
" C. B. F. Williams	From 6th August 1923 to 31st March 1924.
	(Also attached to the College from 1st to 5th August 1923.)
" W. C. Hart ...	From 1st April to 31st July 1923.
" H. P. Ward ...	From 1st August 1923 to 15th February 1924.
" J. E. M. Mitchell.	From 16th February to 31st March 1924.
<i>Junior Instructors.</i>	
" E. K. Krishnan ...	From 1st April to 31st July 1923.
" A. R. Brand ...	Throughout the year.
" C. M. Kushalappa.	From 1st August 1923 to 31st March 1924.

Sub-Assistant Surgeons.—Messrs. A. Gopala Nambiar and B. Krishna Shenoi were attached to the College during the camping periods as Medical Officers and they delivered occasional lectures in First Aid and Camp Hygiene. First Aid lectures were delivered in headquarters to the students of the Senior Division by the Medical Officer in charge of the Lawley Road Dispensary.

All students were instructed in Physical training, gymnastics and drill by the College Havildars under the supervision of Mr. Williams.

Board of Visitors.—Mr. H. Tireman, I.F.S., acting Chief Conservator of Forests, was Ex officio President of the Board of visitors during the year under report.

The following officers were members of the Board during the year :—

Name of officers.	Period.
Mr. A. Wimbush ...	From 1st April to 3rd November 1923.
„ H. A. Latham ...	From 4th November 1923 to 31st March 1924.
„ H. F. A. Wood ...	Throughout the year.
„ C. E. C. Fischer...	From 1st April to 10th October 1923.
„ R. D. Richmond...	Throughout the year.
„ H. O. Bennett ...	From 1st April 1923 to 15th March 1924.
„ D. T. Barry ...	From 19th November 1923 to 31st March 1924.
„ T. A. Whitehead...	Throughout the year.
„ T. Clear ...	From 16th to 31st March 1924.

CHAPTER II.

INSTRUCTION

1921-23 *Division.*—The Final Examination of the 1921-23 Division was held in June 1923. Twenty-nine students appeared for the examination of which 10 were awarded Honours Certificates, 14 Higher Standard Certificates and 5 Lower Standard Certificates. The percentage of Honours and also of Higher Standard Certificates was much above that of normal years.

The following list shows the certificates awarded in order of merit :—

Rank.	Name of student.	Name of Circle, State or Province to which attached.
<i>Madras Ranger Honours.</i>		
1	S. Sankaran ...	Third Circle.
2	K. Shankaranarayana Rao ..	Sixth „
3	O. Thiruvengadam Pillai ...	Fifth „
4	I. Z. Robert Paul ...	Fourth „
5	K. S. Thimmayya ...	Coorg.
6	A. Surya Rao Nayudu ...	First Circle.
7	T. Venkatasubbiah ...	Third „
8	P. Kuttappan Pillai ...	Third „
9	S. Dorairaja Pillai ...	Private student.
10	P. A. Venkatraman ...	Fifth Circle.

Rank.	Name of student.	Name of Circle, State or Province to which attached.
<i>Madras Ranger High Standard.</i>		
11.	N. Ayyanna ...	Second Circle.
12.	J. S. Vedanayakam ...	Fourth „
13.	P. Madhavan Nair ...	Sixth „
14.	V. Sundaresan ...	First „
15.	P. T. Jayakodi ...	Ceylon.
16.	Biram Singh ...	Central Provinces.
17.	Gurucharan Singh ...	Do.
18.	Saiyid Hadi Husain ...	Do.
19.	Prithichand ...	Do.
20.	Anil Kumar Bose ..	Bihar and Orissa.
21.	Chakradhar Behera ...	Do.
22.	Amos Demta ...	Do.
23.	Muhammad Rahmatullah Khan ..	Hyderabad.
24.	Brajo Kishore Joshi ...	Patna.

Madras Ranger Lower Standard.

25.	A. R. Samarawickrama ...	Ceylon.
26.	Patras Kandir ...	Bihar and Orissa.
27.	Muhammad Taiyab Khan Nizami ...	Rewa
28.	Mumtaz Husain ...	„
29.	K. Appukuttan Vellodi ...	Court of Wards.

The Government and other Prizes were awarded as follows :—

- (1) Best Second year student (Gold Medal). S. Sankaran.
- (2) The Campbell-Walker Prize for the best all-round Ranger—S. Sankaran.
- (3) The Brasier Prize for the best out-door Ranger—Saiyid Hadi Husain.
- (4) The Lodge Prize for the best Second year student in Forest Engineering—S. Sankaran.
- (5) The Madras Conservators' Prize for the best Second year student in Forestry—C. Thiruvengudam Pillai.
- (6) The “Indian Forester” Prize for the best essay by past students—M.R.Ry. C. Balaya Nayudu, Range officer, Kodur Range.
- (7) The “Indian Forester” Prize for the best essay by present students—K. Puspa Rajalingam, Junior student.
- (8) The Pentland Shield for the best Athlete in the College—Saiyid Hadi Husain.
- (9) The Fischer Challenge Cup for the best tennis player in the College—Saiyid Hadi Husain.
- (10) The Chief Conservator's Prize for the best student in the Junior Division—K. Pushpa Rajalingam, a student of outstanding ability.

Messrs. T. Clear, E. M. Crothers, S. V. Devadasan, W. G. Dyson, M.C., W. C. Hart, R. B. Cornwell, H. A. Irwin, M.C., and F. D. Ardagh conducted the Final Examinations in June 1923. The Examiners' reports were, on the whole, satisfactory. There was, however, a falling off in the subject of Engineering as compared with previous year.

1922-24 *Division*.—The 1922-24 Division, the present Senior year, have shown the usual improvements under strict discipline and regular work in the field and class room.

Of the 27 students of this Division who began the course, one, a private student, left the College at his own request as he found himself unable to follow the course.

The Final Examination in Physical Science was held in June 1923 with satisfactory results.

First Aid Examination.—The students were examined in First Aid at the end of March 1924 by a Medical Officer of the Government Hospital, Coimbatore. All 26 students of this Division gained the Saint John's Ambulance Certificates for proficiency.

1923-25 *Division*.—The 1923-25 Division, the present Juniors' have not as yet shown much promise. Twenty-seven students began the course, but a private student, who had been exempted from payment of tuition fees, left at his own request in September 1923, as he found that he could not meet the other expenses. Four of the remaining 26 are Madras Government students.

2. *Periodical Examinations*.—The Periodical Examinations held during the year show that the students of the last two divisions are making satisfactory progress.

3. *Practical Training in Headquarters*.—Saturday mornings were as usual spent in practical work on the estate. The Demonstration Forest afforded an opportunity for applying Sylvicultural and Utilization principles; and a certain amount of practical Engineering was also carried out, more particularly Survey, in the estate.

The following work was done in the Demonstration Forest:—

(1) Broadcast sowing of *Cassia Auriculata* in coupes 5 and 6. Germination good, but practically non-existent at the time of writing this report.

(2) Basket planting of sandal seedlings with a host plant (*Albizia lebbek*) in coupes 5, 10-20.

Result satisfactory

(3) *Albizia lebbek* and *Melia indica* were planted in coupes 4 and 5, but a large proportion died.

(4) Felling of coupe 4 and sale of fuel obtained.

4. *Prize giving*.—On 30th June 1923 the usual Annual Prize giving was held at the College and in the unavoidable absence of His Excellency the Governor, the Hon'ble Mr. Graham, Member of Council, presided. Mrs. Tireman very kindly presented the Prizes and Certificates.

The usual Garden Party in the College grounds followed.

CHAPTER III.

ADMINISTRATION, TOURING, HEALTH AND CONDUCT.

Administration.

Board of Visitors' meeting.—The Board of Visitors met at the College on the 27th June 1923 and discussed various points of administration of the College, chief among them were:—

(1) *Revision of the system of marking*.—In accordance with the resolution of the previous year's meeting the Principal submitted proposals for an alteration in the system of marking, by which practical work is awarded a greater number of marks. Government has since sanctioned this scheme and it has been introduced from 1st August 1924.

(2) *Abolition of the distinction between the Higher and Lower Standard Certificates at the Forest College, Coimbatore*.—Government ordered that with effect from 1st June 1925 both students obtaining Higher Standard Certificates and those obtaining Lower Standard Certificates should be appointed as Rangers on the same pay, i.e., Rs. 80—but that the latter should not become eligible for promotion for one year. This means that holders of a Lower Standard Certificate will be placed on the graded list immediately below the Higher Standard students of the following year and that no subsequent distinction will be made between the two classes in the matter of promotion.

(3) *Cost of education*.—As shown by the figures given in Statement No. I appended to this report, the actual net cost of the College to Government this year has been Rs. 63,562 against Rs. 75,048 of the previous year.

As there were only eight Madras Government students under training during this period, this makes the cost of education per student Rs. 7,945. In preceding year the cost per student was only Rs. 4,690 as there were 16 Madras Government students during that period. In addition, the stipends and travelling allowance of the Madras Government students has been debited to the College in the present period.

Touring.—The camping during the year under review has been in accordance with the sanctioned programme.

The programme of tours and works carried out by the students are given below :—

1921-1923—Division.

April and May 1923, Arambyshola.—During this camp the students enumerated the stock in Block I of Snowden and Cairn Hill reserves and prepared a working scheme for the supply of fuel from these areas to Governor's House.

They aligned a road in Mutinad and did several botanical and engineering excursions. Here the Final Survey Examination was held as usual.

1922-1924—Division.

April and May 1923, Bandyshola, Coonoor.—The students of the 1922-1924 division at this camp studied the construction of charcoal kilns and manufactured charcoal themselves. They enumerated the crop in the Experimental Hardwood Plantations at Ketu and took part in various Engineering and Sylvicultural excursions.

September and October 1923, Komattiyeri.—The division camped as usual at Komattiyeri where they studied mainly sandalwood protection, growth and extraction and road construction.

The students were also able to see the Forest Village system in operation.

November and December 1923, Nilambur and Nedungayam.—During these months the division toured in the South Malabar district. On their way the students visited Kallai and inspected the Standard Furniture Company and Saw Mills. At Nilambur and Nedungayam they saw teak plantations from the young stage to the mature tree and learnt a great deal about the sylviculture of that important tree. They studied the principles of thinnings in the forest and carried out marking themselves.

In Engineering they aligned a road along the river from the ferry to the camp site and studied the conditions of rafting and floating of timber. Here they met evergreen jungle for the first time and consequently learnt a number of new important species.

January and February 1924, Dhoni.—While the interest of the Nilambur camp was mainly sylvicultural, the students found Dhoni Camp intensely interesting from the engineering point of view. Here up-to-date methods of extraction by mechanical means and slides were studied in detail under the guidance of the Exploitation Officer.

The Logging Engineer very kindly demonstrated his method of rapid but accurate forest survey by means of the Trailer Tape, and by its means they mapped a large area of very rough ground, over which area felling is now taking place.

The students found this experience of intensive working extremely valuable.

Nor was Dhoni devoid of sylvicultural interest. The ever present problem of regeneration was gone into with the District Forest Officer who accompanied the students on many excursions, and later the same problem was discussed with the Forest Research Officer, who also took the students over his experimental plots.

We are very grateful indeed to all these officers who went out of their way to teach the students so many valuable things in this camp, and to make our time there a period of real practical interest.

1923-25 Division.

September and October 1923—Sadivayal.—The new juniors camped as usual at Sadivayal in September and October where they were taught the ground work of forestry in the field.

November and December 1923—Topslip.—During these months the Junior division camped in Tunacadavu Range where they saw timber extraction operations, and studied the teak plantations. Their instruction in practical botany was continued, and they carried out various enumerations.

January and February 1924—Kargudi.—This period was spent at Kargudi in the Nilgiris. Here they received practical instruction in fire protection, road alignment, botany and engineering.

Tour journals.—A record of all work done in camp is kept in the form of tour journals. In addition to the maintenance of these journals the District Forest Officers are informed of the details of any work carried out by the students which, it is considered, will be of use or interest to the district.

District officials.—The very warm thanks of the College are due to the officials of the districts visited, who so kindly not only did all in their power to make our camps comfortable, but went out of their way to show us all that is of interest in the locality. Although busy, they always had time to spare for instruction of the students, and the students learnt a great deal from them. While this was the case every where, Dhoni must be specially mentioned for the amount of time that was devoted to us by the various officers.

Inspections by Membrs of the Board of Visitors.—The students were inspected in camp in the Nilgiris by the Chief Conservator of Forests and the Conservator of Forests, VI circle.

While the senior division was at Komattiyeri the Conservator of Forests, IV Circle, spent two days with us.

4. *Swimming*.—During the Nilambur and Kargudi camps the students of the both divisions respectively were taught to swim.

1923-24 Division.

The students were tested at Nedungayam and 13 passed—swimming good, 10 swam moderately, 3 failed.

5. *Health*.—The general health of the students at headquarters and in camp has been on the whole satisfactory. One student T. R. Bushanam in practising hurdles broke his leg and was away for some time, but rejoined and gained a higher standard certificate.

6. *Conduct and discipline*.—The discipline at the College was, during the year, satisfactory. No cases of severe breach of discipline were encountered, and the conduct of the students was good.

CHAPTER IV.

THE GASS FOREST MUSEUM; COLLEGE AND STUDENTS' LIBRARIES.

1. *Museum*.—Mr. G. Viswanatha Ayyar, B.A., the Curator, was in charge of the Museum throughout the year.

It is noted with pleasure that valuable contributions to the Museum continue to come in, and it is hoped that it may receive continued support from forest officers.

During the year, thirty photos of timber trees, and fifty maps showing the distribution of timber species were exhibited by the side of the timber panels. For the benefit of the College students in particular, select botanical specimens were exhibited in glazed frames, showing types of genera and natural orders of forest importance. Floral diagrams and short botanical notes were embodied in these exhibits, so as to enhance their instructional value.

About sixty interesting exhibits were sent from the Gass Museum to the British Empire Exhibition.

That the Museum continues to be interesting and instructive is evident from the fact that the number of visitors during the year rose from 22,269 in the previous year, to 22,934.

The Curator continues to do every useful work in demonstrating in both botany and utilization.

2. *General Library*.—Including periodicals 317 books were added to the general library.

3. *Students' Library*.—This was transferred during the year to the direct control of the students at Students' Club.

CHAPTER V.

SUPERVISION, WATER-SUPPLY, ROADS, BUILDINGS, ETC.

1. *Supervision*.—During the year under report Mr. K. A. Bhandary, the permanent overseer was transferred to the Central Provinces as a Forest Ranger.

Mr. A. Marudachallam Pillai the permanent store-keeper, has been appointed to act as Overseer. He has been energetic and his work has been good.

2. *Water-supply*.—The new pump recently set up still is not working satisfactorily, and was out of action three times during the year, which of course necessitated the running of the old engine. The old plant has therefore as yet not been thoroughly overhauled.

3. *Roads*.—The relay of roads around the Museum was not taken up during the year for want of funds.

All the existing roads have been kept in repair.

4. *Buildings*.—Necessary repairs to the hostels and other buildings under the control of the Principal were executed during the year.

The following semi-permanent sheds were constructed during the year:—

Name of building.	Amount sanctioned.	Amount spent in round sum.	Remarks.
	RS.	RS.	
1. Construction of camp sheds at Nedungayam.	590	580	Completed.
2. Construction of instructors' sheds at Nedungayam.	297	297	Do.
3. Construction of camp sheds at Nilambur.	570	570	Do.
4. Construction of camp sheds at Komattiyeri for Havildars Sub-Assistant Surgeon and sweepers.	195	193	Do.
5. Construction of kitchen sheds at Bandyshola.	1,040	1,040	Do.

During the year Rs. 80 was spent in digging a well at Nilambur.

5. *Athletic ground*.—During the year Rs. 751 was spent for repair of tennis court and hockey and football grounds.

CHAPTER VI.

GENERAL.

1. *Stock-taking*.—The stock of the College was checked in detail in July 1923 by the staff of the College, and the articles missing or unserviceable were written off under proper sanction.

2. *Athletics*.—The Annual Athletic Sports were held on the 6th November 1923; the College record for the long jump was materially increased by M. M. Rahim who cleared 17 feet 9 inches, the previous record being 17 feet 4½ inches.

This student also won the Richmond Cup with ease, obtaining 23 points, while the runner-up, Khan Muhammad, only made 14.

The College, thanks to the presence of Mr. Ward, won the local Cricket Tournament for the second time.

The inter-divisional football match on 2nd June 1923 was won by the juniors (1922-24 division) after a most exciting game. The Cowley Brown Challenge Cup for the inter-divisional hockey match was won by the 1921-23 division after a very even game.

The Marathon race was won by D. J. Tanpure of the 1923-25 division, who did the six odd miles in almost the same time as last year—38 minutes 12 seconds—and thereby carried off the cup presented by M.R.Ry. K. Rama Raja Mannarghat Moopil Nayar Avargal. A cup as second prize was also awarded to Muhammad Kassim who did the distance in 38 minutes 47 seconds.

The Inter-divisional Challenge Cup presented by the late Risaldar Major Amir Muhammad Khan Sahib for this race was easily won by the 1923-25 division.

The Pentland Shield for the best all-round athlete in the College, awarded in June 1923, was won by Syed Hadi Hussain.

The post of Vice-Presidentship of the Athletic Club was held by the following officers during the year under report:—

Name of officer.	Period held.
Mr. G. C. Robinson	From 1st April to 4th May 1923.
„ W. G. Dyson	From 5th May to 5th August 1923.
„ H. P. Ward	From 6th August 1923 to 15th February 1924.
„ J. E. M. Mitchell	From 16th February to 31st March 1924.

COIMBATORE,
25th August 1924.

C. R. F. WILLIAMS,
Principal, Madras Forest College,
Coimbatore.

APPENDIX I.

Statement No. I.—Statement of revenue and expenditure of the Madras Forest College for 1923-24 (April 1923 to March 1924).

Head of service.		Amount.
		RS.
Revenue—		
I (a)	Timber	147
(b)	Firewood and charcoal	120
(c)	Grass and other minor produce	(a) 23
V (a)	Fines and forfeitures	2
(b)	Other sources	62,277
Total		62,569
Deduct refunds		31
Net revenue		62,538
Expenditure—		
B.—Conservancy and Works.		
VI (c)	Stores, tools and plant	3,713
VII (a)	Roads and bridges	2,747
(b)	Buildings	(b) 10,785
(c)	Other works	1,100
VIII (c)	Sowing and planting	3,849
IX (c)	Other charges	1,043
Total		22,737
C.—Establishment and Contingencies.		
I (b)	Pay of superior officers appointed by the Secretary of State	36,873
II	Pay of officers appointed in India	23,632
III (a)	Subordinate forest and depot establishment	(c) 10,417
(b)	Office establishment	8,731
IV (a)	(2) Travelling allowance of superior officers	7,646
(3)	Do. subordinate forest and depot establishment	(c) 4,691
(4)	Do. office establishment	1,809
(b) (1)	Fixed travelling allowance	22
(c)	Honoraria	800
	Deputation and other allowances	59
V (6) (1)	Rates and taxes	11
(2)	Pay of menials, where non-contract	2,537
(4)	Other contingencies	8,500
Total		1,05,728
Total expenditure, B and C		1,28,465

(a) Realized by sale of permits for removal of fodder grass from the College estate. The sum should have been credited to II (d).

(b) Includes Rs. 5,460 spent by the District Forest Officer, Nilgiris.

(c) As per final figures for March 1924 received from the Accountant-General on the 21st instant Rs. 109 has been transferred from C-IV (a) 3 to C-III-(a).

Deduct—

(1) Net revenue	RS.	RS.
(2) Expenditure on Museum as follows :—	62,538	
Pay of Curator	RS.	
Pay of two Museum watchers and sundry other expenses.	1,243	
	2,365	
Net cost of College ...		64,903
		63,562

Statement No. II—Madras Forest College, Coimbatore, 1923-25 division

Serial number and name of student.	Circle or State to which attached.
1. A. Subrahmanyam	I Circle.
2. A. Arogiaswami	II Circle.
3. T. S. Sankaran	III Circle.
4. S. Narayanaswami	V Circle.
5. M. Manickam	Ceylon
6. S. Ilayaperuma	Do.
7. L. J. V. Perera	Do.
8. S. Sabastian	Do.
9. R. D. Philips	Do.
10. S. S. Harisinghani	Bombay.
11. K. G. Krashi	Do.
12. A. J. Andrade	Do.
13. Benjamin John	Do.
14. O. P. Mathews	Do.
15. D. J. Tanpure	Do.
16. Muhammad Kassim	Do.
17. R. Ramaswami	Do.
18. D. D. Rawat	Central Provinces.
19. Ramjidass	Do.
20. S. R. Bali	Do.
21. Khan Muhammad	Do.
22. G. M. Ayade	Do.
23. J. Chakravarthi	Do.
24. Muhammad Abdus Satkar	Bihar and Orissa.
25. B. K. Banarji	Do.
26. B. J. Dwivedy	Keonjhar State.

APPENDIX II.

Abstract showing the live-stock, stores, tools, etc., in the Madras Forest College, Coimbatore, for the year ending 31st March 1924.

Description of stock.	On hand at the commencement of the year.		On hand at the end of the year.		Difference in value in favour of the year.	Difference in value against the year.
	Num-ber.	Amount.	Num-ber.	Amount.		
Survey and other instruments.	2,144	RS. A. P. 6,453 9 5	1,830	RS. A. P. 5,707 2 9	..	RS. A. P. 786 6 8
Tools	998	1,575 1 4	874	1,184 1 4	..	† 391 0 0
Furniture	1,656	22,785 1 5	1,699	22,013 14 3	†	771 3 2
Tents	79	6,330 12 0	79	1,854 8 0	..	4,476 4 0
Uniforms	84	352 10 2	65	163 10 4	..	§ 188 15 10
Scientific apparatus ..	1,361	409 0 9	1,371	320 1 2	..	88 15 7
Photographic apparatus.	20	344 0 2	19	302 3 1	..	41 13 1
Gymnasium	9	345 3 2	9	826 2 4	..	19 0 10
Machinery (oil engine, etc.).	2	2,328 6 0	2	2,208 11 6	..	119 10 6
Miscellaneous articles..	1,538	2,529 12 5	1,143	2,079 14 7	..	449 13 10
Total ..	7,990	43,493 8 10	7,091	36,160 5 4	..	7,333 3 6

* Of this stores value Rs. 838-13-0 were transferred to saleable stock.
† Under this head an oil-engine, book value, Rs. 357-3-5, was sold during the year for Rs. 600. Articles, value Rs. 155, were purchased during the year.
‡ Rupees 104-1-3, value of camp boxes made in the College, included.
§ Rupees 165-14-0, value of clothes issued.

A REVIEW OF THE WORK DONE BY THE FOREST ENGINEERING BRANCH UP TO MARCH 1924.

INTRODUCTORY NOTE BY THE CHIEF CONSERVATOR OF FORESTS, MADRAS.

In 1922 a pamphlet entitled "A selection of papers relating to Forest Exploitation in the Madras Presidency" was published for the information of the members of the Legislative Council. A "Foreword" written by His Excellency the Governor in which he stressed the importance of forest exploitation from the point of view of the expansion of the revenues of the Presidency was followed by an "Introductory note" which briefly reviewed the history of the Forest Department and showed how attention had in the past been concentrated on the forests which supply the requirements of the local villagers to the detriment of the more valuable timber forests with the result that the war found the department helpless to do anything to meet the enormous demands for timber which then arose. A short account was then given of some of the assets in the shape of valuable forests which the State possesses, and stress was laid on the need for considerable expenditure if the best use were to be made of these assets. It was stated that the Government recognized the importance of obtaining the best available skilled advice, and that they regarded this as essential to success. At the end of the pamphlet was printed a note drawn up for the Forest and Finance Committees of the Legislative Council in which it was proposed that negotiations should be opened with Mr. C. S. Martin, then Consulting Forest Engineer to the Government of India, with a view to secure his services to direct forest exploitation in this Presidency.

2. In due course the Legislative Council approved of the proposal to engage Mr. Martin as Chief Forest Engineer for a period of three years. The Council's approval was also obtained to the creation of a special branch of the Forest Department which should be called the "Forest Engineering Branch" and be under the control of the Chief Forest Engineer. This branch was to take charge of all works connected with the extraction of timber which involved special difficulty or called for special engineering skill, as well as all the more important engineering operations of the Forest Department; it was also to deal with the "utilization" or the disposal of the timber extracted, and for this purpose a new post of "Forest Utilization Officer" was sanctioned. In connexion with the extraction of timber a temporary post of "Logging Engineer" was created, and it was decided to obtain for this post an expert in American logging methods who should assist the Chief Forest Engineer in the actual work in the field.

3. Mr. Martin arrived in Madras early in October 1923 bringing with him as Logging Engineer Mr. J. Kenneth Pearce. He has written the following report dealing with the work on which he has been engaged up to the end of March 1924. This report speaks for itself and fully bears out the opinion expressed by Government in 1922 that skilled advice was essential to success; without Mr. Martin the department could make no advance in any exploitation work demanding technical engineering skill which the ordinary forest officer (whose training is chiefly concerned with growing

rather than with exploiting forests) does not possess. This is very clearly shown in the reduction already effected in the cost of extracting timber from the Chenat Nair forests.

4. A beginning has been made, and there is good reason to hope that under Mr. Martin's guidance the valuable timber forests of this Presidency may be turned to good account and may not only render the Presidency independent of extraneous supplies of timber but also yield a considerable financial return.

REPORT FROM C. S. MARTIN, ESQ., CHIEF FOREST ENGINEER, MADRAS,
CAMP No. 1/24, OOTACAMUND, DATED 23RD MAY 1924.

I think it may prove desirable to present to you a brief review of the organization and accomplishment of the Forest Engineering Branch during the last six months of 1923-24.

2. The Chief Forest Engineer reached Madras on October 6th. The remainder of this month was spent in getting the office organized, in inspecting the work going on at Chenat Nair, and in preparing a report to Government as to the desirability of accepting Rao Bahadur Namberumal Chetti's offer giving Government the use of his Trichur Saw Mill for a period of three years.

3. November was spent in inspecting the work of the Forest Engineer at Mount Stuart in reorganizing the work at Chenat Nair, and in further organization and office work in Madras.

4. During December the Forest Utilization Officer was appointed and the organization of his office and work was undertaken. A scheme was presented to Government for the establishment of a box-making plant and saw mill at Olavakkot, South Malabar.

5. January was spent in an inspection of the evergreen forests of South Kanara, an examination of the Beypore depot near Calicut and of various engineering problems in the Wynad; a trip was taken to Coorg to advise the Government of that province as to their exploitation and engineering work and to confer with the representatives of the Railway Board as to the supply of sleepers to the railways from Southern India.

6. February was spent in a trip to Cochin and the Papanasam reserved forests in company with Mr. Raitt, Officer in charge of the Paper Pulp Section, Forest Research Institute, Dehra Dun, in order to investigate the manufacture of matches from reeds and the possibilities of establishing a larger paper pulp and woodworking industry in the latter forest.

7. March was spent in trips to Coimbatore, Chenat Nair and Mount Stuart in connexion with work under way at these places and in general organization and reorganization.

8. In order to summarize the work accomplished, I think it will perhaps be better to take up separately the various activities under the control of the Forest Engineering Branch.

I. (1) *Chenat Nair*.—This operation was found in the most discouraging situation faced in its brief and chequered history. Markets had fallen off, the staff and labour had been so badly hit by fever that all work had been

shut down for two months, the work was more or less disorganized, the machinery beginning to give trouble and every one was more or less discouraged.

The results accomplished here may best be shown by the production and cost figures for the six months under review.

The whole plan of work was reorganized under Mr. Pearce, the Logging Engineer, the operation was mapped, enumerations of the timber were made, and Government was asked to sanction a scheme of increased pay for the staff, based on outturn. The figures follow:—

Month, 1923.	Production, cubic feet.	Book cost per cubic foot.		
		RS. A. P.		
October	2,607	4	11	1
November	4,179	3	2	1
December	6,984	2	1	9
January	4,309	2	13	3
February	12,459	1	11	8
March	16,088	1	6	3

This improvement is continuing and, with a revision of the book-keeping methods as advised by Messrs. Fraser & Ross, Chartered Accountants to Government, we expect to reach our budgeted figures on both production and cost of production if not to improve on them.

(2) *Olavakkot Saw Mill*.—The operations at Chenat Nair were started with the idea that the entire outturn would be absorbed in the log by the Kolar Gold Fields. This was soon proved to be impossible of fulfilment as many of the timbers were unsuitable for use at the mines and at the same time the timber market continued to weaken until contracts for proved timbers could be made at prices considerably below their real value. It, of course, followed that unknown timbers became a drug on the market.

It had been foreseen by the Chief Conservator of Forests, Mr. Cox, the then Conservator of Forests, VI Circle, Mr. H. Tireman and myself that, were any such contingency to occur, the only possible way to develop the South Malabar evergreen forests would be to erect a saw mill and box-making plant in connexion with the Chenat Nair Logging Operations. On presenting the case to Government, a grant of Rs. 1,75,000 was made by the Legislative Council in order to give the Forest Department a chance to show what could be done with the large areas of evergreen forests in the Presidency.

We expect to have this mill erected and ready for operation by October 1st. The remaining six months of the coming year will largely be taken in training a crew to run the mill, in establishing market connexions, and in accumulating stocks. From all indications at present, there will be no difficulty in disposing of our product at good prices as we plan to produce a better product than has yet been placed on local markets. That is, we propose to furnish *seasoned* material in the form of boxes, doors, window frames, panelling and structural timbers, of *guaranteed species*, and also to saw sleepers for the railways. From inquiries and investigations to date, there seems to be little doubt that we will be given all the business we can handle.

In order to manufacture a guaranteed seasoned product we are erecting a battery of four drying kilns under the direction and plans of the seasoning experts at Dehra Dun. These kilns will be run by a man especially trained for their operation.

II. *Tinnevely Evergreen Forests*.—On further investigation of the Papanasam forests with Mr. Raitt, Paper Pulp Expert from Dehra Dun, it seems increasingly probable that we will eventually be able to establish in this area one of the largest wood using centres in India.

The central plant of the proposed industries would be a paper pulp mill using as material the Eta bamboo, one of the best paper-making materials in India, and one which reproduces itself every $3\frac{1}{2}$ years; so a perpetual supply of material can be assured *without denuding the hills*. In connexion with this we hope to combine a match factory, using the same material, the waste from the match factory being utilized by the pulp mill. In addition to these plants, we expect to cut a comparatively small coupe of timber each year, which will support a small saw mill and box-making plant. In connexion with the saw mill we should have a pencil factory using the waste from the saw mill and with the transportation facilities made necessary by the above mentioned plants we can supply the whole district with cheap fuel.

All these industries may, I think, be operated by local water-power without impairing either the supply of water for irrigation or interfering with the power developed by the Papanasam Cotton Mills.

In order to present this scheme properly, however, at least two years of surveying, mapping and preparing estimates will be required, most of which work will be under Mr. Pearce, the Logging Engineer.

III. *Mount Stuart Roads*.—On inspecting the roads under construction and survey in this district the Chief Forest Engineer was informed by the Forest Engineer in charge of the work that an excess of approximately Rs. 22,000 would have to be incurred in completing the Mount Stuart Ghat Road.

By shortening the alignment without increasing the gradients, by utilizing part of an existing road, and by reducing rates, this proposed excess has been reduced to a saving of Rs. 4,200 over the original estimates sanctioned for this project.

The road surveyed to the Mount Stuart bungalow, estimated to cost Rs. 94,600 has been disapproved and surveys are now under way which will furnish a much more useful road at lower gradients and less cost.

IV. *Forest buildings*.—Plans are under way for the construction of all types of forest buildings at lower cost. Plans and estimates are being prepared to give standardized designs for such buildings with all quantities and materials worked out so that, by the inclusion of local rates, full estimates for any given building may be presented at short notice and on approved lines.

V. *The Logging Engineer*.—Mr. Pearce has been very busy installing new logging methods at Chenat Nair, preparing plans and surveying for the new mill, surveying pole roads and fuel ropeways, mapping and enumerating the area for the next five years' operations, preparing volume tables, and advising as to engineering work in the Wynaad and at Beypore.

During the coming year he will have to maintain survey, mapping, and enumeration parties at Chenat Nair, Ambasamudram, South Kanara and Nilambur. He will also probably advise Coorg as to some of their logging problems.

It is of the highest importance that Madras should know where and what her timber resources are. Extensive plans must be made far in advance for the proper exploitation of these resources to avoid costly mistakes such as have been made in the past and to prepare for the inevitable development of tropical timbers.

In order to do this, Mr. Pearce will have to train and manage at least 12 field parties scattered all over the Province. In South Kanara alone we plan to map and enumerate approximately 30,000 acres of timber land; in Tinnevely to survey and estimate 17 miles of metre-gauge railway and 12 miles of flumes. Added to this will be work going on at Chenat Nair and Nilambur.

VI. *Forest utilization*.—The scope of the work coming under this department has increased so rapidly under the direction of Mr. Wernham that it is difficult to cover the ground in a brief report of this nature. This work must be rapidly expanded if we are to realize anything like the benefits now made possible by the organization of the Forest Engineering Branch of the department.

I will take up a few of the problems now being handled by the Forest Utilization Officer in detail—

(1) *Data on existing markets*.—This involves the collection of figures showing the total amount of forest produce used in the Presidency, the form in which it is marketable, where the marketing centres are for different products, and current prices.

To collect this information we propose to divide the province into three districts, each covered by a Ranger, who will collect such information locally and forward it to the Forest Utilization Officer.

(2) The above data would be of little value to us if we do not know where our supplies of raw materials exist, the quantities available, the cost at which they may be extracted and the cost of transport to markets.

The resources are being surveyed by the Logging Engineer; the cost of extraction to centrally erected timber centres is being obtained from local officers, and data on transport costs is being assembled.

This all involves a great deal of correspondence and our present staff is entirely inadequate to the proper co-ordination and filing of returns so that the information may be available for use.

(3) *Sleeper supply*.—This also is a very intricate question involving the locating of supplies, estimates of costs of extraction and delivery, and negotiations with the railways in the matter.

We have taken up the supply of sleepers suitable for preservative treatment in order that we may guarantee sufficiently large supplies over a period of years to justify the railways in installing plants for such treatment. In order to expedite the matter, we are furnishing the railways with plans and estimates for such plants, together with probable cost of operation.

In this way we hope to do away with the importation of treated sleepers and to furnish the railways with an assured supply at reasonable prices.

(4) *Export of timber to Europe.*—This matter was in a somewhat chaotic condition, no proper accounts were in existence and there was no centralized record of sales or shipments.

The account forms are being standardized and supplies are being co-ordinated, so advantage may be taken of the increase of business which is now in prospect.

(5) *Collection of data on Madras timbers and their uses.*—All the research along these lines during the past years is being collected and will be filed for reference as soon as sufficient staff is available. It is hoped to issue a booklet on the more useful species and to spread information as to the uses to which they may be put and as to what supplies are available.

(6) *Establishment and co-operation with Forest Industries.*—(a) *Bobbins and spindles.*—Madras possesses exceptional opportunities for the installation of plants to manufacture these articles in that we have a large supply of suitable woods and also have a very large local market for the product.

(b) *Handles and turnery.*—Here, again, Madras has the timbers, now largely unutilized and also possesses large potential markets in the railways and in the large planting community.

(c) *Paper pulp.*—The province has large supplies of the Eta bamboo, one of the best paper-making materials in India, in some cases has local water-power available for the running of such mills, and has sufficient local supplies of lime. As pointed out earlier in this report, work is proceeding looking towards the establishment of a large pulp plant.

(d) *Matches.*—Inquiries are received every few weeks as to supplies of raw material for this industry. The largest supply available is probably the Eta bamboo, but when the match factories are willing to locate near a saw mill, they can probably be supplied with match stock from odd lengths from the mill. The industry cannot pay high enough prices for raw material to justify long rail shipments in the log.

(e) *Pencils.*—Much the same situation exists as to wood for pencil manufacture. We have certain woods which do very well for cheap pencils, but the raw material cannot stand heavy transport charges. The plant must be near the source of supply.

(f) *Box-making industry.*—Existing local markets are very large indeed and depend largely on importation of foreign boxes. The reason for this has been that local supplies were very uncertain, the material used was practically unseasoned, and the general product only suitable for an inferior grade of boxes. These objections may all be overcome by developing proper seasoning facilities, as good box timbers are to be had in abundance. The seasoning also reduces the weight of the box which has been an important factor in favour of imported boxes.

Much valuable work on this line is expected to be done by the new box plant at Olavakkot.

(7) *Minor Forest products.*—Inquiries are constantly coming in as to the supply of various minor products, such as cutch, divi divi, etc. In order to co-operate with such inquiries we must know where our supplies are, the cost of extraction, current prices, and how the product must be prepared in order to meet market requirements.

To collect and make use of such information it is proposed that a Provincial officer should be placed directly in charge of the collection of such data.

(8) *Grading of timber.*—In order to compete in foreign and in local markets it will be necessary to establish standard merchantable grades for logs and sawn products. Buyers at a distance must know what they are getting.

This requires considerable collection of information as to existing Burma grades, Nilambur and Pollachi grades, from which standard grades may be evolved.

(9) The Forest Utilization Branch will have the organization of markets for the new Olavakkot mill. It has to correlate reports from this mill and from Russellkonda as to the current working of the plants for submission to Government.

(10) *Organization of fuel supplies.*—Fuel is one of the most important of forest products and much can be done in organizing and stabilizing supplies for the various industrial centres both to the advantage of Government and to the consumer. Considerable work is now being done along this line, but is hampered for lack of staff.

(11) *Research and timber testing.*—With hundreds of unknown woods in the Presidency forests it is of the highest importance that all past research as to the usefulness of such timbers be correlated and that new research be constantly kept under way.

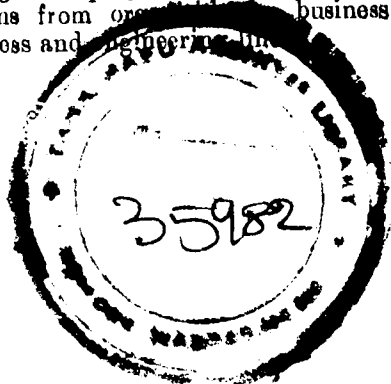
Arrangements have been made with Dehra Dun and with the Madras Engineering College for co-operation along these lines. Timbers must be tested as to strength and durability before they can be recommended for various uses.

The possibilities of veneers for boxes must be investigated and many other lines of research undertaken.

VII. During the past six months we feel that we have made a start only. Every day we are discovering new possibilities. The staff of the Forest Engineering Branch is energetic and very keen on the work in hand, and, given proper support from Government and from the public, will, I believe, prove of the greatest assistance in the economic development of the forest resources of the Presidency. Within ten years I believe that we can attain that surplus of rupees forty lakhs mentioned by the Chief Conservator in his speech before the Legislative Council.

We expect the next year to show much greater progress and in 1925-26 we expect to begin to reap some of the returns from our business side of the Forest Department along business and engineering lines.

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