



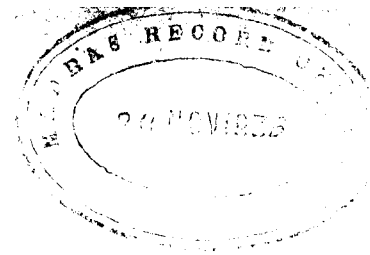
ADMINISTRATION REPORT
OF THE
FOREST DEPARTMENT
OF THE
MADRAS PRESIDENCY
FOR THE
YEAR ENDING 31ST MARCH 1925

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ANNUAL ADMINISTRATION REPORT OF THE FOREST DEPARTMENT

FOR THE

YEAR ENDING 31st MARCH 1925

FIRST CIRCLE

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CHAPTER I.—CONSTITUTION OF STATE FORESTS.

1. ALTERATION IN AREA.

1. *Reserved forests and reserved lands.*—Eleven square miles of reserved land in *Nellore* were transferred to reserved forests. The area on 31st March 1925 including *Nellore* and *Guntur* was 3,984 square miles of reserved forest and 3 square miles of reserved land.

2. FOREST SETTLEMENT.

2. Eleven square miles were notified under section 16 of the Forest Act. This represents the final settlement of Rapur Veligonda reserves in the *Nellore* district whose notification took effect from 15th May 1924 although published at the end of last year.

3. DEMARCATION.

3 *Ganjam.*—Six cairns were constructed on the boundary line of Buduli unreserve proposed for reservation and the western boundary lines of blocks II and IV of Gallery Extension were rectified at a total cost of Rs. 9-13-0. *Upper Godavari.*—About eleven miles of the frontier boundary between the Bastar State and Nugur range was inspected and verified by the District Forest Officer. The western boundary of Poddamidisileru reserved forest was rectified at a cost of Rs. 23. *Lower Godavari.*—Upputeru reserve Block I was demarcated at a cost of Rs. 17 so as to exclude 1,520 acres disforested for purposes of assignment for wet cultivation. Similarly, in *Guntur* a boundary line was demarcated at a cost of Rs. 17-5-3 in Koppukonda Extension I where a portion was disforested. *Nellore.*—About seven miles of boundary of

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Rapur Veligonda was demarcated in 1920-21 at a cost of Rs. 43-12-0, but it was brought to account only in the year under report as its notification under section 16 took effect this year. An expenditure of Rs. 29-8-0 was incurred in demarcating lines 12 feet broad around disforested areas in Vovveru and Kandamur reserves. Re-clearing old lines was done free of cost to Government by subordinates everywhere and by the Kanchadars in *Nellore*.

4. FOREST SURVEYS.

4. *Upper Godavari*.—The Survey of India Party traversed the boundary between the Bastar State and the Nugur taluk in order to settle the dispute between the Bastar State and Government. The result of the survey is not yet published. The survey of India Party also verified the Government Trigonometrical Stations in the reserved forests of the Bhadrachalam taluk. *Guntur*.—The Survey of India Party surveyed in detail the Bellamkonda and Venkatayapalem reserves of Sattenapalle range. The Madras Survey Party traversed the boundaries of the mangrove reserves in *Guntur*. 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 Gumsur working plan were carried out. Certain deviations regarding working in the selection working circle were sanctioned by the Chief Conservator. The Mohiri forests of the Berhampur range were worked under Mr. Wimbush's working scheme. *Vizagapatam*.—In the working plan for Sarvasidhi range the simple-coppice system was introduced in place of the coppice with standards system. In the Yellamanchilli grazing working circle, sheep and buffaloes which were not hitherto admitted to grazing are now permitted to graze permanently up to the possibility fixed in the scheme. Both the above deviations were sanctioned by the Chief Conservator. *Godavari Upper*.—Revised schemes for working bamboo coupes in the division and the Yepi areas in the Bhadrachalam range were submitted to the Conservator for approval. *Godavari Lower*.—A simple scheme for working the teak areas in Papikonda reserve has yet to be drawn up. This is pending decision as to the means of extraction to be employed for transporting the timber. This question is awaiting decision by the Forest Engineer. A simple scheme for working the bamboo forests in Rajahmundry, Peddapur and

Gokavaram ranges on a four-year rotation (instead of a three-year rotation hitherto) was prepared and has since been approved by the Conservator. It will be brought into force from 1st July 1925. A scheme for forming casuarina plantation in the Karavaka portion of the Kandikuppa reserve was under preparation. *Guntur*.—Simple schemes for working the forests of Vinukonda, Sattenapalle and Palnad ranges were prepared and pending submission to the Conservator. The Repalle mangrove working plan was under revision. The sanctioned working plan for the Kondapalli reserve was revised under Mr. Barry's orders. Working under the working plan for the reserves in the Bezvada taluk is practically in abeyance owing to transfer of areas to panchayat management. The working plan for the mangrove reserve of the old Bandar range has become out of date owing to the transfer of several reserves to panchayat management. The plan for the remaining reserves is under revision. The Guttikonda and Bollapalle working plan was practically suspended for want of demand for fuel coupes. *Nellore*.—The working plan for Kavali range was completed and has since been approved by the Conservator. Sriharikota working plan was under preparation and work thereon was much handicapped by changes of 5 Range Officers within one year. A tending working plan for the Red Sanders area in the district was pending preparation.

The prescriptions of the sanctioned working plans were generally adhered to. For want of demand 7 fuel coupes and 4 bamboo coupes were left unsold in *Lower Godavari*. In *Nellore* several felling series were in arrears either for want of demand or poor growth therein; and after investigation steps were taken for the elimination of these areas from the working plan returns.

2. COMMUNICATIONS AND BUILDINGS.

6. No new work costing more than Rs. 5,000 was sanctioned.

7. *Roads and bridges*.—Rs. 2,882 were spent on new works, and Rs. 3,965 on repairs. Little progress was made under new works owing to financial stringency. The existing roads were in most cases kept in repair. The important new works carried out were: *Ganjam*.—Completion of two culverts on Tilasingi-Tarasingi road and a bridge across Odangi nala, repairs of a capital nature to Kukuluba valley road, acquisition of land for Mohiriguda-Kondalabondho road, Rs. 232. *Vizagapatam*.—Eight chains of Russellpetta-Donabhai road, Rs. 159. *Upper Godavari*.—Six furlongs of earthen road from Polipaka to Tatlanka, Rs. 162. *Lower Godavari*.—Compensation for temporary occupation of land for Yagaram-Ramasingavaram road, Rs. 185. *Guntur*.—One bridle-path from the inspection shed

in Pulusunutala hill to the well at its foot in Palnad range and another from that place to Dampalli rest-house, continuation of the bridle-path in Kandlangunta Extension I.

8. *Buildings*.—Rs. 5,572 were spent on new works and Rs. 13,829 on repairs. The latter figure includes cost of temporary establishment employed, Rs. 3,976. The important buildings constructed were : *Ganjam*.—Completion of outhouses and stables to the rest-house at Tarasingi; five camping sheds in Bontha range, one subordinates' shed at Kaddapada, fence to Bontha Range Officer's and Range clerk's quarters. *Upper Godavari*.—Completion of Forester's quarters at Tummuleru and construction of outhouses to Ranger's quarters at Cherla. *Guntur*.—Subordinates' lines at Ipur (part construction) and improvements to inspection sheds. The Range office building at Bapatla was converted into a rest-house at a cost of Rs. 230. *Nellore*.—Completion of outhouses to Kavili Range Officer's quarters. Wire fence to the Range office building and construction of a latrine to the Range Officer's quarters at Kavali.

9. *Other works*.—*Guntur*.—The important new works were : Two wells in the Bapatla rest-house and Adavuladivi camp-shed. *Nellore*.—Two pot-wells in Sriharikota range for the better sanitation and health of the Government Yanadis working on departmental collection of minor forest produce.

3. PROTECTION OF FORESTS.

(a) General Protection.

10. The number of forest offences reported during the year and their classification are compared with those of the preceding year, and the average of the three preceding years in the following statement :—

Cases.	Injury to forests by fire.		Unauthorized felling.		Unauthorized grazing.		Other offences.		Total.		Average for three years ending with 1923-24.
	1923-24.	1924-25.	1923-24.	1924-25.	1923-24.	1924-25.	1923-24.	1924-25.	1923-24.	1924-25.	
Cases taken to court.	3	3	622	830	713	724	116	37	1,454	1,594	1,146
Cases compounded.	6	1	2,679	2,953	1,363	1,420	199	320	4,252	4,691	3,972
Cases undetected.	97	86	109	107	1	2	5	1	212	196	274
Total .	106	90	3,410	3,890	2,082	2,146	320	358	5,918	6,484	5,392

New cases of the year.—The figures show an increase under all heads except under "injury by fire". Individual districts

considered, there was increase in the number of offences in *Ganjam* compared with last year, and it was due to vigilance on the part of the protective staff especially in Russellkonda range. This gave direct results in much improved prices realized for coupes in the reserves concerned. Credit in this connection is due to Ranger C. G. Krishna. In *Vizagapatam*, the period for the payment of compounding fees was extended from 15 to 30 days resulting in a fall in the number of cases taken to Court. In *Upper Godavari*, there was a considerable fall under "unauthorized fellings" which is attributed to a better comprehension by the people of the revised rules introduced last year for the felling and removal of the classified trees from the unreserves of the Bhadrachalam taluk. There was increase in the number of new cases reported in *Lower Godavari* and *Guntur*, and it is ascribed to the addition of reserves of the late Kistna division.

Cases old and new dealt with during the year.—The percentage of convictions was less than that of last year and was due to the payment of compounding fees after the cases were taken to court. Of the 1,896 cases taken to court, 692 were convicted and 1,204 acquitted. Of the 1,204 acquittals, 1,131 were due to payment of compounding fees in court, 21 were withdrawals (8 were by the District Forest Officer in *Nellore* owing to the death of the accused, or to avoid payment of disproportionately large travelling allowance to official witnesses in trivial cases). Only 52 were acquitted by the Magistrates on demerits, i.e., about 4 per cent. The punishments inflicted by the Magistrates were reported generally adequate.

The usual notice of warning was published in the District Gazette and by beat of tom-tom to the villagers against settling fire to the reserved forests. No other special steps were taken such as suspension of privileges, closure of reserves to grazing, enhancement of grazing fees, and so forth.

The total number of cases compounded was 4,196, and the compounding fees realized Rs. 68,907, or an average of Rs. 16 per case.

11. A reward of Rs. 100 was sanctioned for payment to 1 Forester, 6 Forest Guards, and 2 Watchers and another of Rs. 80 to one Forester, and 5 Forest Guards for detecting big cases under very trying circumstances in Vinukonda range of *Guntur* division. To encourage efficient protection of Kanchas and closed coupes, rewards of Rs. 406 were granted to Kanchadars in *Nellore*.

(b) Protection from fire.

12. The areas attempted to be protected and actually protected are shown in Form 72. The area under special protection was

1,013,194 acres and includes the areas in *Guntur* and *Nellore* recently added to this circle. Of this an area of 984,565 acres was successfully protected at a cost of Rs. 15,314. The percentage of failure was only 2.8 per cent and includes fires over 13 $\frac{3}{4}$ square miles which occurred in Dharakonda and Sanivaram reserves of *Vizagapatam* division, as a direct result of the Fituri operations. The fire season of 1924 may be said to be on the whole more favourable than the previous year's.

The average cost per square mile of special protection attempted was Rs. 9-15-4 against Rs. 11-0-3 of the previous year. The decrease was due to the fact that in *Ganjam* no second burning of fire lines was done in Buguda, Bontha, Russellkonda and Kukuluba ranges and that the fire patrols were employed for 2 months only against 4 months sanctioned. In *Upper Godavari*, early burning was carried out in Nugur and Cherla ranges and in Rekapalli and Marrigura reserves of Pulusumamidi and Lakka-varam ranges. The total area dealt with was 601 square miles. The cost of the operation including rewards to Koyas and Reddis was Rs. 9 per square mile against Rs. 6-10-0 in the previous year. This year's increase is due only to the payment of reduced rates to the hill men last year, owing to unsatisfactory burning. In *Guntur*, Kondapalli, Kottur and Kondur reserves were under special protection, but under Mr. Wilson's orders early burning was substituted. The system is reported to be not popular as it deprived the people of the dry grass which they would otherwise have for thatching purposes. The District Forest Officer has been told that next year if the people like dry grass the Forest department will willingly let them take it over specified areas and will do no early burning in those areas provided they in return discourage any intentional firing of the forest. In *Nellore*, the modified early burning was continued in the hilly ranges of Kanigiri, Udayagiri and Rapur. This system is described by Mr. Chengappa as follows: 'Here instead of burning the area in patches here and there, at the proper time fires are let along the boundary and compartment lines and allowed to burn 2—300 feet and then put out by beating. If the right time is chosen for this burning, i.e., when the grass is half-dry, the fire tracing operations are far superior to the orthodox system of burning and far cheaper, the lines look clean burnt.' The area attempted to be protected was 149,853 acres and the total cost Rs. 605, i.e., Rs. 2-8-0 per square mile. The result is reported generally satisfactory.

The area under general protection was 1,233,816 acres. The area burnt was 12,795 acres (nearly 20 square miles) or 1 per cent.

The average cost per square mile was Rs. 1-8-0 per square mile attempted.

The Kondhs of Pondakhhol were granted rewards at a cost of Rs. 246 for successful protection of the forests from fire. Similarly the Koyas and Reddis in *Upper Godavari* were paid rewards amounting to Rs. 3,887 for successfully protecting the reserves in the whole division.

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

The cost per average acre of special and of ordinary fire protection in the several divisions is of interest.

						Pies per acre.
<i>Ganjam</i>	...	{	Special	...	...	9-0
			Ordinary	...	...	2-0
<i>Vizagapatam</i>	...	{	Special	...	...	3-0
			Ordinary	...	...	0-8
<i>Godavari, Upper</i>	...	{	Special	...	...	3-0
			Ordinary	...	...	0-8
<i>Godavari, Lower</i>	...	{	Special	...	...	4-0
			Ordinary	...	...	1-0
<i>Guntur</i>	...	{	Special	...	...	0-9
			Ordinary	...	...	<i>Nil.</i>
<i>Nellore</i>	...	{	Special	...	...	0-8
			Ordinary	...	...	<i>Nil.</i>

(c) *Protection from cattle.*

13. 2,667 square miles of reserves were open to grazing against 2,300 square miles in the previous year. The increase is due to the addition of *Guntur* and *Nellore* reserves to the Circle and would have been greater but for the transfer of a large number of reserves in *Guntur* and *Lower Godavari* to panchayats and disforestation of several reserves in *Guntur*. Goats were excluded from all reserves. In *Ganjam*, the grazing incidence rose from 6.76 of the previous year to 6.59 acres, in *Vizagapatam* from 12 acres to 11 acres, in *Upper Godavari* from 3.60 acres to 3.36 acres, and in *Guntur* from 2.83 acres to 2.41 acres. In *Lower Godavari* the grazing incidence fell from 2.00 to 2.34 acres. In *Nellore*, out of 430 Kanchas, 384 were sold at different rates, of which 211 were on long lease for 3 years against 165 of last year, and only 28 Kanchas remained unsold for want of demand or poor rainfall against 43 of last year. This was an improvement. The number of cattle licensed to graze was 585,023. The increase in *Upper Godavari* is attributed to the greater interest taken by the Range Officers in getting the cattle licensed and to the greater accuracy of the cattle census taken.

The number of cattle impounded was 39,570. Increase was in particular noticeable in *Ganjam*, *Guntur* and *Nellore* and was ascribed to greater vigilance of the protective staff. In *Nellore* a large number of cases was detected in closed coupes and unsold Kanchas.

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

14. *Ganjam*.—Creepers were cut everywhere by subordinates free of cost. Very little progress was made during the year in determining the cause and remedy for the attack of whiteant on young sal stems nor has any conclusion been arrived at as to how far such attacks and rot are inter-connected. The Sylviculturist, Forest Research Institute, Dehra Dun, visited the forests in July 1924 and suggested certain experiments which he considers worth carrying out in this connection. The Forest Entomologist, Dehra Dun, already recorded his opinion after his tour in February 1924 that the remedy appears sylvicultural and agrees that the experiments suggested by the Sylviculturist are worth trying and suggested slight modifications. The report was received too late to lay out the experimental plots, so this can be done only after the rains are over. It is hoped that the experiments to be carried out will throw more light on the subject. It is still to be determined what percentage of the new regeneration is actually affected by disease. In *Vizagapatam*, creepers were cut in sal areas of Burna reserve and in the whole of Dinubhai reserve at a cost of Rs. 94. Creepers and thorny growth were cut in an area of 40 acres containing *Xylia Xylocarpa* in Karaka reserve, Extension B, free of cost. In *Upper Godavari*, in order to favour the existing teak, cutting down or girdling of soft wooded species and creepers was done in areas fit for clear felling at a cost of Rs. 125-3-0. The same was done in the teak lankas of Papikonda reserve of *Lower Godavari* division at a cost of Rs. 36. *Nellore*.—The experiments carried on during the last two years of scraping *Loranthus*, *Longiflorus* and *Viscum Orientale* from Nux-vomica trees over a plot of 20 acres in Sriharikota reserve not having been successful, the operations were restricted and concentrated to 5 acres. Nothing definite could be deduced from the results hitherto seen, but it is a fact that the pest reappears on trees and even from places where *Loranthus* had been removed and where tar had been applied. The operations are being continued in 1925-26. Lopping and pruning of inferior species interfering with the growth of Red Sanders over 122 acres in Blocks IV to VII and cutting *Loranthus* from the affected branches in Kollurpad plantation in Kavali range were undertaken at a cost of Rs. 42-9-3

CHAPTER III.—SYLVICULTURE.

SECTION I.—FORMATION AND REGENERATION OF FORESTS.

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

15. Regeneration of Sal in *Ganjam* was as usual. No flowering of *Dendrocalamus* or *Bambusa* was noticed. In *Upper Godavari* natural reproduction of *Terminalia tomentosa* in Nugur reserves and *Xylia Xylocarpa* in Rekapalli hill reserve was satisfactory. In *Lower Godavari* natural regeneration of teak in Teak Lankas of Papikonda reserve, of Satinwood in Labbarti reserve, was good; natural regeneration of *Aricennia officinalis* and of *Excoscaria Agallocha* in the mangrove forests of Rajahmundry range and of *Xylia Dolabriformis* in Kopalli and Rajavommangi reserves was very good; natural regeneration of *Memecylon edule* in the Devancheruvu reserves and of *Pterospermum suberifolium*, gregariously in extensive patches in Lododdi reserve, was excellent. Areas under systematic working in the upland reserves are regenerated almost entirely by coppice and in the mangrove reserves regeneration is altogether by seeds deposited by the tides.

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

(a) Mainly natural.

16. Regeneration was entirely natural in *Ganjam*, *Lower Godavari* and *Guntur*.

(b) Mainly artificial.

17. In *Lower Godavari* the casuarina planting started last year was continued. 65 acres were planted on contract at Rs. 20 per 1,000 established plants delivered after one year. Planting distance 7 ft. by 7 ft. Failures in the last year's planting were replaced by subordinates free of cost. The plantation expenses work out at Rs. 45 per acre, at 3 per cent compound interest for a ten-year rotation. Net profit is expected to be Rs. 105 per acre. Local enterprise on similar sandy land is in the shape of coconut planting at present. The practice of sowing sandal seeds in the fuel reserves was abandoned.

(c) Afforestation.

18. Nil.

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

19. *Ganjam*.—Red Sanders planted in September 1923 in ten cents of Napier's Park reserve survived this hot season. *Vizagapatam*.—Chinnamangalapuram tope was divided into four blocks

under Conservator's orders. The first block was sold for Rs. 1,500 in 1924-25. The other three blocks will be sold one in each year and, as the tree growth is removed, the land will be handed over to the Revenue department for disposal under the darkhast rules. The land is valuable for cultivation and will fetch a good price being situated on the bank of the Nagavali river. The orange tope at Busilikota is said to be in fair condition and brings in Rs. 50 annually. *Upper Godavari*.—As reported in the last administration report, no new taungya operations were carried out in the 'teak bearing' areas. But under Conservator's orders an area of 20 acres was selected in Rekapalli hill reserve (a non-teak area) for teak taungya as the site and environments eminently suited teak, as is evidenced from the splendid growth in the 1921-22 teak taungya the tallest plant of which measured 17 ft. 5 in. in December 1924. The average is 7 ft. The right to cut and remove only the marketable timber and bamboos in this area was leased out to a contractor and the coupe was taken back and handed over to the hill men (Reddis) for burning and raising a jonna crop during the next monsoon. In 1926-27 the coupe will be taken back and sown with teak seeds in lines. The result of this operation will be watched and reported in future years. The teak seedlings cut back in the teak taungya 20 acres by 15th March 1924 in Rekapalli hill reserve have grown well—tallest 9 ft., average height 3 ft. The result of broadcast sowings done between 28th March 1924 and 31st March 1924 is very satisfactory. Seedling ranging from 3 in. to 1 ft. high were found all over the area on 6th December 1924. As weeding the whole area was costly and difficult, promising seedlings at a rough spacing of 9 ft. × 9 ft. are receiving special attention. Similar operations were conducted in Mattapalli taungya also and the results are reported satisfactory.

Clear fellings—Upper Godavari.—It was pointed out in the last year's administration report that the method of burning the rubbish in heaps in each coupe and sowing seed, weeding, mulching, etc., was financially unsound. This year the District Forest Officer in consultation with the Conservator decided not to burn the rubbish in heaps but to burn it *in situ* by setting fire to the whole area of the coupe; and a second burning was done subsequently. The change in method reduced the cost of the operation from an average of Rs. 45 to an average of Rs. 32 per acre. Seeds of valuable species such as teak, maddi, yegisi were broadcasted in burnt patches before the monsoon. No further nursing is contemplated. The results of this operation will be reported in the next administration report. The teak seedlings in burnt patches in coupes 1 to 4 of Bhadrachalam and Marrigudem ranges are thriving.

The seedlings in the burnt patches in coupes 1 to 3 of Pulusunamidi range were also doing well.

The following are the measurements of the coppice shoots in clear-felled areas:—

Range.	Number of the coupe.	Average height of coppice.	Height of the tallest
Bhadrachalam	1	9½ ft.	13 ft.
	2	6½ ft.	9 ft.
	3	4½ ft.	6 ft.
	4	3 ft. 6 in.	4 ft. 6 in.
Marrigudem	1	11 ft.	16 ft.
	2	10 ft.	12 ft.
	3	6 ft.	8 ft.
	4	3 ft.	4 ft.
Pulusunamidi	1	15 ft.	18 ft.
	2	13 ft.	15 ft. 6 in.
	3	...	...

Nellore.—The old plantation at Kollurpad reserve continued to be maintained. The species met with are *Albizia lebbeck*, *Cassia Siamea*, *Neem*, *Pterocarpus Satalinus*, *Hardwickia binata* and *Chloroxylon swietenia*.

(iv) Tending.

20. *Ganjam*.—Cleaning at age 9 months and creeper cutting at age 3 years was done in even-aged crops of Plains Sal Timber working circle. *Upper Godavari*.—Climbers were cut in the unburnt portions of the clear-felled coupes in August and October 1924 and January 1925. The seedlings in the burnt patches were weeded and freed once during the rains and a second time after the rains. They were also mulched twice before the commencement of the summer. *Lower Godavari*.—In the recently felled timber and fuel coupes in Kopalli and Bedadavole reserves of Polavaram range and also in the newly felled fuel coupes of Peddapur and Rajahmundry ranges, cleaning and climber cutting were done at a cost of Rs. 262. In the coupes elsewhere climber cutting and girdling of inferior species were carried out by the subordinates free of cost. *Nellore*.—Light thinnings were carried out in the Kollurpad plantation.

(v) General.

21. *Vizagapatam*.—Sandal was sown in the compound of the Range office at Narasapatam and the reproduction was good. Fresh flowerings of *Dendrocalamus strictus* were observed in patches here and there in Antikonda, Palkonda, Burna, Sanivaram and Dhara-konda reserves. *Bambusa Arundinacea* seedlings were coming up profusely and vigorously in Narasapatam range. *Dendrocalamus strictus* is also coming up where the clumps died in previous years.

Lower Godavari.—Semi-gregarious flowering of *Dendrocalamus strictus* in Peddapur and Gokavaram ranges and to some extent in Polavaram range has ceased and seedlings are now springing up vigorously. Teak in Polavaram range flowered very well but the quality of seed produced suffered owing to an attack of defoliators. There was an exceedingly heavy crop of wild mangoes and a bumper crop of tamarind in all the agency reserves of Peddapur and Gokavaram ranges.

SECTION 2.—TENDING OF THE GROWING STOCK.

22. *Ganjam*.—Cleanings were done in clear-felled coupes of the previous year in both the felling series at an average cost of Rs. 2-8-0 per acre. A second cleaning was done in Chendragiri coupe II by the Vernacular Training School at an additional expenditure of Rs. 7-4-0 and also in coupe II, Korchulli, at a cost of Rs. 64-8-0, the material removed being sold for Rs. 14. *Thinnings*.—A very light thinning combined with a clearing (removal of soft woods, *Sterculia*, *Grewia*, *Xylia*, *Gmelina*, *Bongax*, etc.) and creeper cutting was carried out in Chendragiri coupe I. Mr. Sarma, Assistant Conservator, thinned and cleared and cut creepers in Korchulli coupe I at a cost of Rs. 92-10-0 and the material was sold at an unusually favourable price Rs. 70. In the case of this coupe all soft woods were removed and some Sal as well. The coupe was inspected by the District Forest Officer and he considered that the cleaning was too heavy and that the trees left are liable to bend over during the rains. Creeper cutting in Chendragiri coupe III and Korchulli coupe III was done. In Chendragiri coupe II it was in progress. Thinnings in Plains Sal Pole working circle, 464 acres in Russellkonda range, 94 acres in Bontha range and 113 acres in Buguda range were thinned. The poles were sold for Rs. 1,130 against an expenditure of Rs. 1,013 incurred. Mango and ficus trees were felled in Kontaipalli working series of Russellkonda range. As no experience had been obtained in the treatment to be adopted in the new Sal crop, the provisions of the working plan for such operations were tentative suggestions. These suggestions have been followed and thinnings have not been made till the fifth year. Experience has shown however that the trees when exposed lack rigidity and are liable to bending, especially after being subjected to heavy rain. The Imperial Sylviculturist was consulted and he has given it as his opinion that the cause of this bending is due to the Sal being on the edge of the Indian Sal tract and to the fact that it is growing in a climate which has more moist heat than it is used to. It is apparent that some different treatment is therefore necessary and the remedy would appear to be to conduct these thinnings at a very much earlier age to induce the Sal to

grow sturdier so that it will be able to stand by itself when deprived of the support of its neighbours. If this measure is to be adopted, it will be necessary to carry out the cleanings on a heavier scale and at that time not only to cut out the inferior species, but also to cut out some of the Sal so as to allow the trees which are to form the final crop more growing space from the start and even to carry out light thinnings for several years till the trees attain enough rigidity to enable them to withstand heavy rain. The matter remains to be settled by experiment however.

Thinnings in the Pole working circle had been allowed to fall into arrears in the earlier years of the plan as it was considered that the produce removed from young coupes would not be saleable. These arrears have now almost been made up. The materials obtained from the thinnings carried out during the year were sold at a good rate and the operations were a financial success, besides benefitting the final crop.

Vizagapatam.—In some of the Sal areas in Burna and in the whole of Donabhai and Samaralli reserves, creeper cutting was done at a cost of Rs. 94 to favour the growth of Sal. In other areas creeper cutting was done by beat subordinates free of cost.

Upper Godavari.—Regeneration fellings were made over 14 acres in Rekapalli Hill reserve; 94 acres in Ramachendram reserve and 78 acres in Tunikicheruvu reserve, in advance of clear-felling to encourage the springing up of teak seedlings from the dormant seeds on the ground, and to favour the existing teak. The operation consisted of cutting all climbers and girdling or cutting out such species as *Zizyphus*, *Bridelia*, *Gyrocarpus*, *Terminalia belerica*, etc. The cost was Rs. 10 an acre on an average. Some amount of creeper cutting and girdling of useless species interfering with the valuable species was also done in stock-mapped areas by beat staff free of cost.

Lower Godavari.—In the stock-mapped teak areas in Papikonda and Kopalli reserves of Polavaram range, climber cutting and girdling of inferior species were carried out at a cost of Rs. 36.

CHAPTER IV.—EXPLOITATION.

(a) SYSTEM OF MANAGEMENT.

(i) Major produce.

23. The different silvicultural systems in force were—

Clear or regeneration fellings—Ganjam.—Clear fellings were carried out in the two felling series of the Plains Sal Timber working circle.

Series I, Periodic Block I.—All timber fit for the mill having been removed during the previous year from Chendragiri coupe VI, 145 acres, the remaining growth was sold for Rs. 4,090. In addition, the extraction of timber fit for the mill was taken up in Brahmanasayi coupe VII and the remaining growth will be clear-felled in 1925-26. 16,480 c. ft. were removed, of which 1,257 c. ft. were carted to the mill. The carting work was still in progress at the end of the year.

Series II, Periodic Block I.—The extraction of mill timber which was started in the 1923-24 coupes was completed in 1924-25. 4,061 c. ft. were extracted, of which 2,778 c. ft. were carted to the mill. The remainder was sold as rejects *in situ* at Re. 0-5-1 per c. ft. The remaining growth in the coupe was sold to a contractor for Rs. 1,815 or Rs. 33 per acre.

Ravine working circle.—Clear-felling was again resumed, and the growth in coupe III (67 acres) was sold to a contractor for Rs. 335. (This is the first time that it has been possible to sell the growth in these out-of-the-way Ravine coupes.)

Upper Godavari.—69.60 acres in Tunikicheruvu reserve of Bhadrachalam range, 85 acres in Ramachendram reserve of Marrigudem range and 77.76 acres in Rekapalli Hill reserve of the Pulusumamidi range were clear-felled. The saleable timber in all these areas was extracted and carted to the Godavari river bank for sale. The refuse was collected in heaps and burnt. Teak seeds were broadcasted thinly in burnt patches by beat staff free of cost. The average cost of the operation was Rs. 2,402, Rs. 2,600, Rs. 2,502 or Rs. 34-8-2, Rs. 30-12-0 and Rs. 32-4-6 per acre respectively. The gross revenue obtained by the sale of the timber obtained was Rs. 2,950, Rs. 4,950 and Rs. 3,108 respectively. Besides the above, portions of 1925-26 coupes were also felled during 1924-25 whose cost and yield will be dealt with in the next year's report.

Selection fellings—Ganjam.—The selection fellings in the Rambha reserve were completed. 51,036 c. ft. were carted to the mill. Rejections were sold at Re. 0-2-6 per c. ft. which on representations by the contractor was reduced later to Re. 0-1-6 per c. ft. The selection fellings in Rogodo reserve, Surada range, were in progress. Fellings in Gundribadi reserve compartments 1 to 3 in Periodic Blocks II, III and IV; yield 27,742 c. ft. of which 18,676 c. ft. were carted to the mill at a cost of Rs. 8,270. Rejects 9,066 c. ft. sold at Re. 0-3-6 per c. ft. Paichalia reserve yield 18,365 c. ft. at an average cost of Re. 0-0-6 per c. ft. of which 15,051 c. ft. were carted to the mill at a cost of Rs. 4,566 and the balance sold *in situ* Kriamba reserve, exploitation was undertaken

in January-September 1924, but the operation was stopped in accordance with Chief Conservator's Proceedings 126, dated 7th April 1924. Yield up to date of stopping 12,440 c. ft. of which 10,875 were carted to the mill and the balance 1,565 c. ft. sold for Rs. 601. The cost of the operation was Rs. 4,489-2-7. *Guntur.*—Selection fellings were confined to the Takkellapad reserve in Sattenapalle range, a very small area.

Improvement fellings—Vizagapatam.—Such fellings were carried out in Donabhai and Samaralli reserves by felling Sal trees of 3 ft. and over in girth. *Upper Godavari.*—Cutting down climbers and girdling soft-wooded and useless species which hinder the growth of the better species were carried out over 14 acres in Rekapalli Hill reserve of the Pulusumamidi range at a cost of Rs. 17, 94 acres in Ramachendram reserve of Marrigudem range at a cost of Rs. 30, and 78 acres in Tunikicheruvu reserve of Bhadrachalam range at a cost of Rs. 78. *Guntur.*—Improvement fellings were adopted in the case of the timber felling series under the tentative working plan for Bollapalli and Guttikonda reserves of Vinukonda range.

Simple coppice and coppice with standards.—The fuel coupes in all the divisions were worked under simple coppice except 3 coupes in *Vizagapatam*, and the fuel felling series, under the Bollapalli and Guttikonda plan and under the Repalle mangrove working plan in *Guntur*, which were worked under coppice with standards. In *Lower Godavari*, the two teak timber coupes of Bedadavole and Kopalli reserves in Polavaram range were also treated under simple coppice. These were sold at an average rate of Rs. 24-1-6 per acre.

Unregulated fellings.—These were as usual confined to unreserved lands and to the Rampa forests. In *Upper Godavari*, these fellings were confined to unreserved lands in the division which are under the control of the Forest department, and were carried out in coupe 5 of Nugur and coupe 7 of Chirala ranges. Only a portion of coupe 5 of Nugur was worked owing to the difficulty of procuring iron-axled carts for carting the heavy logs extracted from the coupe. The remaining portion is being worked in 1925-26. The yield in the two coupes was 8,832 and 3,481 c. ft. and realized Rs. 7,300 and Rs. 2,365 respectively after carting to the nearest revu. The cost of the operation was Rs. 1,950. The Yepi coupes II and III in the unreserves of Bhadrachalam range were leased out to a contractor for Rs. 1,647. No fellings were carried out in Lakkavaram as the cycle of the first fellings was completed by 1923-24 and there were no valuable trees of exploitable girth left.

(ii) *Minor produce.*

24. *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 except in the Sriharikota reserve of the *Nellore* district where the minor forest produce was collected departmentally by the Yanadis. 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* and *Upper Godavari* the produce could not be sold for want of demand. Rs. 885 was realized in *Lower Godavari* by leasing the right of collection in the whole division for one year. Gedara bark (*Ceriops Candolleana*) used for colouring fishing nets and Gedara sticks were sold in *Lower Godavari* for Rs. 1,215. This produce is sold every alternate year thus giving rest to the trees.

Tangedu bark was sold separately in *Narasapatam* and *Sarvasiddhi* ranges in *Vizagapatam* division. It could not be sold in *Palkonda* range for want of demand. In *Lower Godavari* the right to collect and remove the bark was leased for Rs. 4,286 for one year.

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 except *Coringa* and *Coringa Extension* reserve in which the right was leased. The right to cut and remove fodder grass from the cantonment ground at *Samalkota* was leased.

(b) AGENCY OF EXPLOITATION.

(i) *Departmental Agency.*

25. 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.
1923-24	388	362	Rs. 891	Rs. 6,646
1924-25	362	168	399	26,930

The quality of major produce exploited was 8.8 per cent of the total outturn and mainly consisted of the timber felled in *Ganjam* for the saw mill and the timber obtained from clear fellings carried out in *Upper Godavari*. The decrease in 1924-25 shown in the above statement is due to the fact that in *Ganjam* less timber was felled for supply to the mill owing to there being large stocks available in the depot. In *Upper Godavari*, it was due to the reduction made in the sizes of the clear-felling coupes of the year, and to there being no timber of exploitable girth in the unreserve coupes of *Lakkavaram* range as the cycle of fellings in those coupes were completed by 1923-24. The decrease under 'fuel' was due to thinnings being carried out on a smaller scale in *Ganjam*. The decrease under 'bamboos' was due to no new departmental buildings being constructed in *Lower Godavari*. Under 'minor produce' there was increase and it was due to departmental collection in *Sriharikota* reserve in *Nellore*.

(ii) *By Purchasers.*

26. 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.
1923-24	836	5,453	Rs. 1,31,721	Rs. 2,06,855	Rs. 1,31,653
1924-25	896	4,404	1,20,879	2,13,276	1,23,298

The increase under 'timber' is noticeable in *Guntur* and is ascribed to increased removals of miscellaneous timber from unreserves. It is also due to removals from unreserves in the now abolished *Kistna* division being credited now to *Guntur* division. The decrease under 'fuel' is due to there being less material in the coupes worked. Under 'bamboos' it was due to the smaller number of coupes sold in *Ganjam* and *Lower Godavari*; and to poorer stocking of the coupes sold in *Upper Godavari*. The increase under 'grazing' was due in *Upper Godavari* to greater vigilance shown by the Range Officers in getting the cattle licensed and to the absence of cattle disease; and in *Lower Godavari* to the enhancement of grazing fees for 'local' cattle. The decrease under 'minor produce' was due to poorer demand and to smaller collections by the Revenue department.

(iii) and (iv) *By right-holders and under privileges and free grantees.*

27. The quantity and value of the 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.	Total outturn.
		RS.		RS.	RS.	RS.	RS.	RS.
Right holders ..	9	1,550	..	..	135	267	500	2,452
Free grantees ..	123	8,806	44	917	879	10,933	813	22,348

Rights—Ganjam.—The Khonds of Chokkapad Khandam enjoyed as usual their right to free removal of timber, etc., for their domestic and agricultural purposes and free grazing of cattle. The Khonds, elsewhere than in Chokkapad, were granted concessions in the way of building materials, etc., and free grazing, in return for services rendered by them in general protection, and in fire protection.

Free grants.—Free grants were made to villagers throughout the circle chiefly for rebuilding houses destroyed by fire. Exceptional cases of free grants were for the construction of huts in the criminal settlement at Kavali in *Nellore* district. Free grazing to the extent of Rs. 843 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. 22,348 against Rs. 29,694 in the previous year.

(c) OUTTURN AND SOURCES OF FOREST PRODUCE.

28. 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.
1923-24	1,339	5,864	1,33,659	3,60,443
1924-25	1,390	4,616	1,22,292	3,76,017

The total number of cattle for which grazing was provided was 585,023 against 448,899 in the previous year. The difference is

due to the conversion of Kancha revenue in *Nellore* into 'cow units'. These figures appear included in the grazing return, which was not the case in previous years.

CHAPTER V.—FINANCIAL RESULTS.

29. 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 :—

	1924-25.	1923-24.	Average of the previous quinquennium.
	RS.	RS.	RS.
Revenue	10,69,452	10,31,081	9,14,017
<i>Expenditure.</i>			
B. Conservancy and works	2,00,675	1,90,021	2,26,516
C. Establishments	5,08,689	5,10,700	5,08,257
Total ..	7,69,364	7,06,721	7,34,773
Surplus ..	+ 3,60,088	+ 3,25,360	+ 1,79,244

The financial results of the year show a surplus of Rs. 3,60,088 against Rs. 3,25,360 in the previous year. In order that the comparison may be correct, *Guntur* and *Nellore* figures have been included in the figures under "1923-24" and in the "average of the previous quinquennium" in the above statement.

Forty per cent of the revenue was derived from major produce, 24 per cent from minor produce, 20 per cent from grass and grazing, and 16 per cent from miscellaneous items. Of the expenditure 21 per cent was incurred on exploitation of forests, 12 per cent on their upkeep and improvement, and 67 per cent on miscellaneous items. The revenue outstanding at the end of the year was Rs. 72,449, of which Rs. 24,011 fell due within the year. The important variations under 'Revenue' and 'Expenditure' are explained below :—

RECEIPTS.

(i) *By Departmental Agency.*

Timber (—Rs. 3,023).—Due to the adjustment by the Accountant General in 1923-24 March final accounts of the value of timber supplied to the saw mill at Russellkonda and which remained unadjusted since its start.

Fuel (— Rs. 4,249).—Due to there being no fuel from thinnings and wind-fallen trees collected and sold departmentally in *Lower Godavari* as in the previous year.

Minor produce (+Rs. 19,786).—Due to sale of last year's stock of *Nux-vomica* in the current year and to greater collection of minor forest produce in *Sriharikota* range in *Nellore*.

(ii) *By Purchasers.*

Timber (+ Rs. 10,599), *fuel* (— Rs. 26,641), *bamboos* (— 10,072), *grazing* (+ 19,735), *minor produce* (— Rs. 15,867).—The variations under these sub-heads were due to reasons already mentioned in paragraph 26.

V (a) *Fines and forfeitures* (— Rs. 73,975),

(b) *Other sources* (+ Rs. 87,989).—Due to credit of compounding fees to V (b) instead of to V (a) as hitherto. The sale of barbed wire in *Ganjām* also contributed to the increase under V (b).

Under 'Recoveries of investments from Government commercial undertakings' there was a credit of Rs. 46,615 which added appreciably to the surplus revenue of the circle.

EXPENDITURE.

Under 'B. Conservancy and Works' there was increased expenditure of Rs. 10,654 accounted for mainly by charges incurred on carting to the saw mill at *Russellkonda* of logs felled during the previous year and a larger amount debited under 'Investments on Government commercial undertakings'. Under 'C. Establishments' there were savings of Rs. 7,011 due chiefly to the abolition of the *Kistna* division. The payment in the previous year of travelling allowance to Mr. Longrigg for his visit to *Gorakpur* Sal forests and economy in expenditure under travelling allowance in the current year also contributed to the savings.

CHAPTER VI.—RESEARCH AND EXPERIMENTS.

(a) RESEARCH.

30. Nil.

(b) EXPERIMENTS.

31. *Upper Godavari*.—With a view to find out the rate of girth increment on individual *Satinwood* trees in a mixed crop, and in a pure crop, and also to find out when it ceased to grow, 4 sample plots in *Bhadrachalam* range in two different places (*Bandrevu* and *Tunikichirevu* reserves), two for pure and two for mixed crop, were

opened in 1922-23. Fifty of the best trees from one to two feet and over in girth were selected. The annual increment appears to be very slow being .28" in pure crop and .365" in the mixed crop. Probably this is fortuitous. *Guntur*.—Mr. Littlewood made good progress in study of mangrove problems. Sandal sowings were done in parts of *Guntur* and *Nellore* without success. *Nellore*.—*Eradication of noxious growth*.—Instead of the previous costly experiments in fodder reserves to eradicate thorny and other noxious growth and to increase the area of pasture, the system of modified fodder operations was introduced during the year. Under this system, the lessee of the coupe was allowed to cut and remove these thorny species, etc., and to cut and remove the standing growth at a nominal flat rate of Re. 0-8-0 per acre. This did not prove popular with the ryots, was a failure in practice and was discontinued.

CHAPTER VII.—ADMINISTRATION.

32. An important event of the year was the abolition of the *Kistna* forest division. A number of reserves was transferred to panchayat management and the balance were absorbed in *Guntur* and *Lower Godavari* divisions.

33. *Tours*.—Mr. Barry was in charge of the circle throughout the year and spent 202 days in camp. The prescribed minimum of touring was done by all the District Forest Officers except *Vizagapatam*. The short touring in *Vizagapatam* was due partly to economy in travelling allowance and partly to Agency disturbances which kept the reserves in *Narasapatam* range closed for inspection until August 1924.

The Chief Conservator visited *Ganjām* in January 1925. The Imperial Sylviculturist, *Dehra Dun*, paid a visit to *Ganjām* Sal forests in June 1924 and January 1925.

34. *Inspections*.—The Conservator inspected all the District Forest offices except *Ganjām* and *Vizagapatam*. The two latter offices were inspected since the close of the year. *Guntur* and *Nellore* District Forest offices were inspected respectively by the Conservators, Second and Third Circles, under whose jurisdiction they were in the year under report. The results were satisfactory.

Mr. Barry inspected the forests in *Ganjām*, *Vizagapatam*, *Upper Godavari* and *Lower Godavari* and wrote notes on important inspections. He visited the *Parlakimedi* *Maliahs* and discussed with the Special Forest Officer and reported on the question of reservation in the division. He also visited the Paper Pulp Factory at *Rajahmundry* and discussed with the Director of Industries and Mr. Raitt, the Paper Pulp Expert, in connection with the departmental supply of bamboo to the mills. He also inspected some typical forests in

Rampa in company with Mr. V. N. Seshagiri Rao, Extra Assistant Conservator, who was on special duty to inspect and report on the Rampa forests. The Rampa forests appear to be comparatively of high quality, and Mr. V. N. Seshagiri Rao has written a valuable report. Messrs. Wilson and Whitehead inspected the forests of *Guntur* and *Nellore* respectively.

35. *List of offices audited.*—The accounts of all the District Forest offices were audited by the Local Fund staff of the Accountant General's office and the results were reported satisfactory.

36. *Vernacular Training School.*—The school was held in *Ganjam* and lasted from 6th January 1925 to 18th June 1925. Thirty-three students were trained, of whom 5 were from Bihar and Orissa, 1 from Palhara State and 1 from Nayagarh State. The school was inspected by the Conservator of Forests. The health of the instructors and students was good. The instruction and discipline were satisfactory.

The necessity for maintaining a vernacular training school continues to exist. The statistics of trained and untrained men show that 33 per cent of Foresters and 63 per cent of Forest Guards are still untrained. Of these untrained men 25 per cent of the Foresters and 47 per cent of the Forest Guards are fit for training, the rest being past the age of training or otherwise unfit.

37. *Health of the establishment including an account of measures of sanitation and casualties.*—Malaria continued to affect the subordinates in *Upper Godavari* and the Agency portions of *Ganjam*, *Vizagapatam*, and *Lower Godavari*. Medicines were supplied to Range Officers for free distribution to subordinates. *Casualties.*—One Range peon in *Vizagapatam*, 1 Forest Guard in *Upper Godavari*, 1 Ranger, 2 Foresters and 2 Forest Guards in *Lower Godavari*. Two Forest Guards were brutally murdered while in the discharge of their duties, and the question of pensions to their dependents is under consideration. Thirty-one out of 150 subordinates in *Upper Godavari* and 40 out of 254 subordinates in *Lower Godavari* went on sick leave. Malaria and elephantiasis affected some subordinates in Sriharikota range of *Nellore* district, but there were no casualties on that account. The health of the establishment in *Guntur* was reported satisfactory: it was observed that of the subordinates under training at the Vernacular Training School those from *Guntur* were conspicuous for good physique.

CHAPTER VIII.—GENERAL.

38. *Formation and management of Panchayats (to include the Forest Village system).*—*Lower Godavari.*—2,252 acres in *Kandikuppa* reserve, 4,180 acres in *Chintalapudi* and *Velagalapalli* reserves

and 40 acres in *Murari* reserve were brought under Panchayat management with (it is reported) satisfactory results. *Guntur.*—In addition to the 34 panchayats working at the commencement of the year, 2 were formed for *Motupalli* and *Perallavandlapalem* reserves during the year, and 18 were transferred from *Kistna*. *Nellore.*—No new panchayats were formed. The work in the three existing panchayats, viz., *Kavali*, *Karedu* and *Pothur*, was generally satisfactory except that in *Kavali* bad protection and other irregularities are reported to have been brought to the Revenue Divisional Officer's notice. No panchayats were formed in the other divisions. An attempt to form panchayats in the new *Yellamanchilli* grazing working circle for 5 reserves in *Vizagapatam* did not succeed as the people were unwilling to undertake the responsibility.

Orders to transfer the panchayats and panchayat areas to the control of the Revenue department have since been received from Government.

The Forest village system is not in force in this Circle.

39. *Conferences and meetings.*—*Nellore.*—No formal conferences and meetings were held but opportunity was fully taken by all the departmental officers during tours to hear complaints from the ryots and remedy them wherever possible. The District Forest Officer, *Nellore*, did good propaganda work in connection with the *Kancha* system. As a result of his endeavours and those of the Rangers the 'long leases' which we now prefer increased from 165 to 211. The profiteering elements among the villagers stand to lose by this system; and the District Forest Officer and staff have had to put up with a campaign of untruthful petitioning and with endeavours at litigation.

40. *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 in this Circle. In *Vizagapatam*, *Amma* tank in the *Antikonda* reserve was deepened at a cost of Rs. 115 so as to make it hold water in the hot weather. In *Guntur*, in view of the very serious prevalence of forest crime, special attention continues to be paid to the problem of catering for all requirements of the law abiding population. Everything that can be done in the way of making available small timber for agricultural requirements and fuel, fodder leaves is being organized.

The well in *Mutkur* Extension II was deepened. The takis near the *Kondapalli* bungalow were cleared of weeds and rubbish. Two wells—one in *Kondapalli* reserve compartment 4 and the other called

Dongamarlabhavi—were repaired. Encouragement was given to the philanthropic public to repair existing kuntas and spring channels and for construction of new tanks. Five kuntas were repaired in that way. No difficulties regarding the supply of water in reserves were brought to notice since the block system of grazing was abolished and the permit declared valid for the whole range. *Nellore*.—Ponds and tanks in grazing blocks were repaired departmentally at a cost of Rs. 250 and two tanks in Rapur range were also repaired by Kanchadars.

41. *Timber Transit Rules*.—The rules worked satisfactorily in all the divisions. In *Vizagapatam*, one tanah station at Narasapatam was abolished as unnecessary.

42. *Jungle tribes—Ganjam*.—The department continued on good terms with the Khonds. *Vizagapatam*.—The hill tribes availed themselves of the privileges conferred on them without complaint and without abuse of rules. *Upper and Lower Godavari*.—The Koyas and Reddis continued to be useful. They were employed on all departmental operations. They were granted rewards, in addition to wages, for the successful protection of the 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 of Bhadrachalam taluk in *Upper Godavari*. The settlers in the Agency tracts of *Lower Godavari* also rendered similar help to the department in return for which they were allowed grazing at the concessional rate of one anna per cow or buffalo; they were also given rewards for successful fire protection work. It is to be noted that the so-called settlers constitute 95 per cent of the local population now. The absence of hill tribes in the heart of the Rekapalli and Marrigura hill reserves, the District Forest Officer reports, is a handicap to the utilization of the material in these reserves. In *Nellore*, the Yanadis, about 234 in number, were employed on the collection of minor forest produce in Sriharikota range and are granted rewards in addition to their wages. The rewards are given in the shape of rice, cloth, and cash. To keep them out of the clutches of the money-lender, the cash portion of the reward is invested in the savings bank account of the Post office from which withdrawals are allowed on urgent occasions such as marriage, sickness, etc. The benefit of the system is reported to be really appreciated by the Yanadis. The number of savings bank accounts open in this way were 55 and the joint savings were Rs. 489-4-0.

43. *Mining and Quarrying*.—Rs. 59 were realized from quarrying rough stone from Ungatur reserve blocks I and II, *Lower*

Godavari division. In *Nellore*, the mica mining business continued in some of the reserves of *Nellore* and *Rapur* ranges under the control of the Revenue department.

44. *Live-stock—Elephants*.—The baggage elephant Kapila was maintained in *Upper Godavari*. She was suffering from a tumour on the left foreleg at the end of the year.

Other animals.—Out of 19 buffaloes that remained in *Ganjam* at the commencement of the year, eight were sold, one was killed by a tiger and one died and one buffalo was given as reward to Khond. The actual balance at the close of the year was 8 buffaloes.

45. *Veterinary establishment*.—Nil.

46. *Wild animals—Ganjam*.—A man-eating tiger killed a forest watcher in April 1924 while engaged in sweeping a line to stop an on-coming fire. The Government were pleased to sanction an extraordinary family pension of Rs. 4 to his son tenable for 12 years. The presence of man-eating tigers in the forests interfered with the progress of timber operations, fire protection and other works in Kukuluba and Bontha ranges and had to be counteracted with religious exercises at Government expense, including sacrifices of goats and pigs. Such measures undoubtedly inspire confidence amongst the Khond felling coolies. Government have sanctioned a reward of Rs. 250 for every tiger destroyed which can be proved to be a man-eater.

47. *Civil suits—Vizagapatam*.—The decree against the defaulting contractor referred to in the previous years' reports was executed during the year, but the judgment-debtor paid the amounts decreed in full. *Lower Godavari*.—The two suits referred to in the last year's report are now pending in the High Court of Judicature at Madras as the proprietor of the Gangole estate preferred an appeal against the decision of the Agency Additional District Judge, *Vizagapatam*. *Nellore*.—Two suits filed by late forest contractor B. Chenchurama Nayudu for Dugarayapatam and Sriharikota fuel contracts of 1918 are pending in the Sub-Judge's Court at *Nellore*. The matter is in the hands of the Government Pleader.

48. *Control of unreserved lands by the Forest department*.—In *Ganjam* the Revenue department has control and management of tree growth and is primarily responsible for its protection. Valuable tree growth is disposed of in consultation with or by the Forest department. Trees fit for the mill at Russellkonda are being extracted and the remaining growth is sold by the Forest department in cases where the applicants are unable to pay the tree valuation. The land when cleared of growth is disposed of by the Revenue department. In *Upper Godavari*, the unreserves are under the control of the Forest department and the local requirements

Dongamarlabhavi—were repaired. Encouragement was given to the philanthropic public to repair existing kuntas and spring channels and for construction of new tanks. Five kuntas were repaired in that way. No difficulties regarding the supply of water in reserves were brought to notice since the block system of grazing was abolished and the permit declared valid for the whole range. *Nellore*.—Ponds and tanks in grazing blocks were repaired departmentally at a cost of Rs. 250 and two tanks in Rapur range were also repaired by Kanchadars.

41. *Timber Transit Rules*.—The rules worked satisfactorily in all the divisions. In *Vizagapatam*, one tanah station at Narasapatam was abolished as unnecessary.

42. *Jungle tribes—Ganjam*.—The department continued on good terms with the Khonds. *Vizagapatam*.—The hill tribes availed themselves of the privileges conferred on them without complaint and without abuse of rules. *Upper and Lower Godavari*.—The Koyas and Reddis continued to be useful. They were employed on all departmental operations. They were granted rewards, in addition to wages, for the successful protection of the 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 of Bhadrachalam taluk in *Upper Godavari*. The settlers in the Agency tracts of *Lower Godavari* also rendered similar help to the department in return for which they were allowed grazing at the concessional rate of one anna per cow or buffalo; they were also given rewards for successful fire protection work. It is to be noted that the so-called settlers constitute 95 per cent of the local population now. The absence of hill tribes in the heart of the Rekapalli and Marrigura hill reserves, the District Forest Officer reports, is a handicap to the utilization of the material in these reserves. In *Nellore*, the Yanadis, about 234 in number, were employed on the collection of minor forest produce in Sriharikota range and are granted rewards in addition to their wages. The rewards are given in the shape of rice, cloth, and cash. To keep them out of the clutches of the money-lender, the cash portion of the reward is invested in the savings bank account of the Post office from which withdrawals are allowed on urgent occasions such as marriage, sickness, etc. The benefit of the system is reported to be really appreciated by the Yanadis. The number of savings bank accounts open in this way were 55 and the joint savings were Rs. 489-4-0.

43. *Mining and Quarrying*.—Rs. 59 were realized from quarrying rough stone from Ungatur reserve blocks I and II, *Lower*

Godavari division. In *Nellore*, the mica mining business continued in some of the reserves of *Nellore* and *Rapur* ranges under the control of the Revenue department.

44. *Live-stock—Elephants*.—The baggage elephant Kapila was maintained in *Upper Godavari*. She was suffering from a tumour on the left foreleg at the end of the year.

Other animals.—Out of 19 buffaloes that remained in *Ganjam* at the commencement of the year, eight were sold, one was killed by a tiger and one died and one buffalo was given as reward to Khond. The actual balance at the close of the year was 8 buffaloes.

45. *Veterinary establishment*.—Nil.

46. *Wild animals—Ganjam*.—A man-eating tiger killed a forest watcher in April 1924 while engaged in sweeping a line to stop an on-coming fire. The Government were pleased to sanction an extraordinary family pension of Rs. 4 to his son tenable for 12 years. The presence of man-eating tigers in the forests interfered with the progress of timber operations, fire protection and other works in Kukuluba and Bontha ranges and had to be counteracted with religious exercises at Government expense, including sacrifices of goats and pigs. Such measures undoubtedly inspire confidence amongst the Khond felling coolies. Government have sanctioned a reward of Rs. 250 for every tiger destroyed which can be proved to be a man-eater.

47. *Civil suits—Vizagapatam*.—The decree against the defaulting contractor referred to in the previous years' reports was executed during the year, but the judgment-debtor paid the amounts decreed in full. *Lower Godavari*.—The two suits referred to in the last year's report are now pending in the High Court of Judicature at Madras as the proprietor of the Gangole estate preferred an appeal against the decision of the Agency Additional District Judge. *Vizagapatam*. *Nellore*.—Two suits filed by late forest contractor B. Chenchurama Nayudu for Dugarayapatam and Sriharikota fuel contracts of 1918 are pending in the Sub-Judge's Court at *Nellore*. The matter is in the hands of the Government Pleader.

48. *Control of unreserved lands by the Forest department*.—In *Ganjam* the Revenue department has control and management of tree growth and is primarily responsible for its protection. Valuable tree growth is disposed of in consultation with or by the Forest department. Trees fit for the mill at Russellkonda are being extracted and the remaining growth is sold by the Forest department in cases where the applicants are unable to pay the tree valuation. The land when cleared of growth is disposed of by the Revenue department. 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 Polavaram divisions are under the Forest department. The produce from these unreserves both in Agency and non-Agency portions is removed on permits issued mostly by the Forest department and in some instances by the Revenue department. In *Guntur*, the control was vested in the Revenue department but Nux-vomica, Relu and Tangedu bark were as usual put up for sale by the Forest department in reserves and unreserves together.

The relations between the Forest and Revenue departments are cordial.

WALTAIR,
19th August 1925.

A. A. F. MINCHIN,
Acting Conservator of Forests,
First Circle.

ANNUAL ADMINISTRATION REPORT OF THE FOREST DEPARTMENT

FOR THE

YEAR ENDING 31st MARCH 1925

SECOND CIRCLE

CHAPTER I.—CONSTITUTION OF STATE FORESTS.

1. ALTERATION IN AREA.

Reserved forests.—There is a net decrease of about 20 square miles which is accounted for by the disforestation of some 14 square miles in *Anantapur* and 6 square miles in *South Kurnool*. Elsewhere insignificant areas were thrown out. The disforestation was mainly to satisfy the wants, and to remove the grievances of, adjoining villagers.

2. *Reserved lands.*—There is a net increase of 1,398 acres. 361 acres in *North Cuddapah* Forest division were transferred to reserved forests. 1,759 acres, of which 1,738 are in *South Kurnool* and 21 in *Chittoor*, were added to reserved lands.

2. FOREST SETTLEMENT.

3. The areas notified under section 4 during the year were pending settlement at the close of the year.

3. DEMARCATION.

4. In *Anantapur*, nearly Rs. 188 was spent in repairing cairns and in clearing boundary lines and rectifying existing boundaries for a length of twenty-three miles.

In *South Kurnool*, the portions disforested in Owk and Giddalore ranges were demarcated at a cost of Rs. 59.

In *West Kurnool*, Rs. 105 was spent on the demarcation of enclosures in the reserved forests of Bairlutu range. Twenty-two miles of boundary lines to a width of 12 feet were cut and cleared of regrowth in portions of South Dhona Lanjabanda Extension, West Ramalakota and Rangapuram reserves at a cost of Rs. 88.

A sum of Rs. 85 was spent, out of funds sanctioned by the Collector, for cutting regrowth on the frontier boundary, between the *West Kurnool* division and *Banganapalle* State.

In *North Cuddapah*, seventeen miles of existing boundary line was recleared at a cost of Rs. 135.

In *West Cuddapah*, an amount of Rs. 190 was spent in permanently demarcating the boundary between the *Putlampalli shrotriyam* and *Palkonda* reserve, which had been under dispute. Rupees 119 was spent in rectifying the demarcation of enclosures in *Ganganapalle* reserve, and in re-clearing the taluk boundary between *Vempalli* and *Ganganapalle*.

In *Chittoor*, the defects in the demarcation of two miles of boundary of *Paradarami* reserve were rectified at a cost of Rs. 61.

Five thousand seven hundred and ninety-two miles of boundaries are reported to have been cleared by subordinates without extra cost, and 720 miles by panchayatdars.

4. FOREST SURVEYS.

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

Survey of coupes, alignment of roads, rectification and verification of boundaries, preparation of coupe maps, etc., were done by the local Forest Officers.

The prescribed reference maps were posted up to date.

CHAPTER II.—MANAGEMENT OF STATE FORESTS.

1. REGULATION OF MANAGEMENT.

Preparation and Control of Working Plans.

(a) Preparation.

6. The working plan of *Sirvel* range of *South Kurnool* was sanctioned by the Chief Conservator tentatively for ten years during the year. The reconnaissance report for *Chelama* range was approved by the Conservator. That for *Gundlakamma* range which had been prepared by Mr. J. C. Wrench, and kept in abeyance, was revised under the instructions of the Conservator. A working plan is now being prepared by the District Forest Officer for this forest.

For *Gundlabrahmeswaram* range the preparation of a new working plan was considered, in place of the old one prepared by Mr. H. F. A. Wood when he was District Forest Officer, which has

been held in abeyance for some years past. It was decided, however, that this old working plan was so well suited to the conditions prevailing that the preparation of a new one was quite unnecessary. Arrangements were made, after the close of the year, to continue working this excellent old working plan, with a few minor alterations rendered necessary by the changed conditions of recent years.

The preparation of working plans for various '*Chenchu* working circles' was taken up, in order to regularize the fellings that have been going on for some years past in several different parts of *West* and *East Kurnool* under the name of '*Emergency coupes*'. These '*emergency coupes*' were primarily started to provide employment for the *Chenchus*. Such employment will in future be supplied in these newly formed working circles.

In *West Kurnool*, the revision of the *Yerramalais*' working plan for *Dhone* range was completed, and that for *Kurnool* range nearly so.

Late in the year a working plan for the pole forests of *Pecheruvu* range was started. This simple scheme is being prepared by the Range Officer under the guidance of the District Forest Officer.

A preliminary working plan for the timber, fuel and bamboo forests of the *Vonipenta* range of the *North Cuddapah* division returned for revision has since been dropped as it will be included in the general revision of the working plans of the whole division, in accordance with the instructions of the Conservator conveyed in his latest inspection notes.

In the *West Cuddapah* division, out of an area of 24,397 square miles sanctioned as a tentative working scheme for the *Ganganapalle* and *Idupulapaya* reserves, 14,669 square miles relating to *Maddimadugu* East and West and *Idupulapaya* fuel series was cancelled by the Conservator. The work of stock-mapping the bamboo areas for the preparation of a simple working scheme was completed in respect of *Vontimitta* range and is in progress in regard to the other ranges of the division.

(b) Control.

7. In *Bellary*, fuel coupes were felled under the *Somalapuram* working plan, but the other prescriptions regarding sowing, etc., were given up as they were unsuccessful.

In *Anantapur*, the provisions of the existing working plans were generally adhered to except that, owing to drought, free grazing was allowed temporarily from the 1st of April to the 31st of December 1924; even some of the closed areas were thrown open to grazing during this period.

The sanctioned plans in the *Kurnool* divisions were adhered to.

In the *Cuddapah* divisions some of the prescriptions of certain sanctioned working plans could not be adhered to owing to lack of demand and to the difficulty of transport; in consequence coupes are in arrears. Both the *Cuddapah* and *Sidhout Palkonda* working plans are working at a loss owing to the poor prices realized for the produce and to the heavy cost of the establishment. Attempts are being made to reduce the deficit to a minimum.

In *Chittoor* district the tentative working plan for *Horsleykonda* was suspended during the year as there was no demand for fuel. The revision of the *Santhapet* tentative working plan is not now necessary as this reserve has been finally classed as a 'ryots' forest'. The work in two of the five felling series is badly in deficit on account of difficulty of access, and the work in the four improvement series has been stopped for the present from 1925-26 with reference to the Conservator's remarks in his inspection notes printed in Chief Conservator's Proceedings No. 4, dated 11th January 1925. Certain deviations from the prescriptions of the *Chendragiri* working plan have been sanctioned by the Chief Conservator as the allocation of the coupes in one of the series was found defective, and as the columns in the control book prescribed were too cumbersome to admit of accurate information being posted.

2. COMMUNICATIONS AND BUILDINGS.

8. No new works costing over Rs. 5,000 were sanctioned during the year.

(a) Roads and Bridges.

9. About 20 miles of roads were constructed at a cost of Rs. 6,222 against 37 miles, at a cost of Rs. 3,488 in the previous year.

The new roads constructed were almost entirely in the three *Kurnool* divisions.

The details of the important new works are:—

Kurnool East—

	Miles	Rs.
Egumacheriopalli-Regatigunta road ...	3—0	734
Improvement to Chinnamantrala Kanama Ghat road.	0—3	414

Kurnool South—

Bridle path from Bandlapenta to Basireddipenta.	4—6	1,939
Diguvametta-Gundlamolvi road ...	2—0	921

	Miles.	Rs.
Kurnool West—		
Bridle path from Guvvalakuntla to Regalapa.	1—0	200
Metalling Central-Nallamalai road ...	1—0	1,067
Cart track from the old rest house site to the new site at Rudracode.	...	409
Cuddapah South—		
Metalling of Kodur-Kodivengammabavi road.	0—1	199

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

Two hundred and fifty-six miles of existing communications were repaired at a cost of Rs. 17,614 against 223 miles at a cost of Rs. 20,579 in the previous year.

(b) Buildings.

10. The expenditure during the year was Rs. 23,953 against Rs. 29,641 in the previous year.

Of this amount Rs. 6,254 was spent on new work and Rs. 17,699 on repairs and maintenance against Rs. 9,154 and Rs. 20,487 respectively in the previous year. The establishment charged under this head fell from Rs. 7,349 to Rs. 6,764 due to the abolition of the post of bungalow watchers wherever possible.

The important items of new works were:—

Anantapur—

An additional bath room to the rest-house at Bukkapatnam.

East Kurnool—

Inspection shed at Nerjamula (*Rachakonda* range) Forest Guards' sheds at Doddavala and Allipalem—out-houses at Nekkanti.

Subordinates' shed at Nekkanti.

South Kurnool—

Part construction of the following buildings:—

Four semi-permanent new buildings for the use of the subordinates at Isukagundam,
One gang shed at Basapuram, and
One gang shed at Gazulapalle.

West Kurnool—

Completion of the subordinates' quarters at Sivapuram.

Part construction of a single-roomed rest-house at Rudracode.

North Cuddapah—

Reconstruction of two vernacular training sheds at Vathimadugu.

Construction of a kitchen for the Badvel range quarters.

Part construction of kitchen and out-houses including a stable for the rest-house at Rollabodu.

South Cuddapah—

- Improvement to Kodur range quarters.
- A latrine to Kodivengammabhavi rest-house.
- A latrine to Range quarters at Chitvel.

West Cuddapah—

- Completion of the construction of the inspection shed at Dinnela.

Chittoor—

- Subordinates' quarters at Mamandur.
- Thana sheds at Madanapalle and Baireddipalle.

(c) *Miscellaneous.*

11. Sums of Rs. 1,795 and Rs. 1,930 were spent on new works and repairs against Rs. 2,882 and Rs. 1,598 respectively in the previous year.

The chief items of new works were:—

(1) The sinking of a new well in the Range office compound at Dhone, Rs. 592.

(2) The Mamandur sanitation scheme in connection with which Rs. 641 was spent in filling in pits where water was stagnant.

The other items relate to improvements to water-supply.

3. PROTECTION OF FORESTS.

(a) *General protection.*

12. The total number of cases reported during the year was 6,530 against 6,631 in the previous year involving a decrease of roughly 1.5 per cent. The decrease occurred under fire and unauthorized felling as noted below:—

Cases.	Injury to forests by fire.		Unauthorized felling.		Unauthorized grazing.		Other offences.		Total.	
	1923-24.	1924-25.	1923-24.	1924-25.	1923-24.	1924-25.	1923-24.	1924-25.	1923-24.	1924-25.
Cases taken into Court	7	2	1,158	1,103	497	555	99	126	1,761	1,786
Cases compounded	4	3	2,923	2,855	1,220	1,197	188	327	4,335	4,382
Cases undetected	315	229	211	115	7	3	2	15	535	362
Total	326	234	4,292	4,073	1,724	1,755	289	468	6,631	6,530

13. The general decrease in the undetected cases speaks to the good work turned out by the subordinates during the year. The decrease in unauthorized fellings is largely in *South Kurnool*; it may be ascribed to the fact that more coupes to meet the demand of the local ryots for agricultural implements were opened. This entailed the further benefit of employing the coolies who habitually

live by timber smuggling. The increase under unauthorized grazing is slight. The increase under other offences is due to the inclusion of cases relating to the illicit removal of minor forest produce and other miscellaneous cases which do not fall under 'unauthorized fellings'.

14. Of the 1,893 cases taken into Court and disposed of by the Magistrates 1,373 cases were convicted and 520 acquitted.

Of the 520 cases acquitted, 299 were acquitted on payment of compounding fees, 27 were withdrawn by the District Forest Officer and only 240 were acquitted on their merits, which gives a percentage of genuine acquittal of 10 per cent.

15. The total number of cases compounded was 1,324, and the aggregate amount of fees was Rs. 57,840 with an average of about Rs. 13-6-0 per case against 4,098 and Rs. 59,098 in the previous year with an average of about Rs. 14-6-9 per case.

16. In all, Rs. 225 was distributed as rewards to subordinates in connection with the detection of forest offences.

(b) *Protection from fire.*

17. In the whole Circle the area attempted to be specially protected including early burning was 2,513 square miles against 2,687 in the previous year. The decrease is chiefly due to the opening of almost all the reserves in the *Anantapur* district to free grazing.

18. The total area accidentally burnt was 69 square miles against 207 square miles in the previous year, and the aggregate area burnt in the specially protected areas was 9 square miles or .36 per cent of the area attempted to be protected against 63 and 2.34 per cent in the previous year.

The decrease was due to more complete early burning in all districts. But as rates were very low in most places, it looks as though the success were achieved by burning rather too late.

19. The average cost for the Circle per square mile of successful protection of the specially protected area was Rs. 3-10-3 against Rs. 3-13-4 in the previous year. Each district is referred to separately below:—

In *Bellary*, the early burning system was tried in Gunda reserve; it was not a success owing to the slackness of the Range Officer, who not only delayed the work but also failed to follow the instructions issued.

In *Anantapur*, it was tried in Compartments I and II (5,017 acres) of Amagondapalayam reserve, and carried out most successfully.

In *East Kurnool*, about 228 square miles were treated under early burning and the cost incurred was Rs. 237-6-0, the average

per square mile being Re. 1-0-8. In addition a sum of Rs. 100 sanctioned by the Government for feasting the Chenchus for successful fire protection was incurred under the head. In the early burnt area there was only one fire of 22 acres. The operations were started about the middle of December and completed by the end of February.

In *South Kurnool*, the area treated under 'Early burning' in the Nallamalais was 294 square miles, of which 291.40 were successfully protected at a cost of Rs. 250 or Re. 0-13-9 per square mile. The Nallamalais of Chelama range and the southern section of the Nallamalais of Gundlakamma range were not early burnt, as this area was reserved for the military authorities for making hay. Also all the Veligondas and Giddalur blocks of Giddalur range and the extensions of the Nallamalais in Giddalur and Chelama ranges were not early burnt in order to provide grazing for the adjacent villages.

In *West Kurnool*, early burning was undertaken in the Nallamalai ranges and Chenchu labour was employed as usual in conducting the operations, supplemented by outside labour wherever necessary; the area to be protected was 561.5 square miles, and the cost of the operation was Rs. 730; no fires in the area were reported. The average cost per square mile comes to Rs. 1-4-10 against Rs. 31 per square mile for the area of 12 square miles under special protection in the division. The early burning operations were commenced in December 1924 but were not completed till March 1925; the reason given for the prolonged operations was that the grass was too green to be burnt. During the course of the operations the Conservator and the District Forest Officer inspected the early burnt areas in Pecheruvu, Bairlutu and Gundlabrahmeswaram ranges, and found that large patches of forest had either not been treated at all or had been badly burnt. Subsequently, the Extra Assistant Conservator and the Assistant Conservator inspected and found the bad work rectified.

On the whole, the early burning in the Nallamalais cannot be said to have been successful even though few accidental fires were subsequently reported. This result was due to the fact that the forests were early burnt too late, and though the burn was therefore more or less complete it did, in many cases, nearly as much damage as an accidental fire would have done.

In *North Cuddapah*, the system of early burning which replaced the orthodox system of fire protection by cleared lines in the Nallamalais and Lankamalais in the previous year was extended to the rest of the reserves during the year. The operations commenced in the last week of December and were closed about the 12th February. Except in the Nallamalais there were no accidental fires. Out of 372 square miles attempted to be protected,

370 were successfully protected at a cost of Rs. 694, i.e., at Rs. 1-14-0 per square mile.

In *South Cuddapah*, all the reserves except Chitvel and its extension and Vathalur were subjected to 'early burning'. 431 square miles or 99.85 per cent of the area attempted to be protected was successfully protected at a cost of Rs. 889 or Rs. 2-0-11 per square mile. Though the area burnt during the year was larger than in the previous year, it has still to be stated that the protection was satisfactory.

In *West Cuddapah*, the area attempted to be protected was 462 square miles and the area burnt 241 acres. The early burning operations of the previous year extended up to the middle of April, with the result that the burn was too fierce in many cases. During the year under report the early burning operations commenced in the middle of January and closed before the end of February; this is an improvement on the old system, but is in itself by no means perfect as it involves leaving unburnt comparatively large areas of rather green grass. The cost, Rs. 1,262 for 462 square miles, works out to Rs. 2-11-9 per square mile; this rate is much too low if the operation is to be conducted as it should be early in the season when the grass is still sufficiently green to exclude damage to saplings and seedlings.

In *Chittoor*, early burning operations were started by the middle of December and completed by the end of January 1925. Of the areas proposed to be early burnt some in Chittoor and Chelama ranges, where there was no grass owing to excessive grazing, were omitted; otherwise, nearly all the reserves proposed for early burning were successfully burnt. Of 134 square miles treated, 80 was under early burning and the balance under orthodox protection. The result was satisfactory as the number of accidental fires and the area burnt was greatly reduced compared with the previous year. The cost of burning in this district worked out to Rs. 4-12-0 per square mile.

20. The system of early burning does not seem to be unpopular with graziers as no complaints were received during the year in any of the districts of the Circle.

(c) *Protection against cattle.*

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

					1923-24. Square miles	1924-25. Square miles.
Closed to all animals—						
Whole year	..	...	...	...	1,325	782
Part of year	...	...	...	..	41	526

					1923-24. Square miles.	1924-25. Square miles.
Open to all animals—						
Whole year	...	...	...	...	5,129	5,172
Part of year	...	...	...	...	3	...

The reduction in the area closed during the whole year was due to the opening of closed areas of Gudem, Moricheruvu and Markapur range of *East Kurnool* and of the whole of Gundlakamma and the Nallamalais of Chelama and Giddalur ranges of *South Kurnool* during July and August 1924 with a view to mitigate distress on account of fodder famine in the adjacent villages.

The increase in the area opened to grazing for the whole year was also due to several reserves in Bellary and Anantapur ordinarily closed to grazing being thrown open for the whole year owing to scarcity of fodder in the adjoining villages.

In *Bellary*, the concession of free grazing in the open areas of Hospet taluk was extended by the Collector up to 30th June 1924 and in the closed areas of Bellary and Mincheri reserves of Bellary taluk up to 31st July 1924 owing to scarcity of fodder in the villages. In Rayadrug taluk free grazing was allowed in Rayadrug, Mallapuram, Dharmapuri and Bandanakal reserves up to 30th September 1924 for the same reason. The unplanted area of Moka plantation which was closed to grazing was also thrown open to grazing on permits from January 1925.

In *Anantapur*, all the reserved forests in the district except those under cultural operations were thrown open to free grazing till the end of December 1924 on account of drought.

In *North Cuddapah*, the extent to which the opening of the pentas in the reserved forest is appreciated by the people is apparent from the fact that the penning fees realized during the year rose to Rs. 2,023-8-0 from Rs. 1,567 of the previous year, in spite of the decrease in the total number of foreign cattle that came from *Nellore*. The local cattle owners who pay annas three per cow as grazing fee did not hesitate to pay an additional fee of As. 4 per cow for the privilege of penning them in the reserved forest. It is the large herds of local cattle that were penned inside the reserved forest that are responsible for the increase in the penning fees.

In *South Cuddapah*, the continuance of the penning system has not interfered to any serious extent with the conservancy of tree growth, and is much appreciated by the people.

In *West Cuddapah*, the system of penning cattle in the pentas on the hills continued to work satisfactorily. The period of penning is for five months, from 1st August to 31st December.

In *Cuddapah district*, the grazing fee for local cattle is very much too low. The payment of As. 3 for the feeding of a cow for the greater part of a year cannot be said to be in any way comparable to the benefits received. To this low rate the deficit working of the *Cuddapah* forests is largely attributable. The question of raising the fees to a reasonable figure is being considered.

22. In the whole Circle the number of cattle for which grazing permits were purchased increased from 595,432 to 598,989 cow units. The increase was due chiefly to the reduction of grazing fees in *Chittoor*. There was a decrease from 59,101 to 56,155 in the number of cattle impounded. This decrease was contributed to by Bellary, Anantapur and *Chittoor*, and was due to the free grazing allowed in the former two divisions and to the reduction of grazing fees in the latter.

23. The following statement compares the grazing revenue and the incidence of grazing during the year under report with that of the previous year :—

District.	Grazing revenue.			Incidence of grazing per cow unit in acres.	
	1923-24.	1924-25.	Difference.	1923-24.	1924-25.
	RS.	RS.	RS.		
Bellary	28,155	24,850	— 3,305	3.97	2.9
Anantapur	41,686	8,224	— 32,462	4.5	3.25
Kurnool East	49,153	42,599	— 6,554	6.03	9.09
Kurnool South	19,049	19,587	+ 538	6.8	10.61
Kurnool West	38,867	38,497	+ 370	5.27	5.23
Cuddapah North	23,389	22,689	— 700	5.3	5.5
Cuddapah South	9,211	7,867	— 1,344	7.9	8.3
Cuddapah West	27,051	25,727	— 1,324	5.5	5.1
Chittoor	42,219	22,362	— 19,857	5.45	3.61
Total	2,78,780	2,14,402	— 64,378		

Grazing revenue.

24. The decrease is contributed to by all the districts except *South* and *West Kurnool*.

It was mainly due to the free grazing allowed in *Anantapur* district till the end of December 1924 and to the reduction in the grazing fee from eight to three annas per cow unit in *Chittoor* district.

The concession of free grazing allowed in *Bellary* and *East Kurnool* divisions for part of the year and the non-advent of foreign cattle to the three *Cuddapah* divisions on account of want of timely rains also contributed to the decrease.

25. As regards grazing incidence, there was a fall in *East* and *South Kurnool* and *South Cuddapah*. It was due in the former two districts to the throwing open of closed areas to the extent of 269 and 249 square miles respectively for part of the year. In *South Cuddapah* it was due to a fall in the number of cattle grazed and to the increase in the areas thrown open to grazing. The increase in *Bellary* and *Anantapur* was due to free grazing allowed for part of the year. The increase in *Chittoor* was due to the reduction of grazing fees from eight to three annas per cow unit.

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

26. In *North Cuddapah*, climber cutting was done over a small area by the students of the Vernacular Training School.

In *West Cuddapah*, creepers which retarded the growth of the principal species were cut by the subordinates while marking standards in the improvement and coppice with standard coupes. In the Mudumpad slopes of Sanipaya range sambur were found to be damaging the young poles of *Hardwickia binata*.

Destruction of creepers by the application of Atlas preservative was found to be ineffective and costly, as the creepers threw out shoots below the place where the solution was applied.

In *Chittoor*, the cutting of climbers interfering with sandal and other valuable species was done by subordinates free of cost in all ranges.

A sum of Rs. 763-7-0 was spent in eradicating lantana in the Horsleykonda reserve. The work has been successfully carried out.

The area cleared of noxious growth round Mamandur village in connection with the sanitation scheme was kept free from prickly-pear.

CHAPTER III.—SYLVICULTURE.

SECTION I.—FORMATION AND REGENERATION OF FORESTS.

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

27. *Bellary*.—Natural regeneration of the more valuable species in all the blocks was fair; *Hardwickia binata* regenerated itself naturally in Kupgal plantation and Gunda reserve, *Dolichandrone crista* in Kakuppi, and teak in places in Bandri, Somalapuram and Kariyaganahalli reserves.

Anantapur.—No new plots were opened in the sandal areas of Amagondapalaiyam reserve in Bukkapatnam range; such of the existing plots as were not fully stocked were re-dibbled thrice during the year, but the operation was not a success, probably

due to deterioration of seed which was of the previous year's stock. No operations were carried out in the Madakasira range, as practically the whole of it is ear-marked for panchayat management.

East Kurnool.—Generally speaking, reproduction by seed and the survival of the one year old seedlings already on the ground was disappointing; though the natural regeneration of certain species, including *Chloroxylon Swietenia*, *Pterocarpus Marsupium*, *Anogeissus latifolia*, *Terminalia tomentosa*, *Hardwickia binata* and, in some places, rosewood was fair in Morricheruvu, Gudem, Markapur and Cumbum ranges.

South Kurnool.—In Gundlakamma range a plot of sixteen acres was clear-felled of all growth, to observe the results of natural regeneration under various conditions, which are being induced. In Chelama range a small area of especially good natural regeneration of 'Yepi' (*Hardwickia binata*) was selected, near Chelama rest house, and measurements were taken with a view to watching the annual increment of this species.

About half an acre of good young teak coppice was selected at Malakondapenta, and all the saplings thereon were enumerated, with a view to watching the effect of early burning on them.

West Cuddapah.—Generally speaking, the year was a fair one for reproduction by seed and survival of seedlings.

Red sanders coppice shoots have come up well in the improvement coupes felled during the year and *Chloroxylon Swietenia* and *Anogeissus latifolia* in the fuel coupes of Konarazupalli reserve.

A fire occurred in the Idupulapaya palmyra plantation which burnt about 400 acres. This cleared the area of all noxious growth and the fallen debris of dried leaves, branches and the refuse of fellings, with the result that plenty of palmyra seedlings came up in the burnt area after the rains. All these seedlings are doing well and they have survived the hot weather.

In Sanipaya range natural reproduction of *Hardwickia binata* and *Soymida febrifuga* was good.

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

(a) *Mainly natural.*

28. Natural regeneration was good throughout the Nallamalais, though it was not a first-class seed year.

In *Cuddapah* and *Chittoor* the natural regeneration of Red Sanders was not as good as usual.

In *Chittoor*, sandal is spreading rapidly, though, owing to unfavourable climatic conditions, the mortality among one or two year old seedlings is higher than it should be.

(b) Mainly artificial.

29. Throughout the Nallamalais artificial regeneration was stopped as it had proved expensive in previous years without showing corresponding results. A special Sylvicultural Officer has now been installed for the purpose of studying the question of regeneration and no considerable expenditure will be made until the results of his experiments are known.

In *West Cuddapah* artificial regeneration was confined to the sowing of Red Sanders seeds in blanks in the felled coupes.

(c) Afforestation.

The afforestation of certain abandoned pentas lying in the middle of working circles in the *Cuddapah* Palakondas was taken in hand. In Chenalabyli penta ten acres was ploughed and sowed with Red Sanders, *Margosa* and *Albizia Lebbek*. The resultant germination was 80 per cent in the case of *Albizia Lebbek*, 60 per cent in the case of Red Sanders and 50 per cent in the case of *Margosa*. Necessary weeding in the wet weather, and watering in the hot weather, was undertaken, and at the end of March there were 1,182 seedlings in all in the ten acres treated. If these survive another hot weather, the afforestation attempted may be looked upon as successful.

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

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

Bellary.—The Moka plantation, formed some twenty years or so ago, under the orders of Mr. A. W. Lushington, for the purpose of fixing the sand on the bank of the Hagari river which threatened to destroy the cultivation behind it, is doing well. Various species were tried, and of these *Sissoo* is doing best and casuarina worst. The latter has reached the limit of its growing powers in this area, and is dying and falling, to the danger of other growth. All trees of this species are therefore being cut out, and a satisfactory contract has been entered into with the Kolar Gold Fields for the supply of pit props of this species. The resultant blanks will be regenerated with *Sissoo* by means of root-suckers induced by the cutting of shallow trenches—a method that has been proved to be successful in this locality.

West Kurnool.—A Ranger was employed on special duty to survey the old teak plantations. The work is in progress.

South Cuddapah.—The Kodur Red Sanders plantation is in a flourishing condition. It requires thinning, and probably the removal of a part of the crop would stimulate the growth of the

trees left and at the same time produce some welcome revenue. Under-planting with Red Sanders in plot No. 1 undertaken during the rainy season was not very successful, owing probably to the fact that this species is a pronounced light demander, and will not thrive as an 'underwood'.

West Cuddapah.—An attempt is being made to establish propagation centres for sandal in this district. For this purpose, plots one square chain in extent are selected in suitable localities and sown with sandal seed. Twenty-three such centres were opened and 175 lb. of sandal seed sown in them. But unfortunately, practically all the seedlings died during the hot weather.

Twenty-six seedlings in Nirukona of Ganganapalle range, referred to in last year's administration report, are doing well and are some six feet in height.

In the established sandal plantations at Pullalamadugu and Amba-Bhavi the plants are reported to be flourishing.

(iv) Tending.

31. *South and West Kurnool*.—The 'Regeneration coupes' at Isukagundam and Gundlabrahmeswaram were weeded and tended.

East Kurnool.—Thinnings were undertaken in the teak plantations at Peddachama and Pedda Mantrala. Weedings were made in the 'Emergency coupe' at Chinna Mantrala where stump planting had been done.

South Cuddapah.—Tending of the felled coupes in the Improvement Felling Series was continued.

All naturally felled fuel coupes were fenced by the contractors.

Clearing noxious growth was undertaken in all the felled coupes of the previous year.

Chittoor.—Creeper-cutting and removal of harmful shade is being regularly attended to in the sandalwood areas of this district.

(v) General.

32. *Anantapur*.—Sandal is spreading naturally in the Kaikati reserve of the Madakasira range.

South Cuddapah.—Thinnings were carried out over 3,900 acres of the old worked coupes in Balapalle and Kodur ranges. The cost was about covered by the sale of the produce obtained.

Dibbling of sandal seeds in accordance with Mr. Wood's scheme was not successful, mainly due to drought.

The teak planted at Kangamadugu in Balapalle range still survives, but is not in a promising condition. The introduction of

exotic species in these forests is not being continued as it is of doubtful utility, since certain of those species which grow naturally are of such great value.

West Cuddapah.—In felled coupes in the Improvement Felling Series creeper-cutting was undertaken by the subordinates.

Chittoor.—Lantana clearing at Horsleykonda was continued; the operation is cheap and successful. The area thus cleared is now being dibbled with seeds of various species, in order to cover the ground and provide hosts for the sandal trees that already exist.

SECTION 2.—TENDING OF THE GROWING STOCK.

33. *East Kurnool*.—Creeper-cutting was undertaken over an area of 400 acres. Removal of prickly-pear was undertaken on an area of 10,000 square feet in Clintala of Gudem range.

South Kurnool.—The clear-felling system at Isukagundem was abandoned in favour of true 'Improvement fellings' combined with 'Selection' of mature trees. The preparation of a working plan for this area was commenced.

Chittoor.—Improvement fellings, for the benefit of Red Sanders and other timber-yielding species, were carried out in four coupes of the Mamandur working circle, felled coupes were fenced, and creepers were cut and removed by subordinates. Thinnings were made among the coppice shoots of timber species in certain felled coupes as an experimental measure.

CHAPTER IV.—EXPLOITATION.

(a) SYSTEM OF MANAGEMENT.

(i) Major Forest Produce.

34. 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.
Clear felling	39	3.3
Simple coppice	139	11.8
Coppice with standards	327	27.7
Improvement fellings	135	11.5
Selection fellings	105	9.0
Area under working plan but not for extraction of major produce.	433	36.7
	1,178	100.0

East Kurnool.—In extracting timber in all ranges except Cumbum, a modified selection system was adopted by which all dead, dying and mature trees were removed. 'Emergency coupes' (i.e., coupes opened to provide work for Chenchus when no other work was available) were felled on the clear-felling system; so also the Tummalapenta and Uthla coupes of Cumbum range opened for local supply. Somidevipalli fuel coupe of 50 acres was worked on the 'Coppice with Standards' system.

South Kurnool.—One coupe of 17.6 acres in Sirvel range and one coupe of 16 acres in Gundlakamma range were clear felled for purposes of artificial regeneration.

West Kurnool.—Six 'Emergency coupes' were worked under the 'Simple coppice' system mainly to provide work for Chenchus; and two coupes under the 'Coppice with standards' system. The felling of these 'Emergency coupes' in both *East* and *West Kurnool* has now been stopped, and simple working plans for the various 'Chenchu working circles' necessary are being prepared.

Chittoor.—In addition to the 15 coupes covered by working plans or sanctioned schemes, 12 others were worked under simple coppice for small timber and fuel.

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. In *North Cuddapah*, in cases in which free grants of forest produce were sanctioned from portions of reserved forests remote from coupes under working, an area was demarcated by the Range Officer and the felling by free grantees was restricted to it.

(ii) Minor Forest Produce.

35. There was no change in the method of working. Bamboos and other minor forest produce were collected by the Chenchus under departmental supervision in the Nallamalais of *East* and *West Kurnool* divisions; in other divisions, they were leased out to contractors.

No departmental collection of Nux-vomica was made in the *Cuddapah* divisions; but the stock of the produce collected departmentally in the previous year in the *North* and *West Cuddapah* divisions was sold for Rs. 339 and Rs. 1,368 respectively. In *South Cuddapah*, the right to collect Nux-vomica in one range only was sold, as the crop in the other ranges was poor. In *Chittoor*, the leases of Nux-vomica and Tangedu bark were sold for three years; Rela bark was not sold during the year, being unfit for exploitation. Only 583 lb. of Nux-vomica were collected against

6,990 lb. in the previous year; the short collection was mainly due to a slump in prices.

In *Bellary*, fodder grass also was leased out to Mr. H. W. Howes, over an area of 7,422 acres in Mincheri, Bellary, Ubbalagundi and Marutla reserves. In *South Kurnool*, the Military Grass Farm did not continue their hay operations during the year; but a sum of Rs. 1,492 was adjusted towards the bills due for 1923-24. In *Chittoor* the Military Grass Farm removed 169,152 lb. of hay from the Musalimadugu Extension reserve of the Palmaner range.

Free removal of fodder and thatch grass was generally allowed from reserves as usual for *bona fide* domestic purposes. A proposal made by the District Forest Officer, North Cuddapah, to levy a nominal fee of As. 5 per cart-load of grass in order to meet the cost of maintenance of the forest roads which are largely used and badly cut up by the grass carts, was vetoed by the Collector. It is clear that removals by carts must be stopped, as a large quantity of grass which is obviously not for *bona fide* domestic consumption but for sale, is thus removed; and the passage of the numerous carts over the forest roads necessitates considerable expenditure on road repairs; and, further, the fact that these carts are able to roam about the forests at their will, and then leave them with a great load of grass, makes the theft of Red Sanders timber too easy. Steps are being taken to put a stop to this abuse.

In the *Cuddapah* divisions, about 4,477 cart-loads of green leaf manure were removed against 1,165 in the previous year.

This was owing partly to early rains but chiefly to the fact that the seigniorage rate had been reduced from Rs. 2 to Re. 1.

The damage done to the forests by this enormous defoliation is very great. The concession made to popular clamour is to the interest of neither the public, as the forests are being damaged, nor the cultivators, as they are rapidly using up all the available material; complaints have already been received that the distances from which the leaves have to be brought have now become too great.

Twenty-six cases of illicit removals of green leaf manure were detected against one in the previous year in *South Cuddapah*.

(b) AGENCY OF EXPLOITATION.

(i) Departmental Agency.

(1) Major Produce.

36. Departmental operations for the extraction of timber and fuel were conducted in the *East* and *West Kurnool* divisions, to give sufficient employment to Chenchus. In *South Kurnool*, a

second coupe was worked for timber in Gundlakamma range. The exploitation of this forest is now being regularised by the preparation of a simple working plan, which work the District Forest Officer is undertaking in addition to his other by no means light duties. In *Bellary*, 447 casuarina trees were felled, of which sixty were converted into poles for supply of a sample consignment of pit props to the Kolar Gold Fields. The materials obtained from the side branches, etc., amounting to 645.78 c.ft. were auctioned. In *South Cuddapah* as there was no offer for the purchase of standing growth in three Improvement Felling Series, they were worked departmentally. The dead and dying Red Sanders trees in Kodur Red Sanders plantation were extracted departmentally.

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

(2) Minor Forest Produce.

37. As mentioned above, bamboos and other minor forest produce were collected by Chenchus under departmental supervision in the Nallamalais of *East* and *West Kurnool* divisions. A small quantity of bamboos, thatch grass, etc., were collected in other divisions for departmental works.

(ii) By Purchasers.

38. The bulk of the exploitation of major and minor forest produce was effected by contractors, lessees and permit-holders.

(iii) Free Grantees.

39. Free grants were made in all the divisions (both from reserves and unreserves) chiefly to rebuild houses destroyed by fire. In *Bellary*, a free grant of 3,615 c.ft. of timber, valued at Rs. 1,479, was made for reconstructing houses washed away by floods in the Tungabadra river. The other items of free grants relate to the construction of police talaiyari thana huts in *Anantapur* and *West Cuddapah*, and to the removal of metal and gravel by the Public Works and Local Fund contractors for Government and Local works in *Chittoor* district.

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

Timber.		Bamboos.		Grass and grazing value.	Other minor forest produce value.	Total.
In thousands of cubic feet.	Value.	Number.	Value.			
59	RS. 10,722	41,374	RS. 446	RS. 91	RS. 109	RS. 11,368

(iv) *Rights and Privileges.*

40. The Chenchus 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 814 buffaloes, 1,416 cows and 2,405 goats in the reserves without payment of fees.

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 are allowed to graze 200 cows and 575 sheep at concession rates of one anna per cow and six pies per sheep.

Free grazing for 559 cows and bulls was allowed in the Settigunta reserve of *South Cuddapah* division.

In *West Cuddapah* division, 222 bulls belonging to departmental contractors working in the Palakondas of Vontimitta range, were allowed to graze at the concession rate of 1 anna 6 pies per bull. This has been allowed since 1895.

(c) OUITURN 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.	
	1923-24.	1924-25.	1923-24.	1924-25.	1923-24.	1924-25.	1923-24.	1924-25.
					RS.	RS.	RS.	RS.
1. Government ..	108	112	219	707	19,086	24,438	16,106	11,627
2. Purchasers ..	851	879	4,808	3,686	50,469	50,956	5,27,921	5,19,650
3. Free grantees ..	53	59	..	..	504	448	360	200
4. Right and privileges holders.	1	..	154	1	..	1	4,124	3,816
Total ..	1,016	1,060	5,181	4,394	70,059	75,841	5,48,511	5,35,293

41. *Departmental agency.*—The increase under departmental removals of fuel and bamboos was due to the necessity of providing more works for Chenchus on the extraction of this produce rather than on other works in *West Kurnool* division; and to the conversion of a large quantity of material unfit for timber into fuel in *South Cuddapah* division.

The decrease under minor produce was due to the poorness of the tamarind, *Nux-vomica* and soapnut crops.

42. *Private agency.*—The decrease under fuel was due to the lower number of coupes worked in *South* and *West Cuddapah* divisions; to the smaller quantity of fuel extracted by contractors from the fuel coupes in *Anantapur* on account of poor growth; and

to the introduction of 'Sindewahe' furnaces for sugarcane boiling in *Chittoor* district; in these furnaces waste material is burnt instead of wood fuel.

The decrease under 'Minor forest produce' was due to the low amounts fetched on account of the poor crops; to the non-sale of *Rela* bark in *South Cuddapah* division.

The fall under grazing is due to the reduction of grazing fees in the *Chittoor* district; to allowing free grazing in all the reserves, except those under cultural operations, in *Anantapur* district; and to the failure of foreign cattle to resort to the *Cuddapah* divisions on account of want of rains.

The other differences fall within the normal limits of fluctuation.

CHAPTER V.—FINANCIAL RESULTS.

43. The subjoined statement compares the financial results of the year with those of the previous year and with the previous quinquennium:—

	1924-25.	1923-24.	Average of the preceding five years.
	RS.	RS.	RS.
Revenue	9,09,809	9,40,551	9,76,832
EXPENDITURE.			
B. Conservancy and Works	1,70,467	1,80,546	2,28,229
C. Establishment and Contingencies	7,17,012	7,18,799	6,20,694
Total ..	8,87,479	8,99,345	8,48,923
Net results ..	+ 22,330	+ 41,206	+ 1,27,909

44. During the year the gross revenue decreased by Rupees 30,742. It was chiefly due to free grazing being allowed in *Anantapur* till the end of December 1924, and to the reduction in the grazing rate from annas eight to annas three per cow unit in *Chittoor*. As compared with the average of the preceding five years there was a decrease of Rs. 67,023. The net surplus of the Circle was Rs. 22,330.

45. Of the gross receipts—

- 24.9 per cent was derived from major produce.
- 23.3 per cent was collected from grass and grazing.
- 34.6 per cent was contributed by minor forest produce.
- 8.2 per cent was derived from bamboos, and the balance
- 9 per cent was made up by miscellaneous items.

B. Conservancy and Works.

46. The expenditure was less by Rs. 10,079 than that of the previous year and was due—

- (1) to having given up permanent demarcation, and fire protection operations as being unnecessary in *Bellary* and *Anantapur*;
- (2) to the comparatively small expenditure on Permit Issuing Officers' commissions on account of the free grazing allowed in *Anantapur*;
- (3) to the small expenditure on the collection of minor forest produce in *East Kurnool* owing to the comparative failure of the crop; and
- (4) to the postponement of certain works in *North* and *West Cuddapah* and *Chittoor*, and to the reduction of watchers and tannadars in these divisions.

C. Establishments.

47. There was a decrease of Rs. 1,787 chiefly due to the reduction of Foresters and Forest Guards in *Chittoor* and *North Cuddapah* divisions and to the reduction of clerical staff owing to the proposed amalgamation of Kudligi and Harpanahalli ranges in *Bellary* district.

48. The financial results of each division are dealt with below taking into account the direction charges apportioned to the district—vide Form No. 83.

49. There was a surplus in the divisions of *Bellary*, *Anantapur* and *South Kurnool* as detailed below:—

Bellary	...	..	Rs. 46,093 as compared with last years' surplus of Rs. 42,815.
Anantapur	...	...	Rs. 45,541 as compared with last year's Rs. 50,726.
South Kurnool	...	...	Rs. 11,092 as compared with last year's Rs. 10,678.

West Kurnool should really also be included in this category as it is the debit of Rs. 15,000 spent on *Chenchu* management which reduces this district's true profit of Rs. 11,000 and odd, to a loss of Rs. 4,000. In the same way *North Cuddapah* was actually run at a profit of Rs. 2,000 (approximately), but the debit of the whole cost of the Vernacular Training School, some Rupees 10,000 reduces this profit to a loss of Rs. 8,000.

The following divisions did not work at a profit:—

East Kurnool minus Rs. 25,994.—This was due to the lower revenue derived from timber, minor forest produce and grazing,

and to debiting the pay of teachers of *Chenchu* schools, and expenditure on scholarships, etc., to 'Forests'. The decrease under timber was due to most of it having been collected in the last quarter and therefore not having been sold; that under minor forest produce to poor crops of *Nux-vomica*, soapnut and tamarind; and that under grazing to concession of free grazing owing to drought.

West Kurnool minus Rs. 4,465.—As emphasized above the surplus in this division was consumed by debiting the establishment charges of Rs. 15,690 for management of *Chenchus* to Forest expenditure. If this amount were deducted the division would have worked at a profit of Rs. 11,225.

The position is greatly improved as compared with last year, when the deficit was Rs. 14,975.

North Cuddapah minus Rs. 8,198.—As indicated above, this division worked at a loss only on account of debiting the whole cost of the Vernacular Training School, amounting to Rs. 10,155, to it. As the school is for the benefit of the whole Circle, the deficit should be divided among all the districts concerned. This is however not done in practice. Last year the deficit was Rs. 17,578.

South Cuddapah minus Rs. 35,366.—The large establishment charges account for the working of this division at a loss. Steps have been taken to reduce the deficit, which is, however, rather over Rs. 3,000 less than it was last year.

West Cuddapah minus Rs. 379.—The deficit is small. As compared with the previous year, the revenue increased by Rs. 3,193 and the expenditure decreased by Rs. 15,810.

Chittoor minus Rs. 3,371.—This was due—

(1) to the reduction in the rate of grazing fees from annas eight to annas three per cow unit;

(2) to want of demand for fuel coupes in *Madanapalle* and *Palmaner* ranges and to the general absence of demand for fuel consequent on the introduction of the *Sindewabe* furnace for sugarcane-juice boiling; and

(3) to the heavy fall in compounding fees due to the limitations placed on the District Forest Officer's powers in grazing cases and to the transfer of several reserves to panchayat management.

In spite of the strictest economy in expenditure on both works and establishment, the considerable usual net profit has been converted into a loss, owing to the concession made to one class of the public the graziers.

50. The outstanding revenue at the close of the year was Rs. 1,44,612, of which Rs. 1,27,009 is due in 1925-26.

The estimated value of timber and other produce at the sale depots at the close of the year was Rs. 27,159 against Rs. 8,268 at the commencement of the year. The increase was due to the large quantity of timber felled, but not sold in Gundlakamma range, of *South Kurnool*, owing to difficulty of transport, and to the fall in demand towards the end of the year.

CHAPTER VI.—RESEARCH AND EXPERIMENTS.

(a) RESEARCH.

51. There was no research during the year in this circle. An Extra Assistant Conservator, Mr. Kesava Vittal, has now been appointed as Special Sylvicultural Officer for investigating the most economical methods of regenerating artificially such blanks as occur in the worked coupes of the Nallamalais forests.

(b) EXPERIMENTS.

52. *Bellary*.—In the Moka plantations trenches were dug round *Sisso* trees for the purpose of obtaining regeneration by root-suckers, with marked success. It was found that shallow trenches were quite as efficacious as deeper ones.

Anantapur.—An experiment in the artificial introduction of *Cassia fistula* (Tangedu), in Golla reserve, which was proving a marked success, has had to be abandoned, owing to the disforestation of that reserve.

West Kurnool.—Experiments in stumping teak were tried at Pecheruvu. Stumps were put out in July, and showed 86 per cent success in October. Amongst these there had been some casualties, though not many, by the end of March. Definite results are not yet obtainable.

North Cuddapah.—The sample plots in Jothi, Pichireddibhavi and Sancherla Improvement Felling Series were maintained during the year.

Chittoor.—Experiments were undertaken at Venkatagirikota to test the efficacy of thinnings in sandal areas where insufficient hosts were present. Cutting flush with the ground and applying Atlas solution to the cut stumps, and also uprooting the trees to be removed, were tried. No results have as yet been obtained.

CHAPTER VII.—ADMINISTRATION.

53. *Changes in territorial jurisdiction*.—The proposal to abolish the Third (Madras) Circle and to institute a new Working Plans Circle with headquarters at Ootacamund was given effect to after the close of the year. On account of the abolition of the

Third Circle, Nellore and Sathiavedu range of the Chingleput division were transferred to the First Circle, *North Vellore* and the remaining portion of the *Chingleput* division to the Fourth Circle, and the remaining divisions of the Third Circle, viz., the three *Cuddapahs* and *Chittoor* to the Second Circle.

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

		Period.	
		From	To
T. Clear, Esq.	...	1st April 1924...	27th September 1924.
C. C. Wilson, Esq.	...	28th September 1924.	31st March 1925.

55. *Tours*.—During the year the Chief Conservator toured in the forests of Chelama and Gundlakamma ranges in *South Kurnool* division and visited Gundlabrahmeswaram of *West Kurnool* division. He also spent a short time at Horsleykonda in Madanapalli range, and in the Red Sanders forests in Mamandur range of *Chittoor* district.

The various Conservators in charge of the old Second Circle and of the old Third Circle toured in all the divisions of the present Second Circle, during the year and wrote inspection notes, wherever there was matter of sufficient importance for record. All the District Forest offices were inspected during the year. Considerably more than the minimum time prescribed was spent in camp.

56. *District Forest Officers*.—All District Forest Officers toured sufficiently. All Range Offices were inspected during the year.

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

58. *Recruitment and training*.—Mr. V. S. Kuppuswami, Assistant Conservator of Forests, joined the department, on first appointment, in December, and was attached to the Conservator for training.

59. *Recruitment to the Madras Forest College*.—One First-grade Forester from *East Kurnool* was deputed to the Madras Forest College for the 1924—26 course.

60. *Recruitment to the Vernacular Training School*.—The 1924 session held in *North Cuddapah* was wound up in August and has been separately reported on.

The current year's session in the same division began in February 1925. Ranger S. Ramachandra Ayyar holds the post of Senior Instructor, and Ranger B. H. Anandathirtha Rao that of junior instructor, both being men with Honours certificates. The session

opened with 30 students—3 Foresters and 27 Forest Guards—on the roll. The school was inspected by the District Forest Officer twice. The health of the students is satisfactory throughout.

Four Forest Guards from *East Kurnool* were deputed to the school at Russellkonda for the 1925 session.

61. *Health of establishment including an account of measures of sanitation and casualties.*—The health of the establishment was satisfactory in *Bellary*, *Anantapur* and *Chittoor* and was most unsatisfactory in the three *Kurnools* and in *South Cuddapah*; it was poor in parts of *North Cuddapah* where there were complaints of fever and guinea-worm. In *Bellary* one Forest Guard died of fever, in *Anantapur* one Ranger was invalided, and three Forest Guards and one bungalow watcher died; in *South Cuddapah* one thanadar died. Two Forest Guards in *South Kurnool* and two Foresters and one Forest Guard in *West Kurnool* died of malaria. In the latter district one Forester while conducting early burning operations was badly mauled by a bear and died of wounds. In *South* and *West Kurnool* many subordinates were granted leave on medical certificates.

62. The question of improving the water-supply at Rudra-code in *West Kurnool* by laying a three-inch pipe from the spring to the subordinates' quarters is under consideration. Consequent on the improvement of sanitation in Mannadur of *Chittoor* district, the health of the establishment in that place improved considerably, though malaria has not of course been completely stamped out.

The Madras and Southern Mahratta Railway have kindly undertaken to conduct similar measures of sanitation at Diguva-metta in *South Kurnool* division.

63. *Work and conduct of establishment.*—The work and conduct of Rangers during the year under review was in a few cases very satisfactory, in the majority of cases normal, and in a few cases distinctly bad. A tendency on the part of these officers to endeavour to escape from ranges that for one reason or another they did not like, by means of obtaining leave on medical certificate, was largely stopped by adopting the principle of always re-posting such men, after their return from leave, to the ranges from which they had escaped. On the other hand, Rangers who had served well in unhealthy or otherwise unpopular localities were, whenever possible, given a change to more congenial surroundings.

The conduct of the protective staff was on the whole fairly good, considering the low pay they get and the manifold temptations to which they are subjected.

In the districts, however, which are shortly to be handed over to the management of panchayats the conduct of these men was most unsatisfactory. This is due to the fact that they know their services are likely to be dispensed with at an early date, and they therefore do not care whether they retain their appointments or not and are concerned mainly as to the immediate profit they can make. For this reason any unnecessary delay in the formation of the panchayats is greatly to be deprecated.

CHAPTER VIII.—GENERAL.

1. FORMATION AND MANAGEMENT OF PANCHAYATS.

64. One reserve in *Bellary* and one in *South Kurnool*, two in *West Cuddapah* and five in *Chittoor* were handed over to panchayats during the year. No new panchayats were formed in the other divisions of the circle.

The delay in the formation of panchayats for areas that are definitely to be handed over to them is regrettable as the morale of the subordinates in such places is deteriorating for the reasons referred to in paragraph 63 of Chapter VII above.

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

2. CONFERENCES AND MEETINGS.

65. "The Kurnool Forest Grievances' Committee" sat during the year. It consisted of the Conservator, Mr. T. Clear, as President, and M.R.Ry. K. Sarabareddi Garu, M.L.C., and M.R.Ry. Rao Bahadur C. Venkataranga Reddi Garu, M.L.C., as ordinary members. The various District Forest Officers and some influential ryots were co-opted. They visited certain forests and heard evidence at selected centres in July and August 1924, and submitted their report to Government in September 1924. The matters dealt with were grazing, supply of agricultural implements, deforestation and the formation of forest panchayats, supply of manure leaves and the standardization of compounding fees.

Such of the Committee's recommendations as Government have been able to accept have already been put in force.

Practically, the whole of the Nallamalais has been thrown open to grazing; many new pentas have been opened; penning fees have been abolished with respect to strictly local cattle, of which the definition included in paragraph 10 of the Forest Committee's report printed in G.O. No. 3020, Revenue, dated 10th October 1913, has been adopted; and special schemes for the supply of agricultural implements to local ryots, the details and conditions of which vary according to local requirements, have been introduced in all three forest divisions.

A conference of the Forest Officers of Kurnool with the Conservator as President was held in Kurnool on the 26th February 1925. Various matters were discussed and grievances aired:—

(a) It was agreed that the financial position of the forests in the district did not at the moment justify the formation of a fourth division.

(b) The importance of the preparation of simple working plans by the Divisional Forest Officers and their present staffs, for the workable areas of their divisions was agreed upon, as it was realized that a party from the newly formed working plans circle would be unable to visit the Nallamalais for several years, and it was not considered desirable to postpone the exploitation, and forego the revenue derivable from, these forests for so long.

(c) Certain alterations in the boundaries of ranges were discussed and a general agreement arrived at.

(d) The proposal to change the headquarters of the South and East divisions to Nandyal and Markapur respectively was discussed and vetoed.

(e) The unsatisfactory state of the clerical staff of the three divisions was demonstrated and proposals were made to remedy it.

(f) The perennial question of Chenchu management received lengthy consideration.

(g) The parlous condition of housing for the various Forest officials in superior service in *Kurnool* was discussed at length.

In all the above matters, necessary action was taken, and wherever possible, remedies applied.

3. MEASURES FOR IMPROVING LOCAL SUPPLIES AND FACILITIES.

Timber and Fuel.

66. *Anantapur.*—Attempts were made to open coupes in seven reserves for supply of fuel and small timber to the adjoining villages, but a sale was found for only three.

An attempt is now being made to form big working circles for the supply of agricultural implements on permit.

South Kurnool.—For Sirvel range a working plan was prepared; in advance of sanction the coupes of the first year were worked, in order to supply the urgent demand for fuel and small timber in that taluk.

In Gundlakamma range exploitation of timber on the selection system was started vigorously, though unfortunately in advance of the preparation of a working plan. This was necessitated by the urgency of the demand for timber in the vicinity. A working plan has now been prepared in which the area felled during the

year under review forms the first coupe. The produce, including timber in the round, and spokes and felloes, found a ready sale, on rail, in the Diguametta depot. The quality of the timber was poor, but nevertheless the prices realized were at first very high, and compared favourably with those paid for first-class logs in *South Coimbatore* and *Malabar*. This happy state of affairs has, however, not continued; the first five or six sales satisfied the abnormal demand, which owed its existence to a timber famine that had prevailed for some years in the surrounding districts; subsequently there has merely been the normal demand to be met.

For the supply of agricultural implements and small timber, to the local populace, prescriptions were inserted in the working plans being prepared for the district, to the effect that contractors must sell such material from their coupes. If, as is possible, this system is not successful, it is proposed to issue permits for such material for each coupe in the year prior to felling.

East and West Kurnool.—A commencement was made in regulating the work in the 'Emergency coupes', which were started some years ago to provide employment for the Chenchus. Regular working plans are now being prepared by the district staffs for all such 'Chenchu working circles'. The supply of agricultural implements and small timber to the local populace was made at concession rates on the production of certificates from the Tahsildars and Deputy Tahsildars to the effect that such were required for *bona fide* domestic purposes.

North Cuddapah.—The leasing of certain coupes to the co-operative societies, at concession rates was continued. The results of two or three years working by these co-operative societies has proved successful, largely owing to the efforts of the Rev. Mr. Rumpus, of the London Mission, Cuddapah, who has devoted a great deal of time and energy to assisting the Panchamas, and other depressed communities, who are working these coupes. The result is also satisfactory from a forest point of view as, since this new medium of working has been exploited, contractors are giving better prices in auction for our other coupes that are sold in the normal manner.

South and West Cuddapah.—The wants of the local populace in the matter of fuel and small timber were met by provision in the contractors' agreements for supply at concessional rates.

Water-supply.

67. In spite of the shortness of funds available for important forest works, and of the very low rate at which grazing permits are issued, a great deal was done during the year to improve the

water facilities for cattle grazing in the forests. The results achieved are shortly enumerated below :—

Anantapur.—The local ryots were permitted to re-construct the old 'tank' in Yellutla reserve and to tap a spring in Tarimala reserve.

East Kurnool.—Two wells were repaired for the use of the public as well as the department.

Three tanks were improved in the Markapur and Rachakonda ranges for the supply of water for grazing cattle.

South Kurnool.—Similar improvements were carried out to certain tanks in Owk range.

West Kurnool.—One tank was similarly repaired in South Dhone reserve.

North Cuddapah.—A new tank was constructed at Byrenni to collect water that flows from Byrenni spring, in order to permit of the penning of cattle in the vicinity.

Repairs were carried out to a tank in the Lankamalais of Sidhout range for the use of cattle penned there.

West Cuddapah.—Three wells were repaired to supply water for grazing cattle in the hot weather.

Chittoor.—One well was repaired at State expense and two by the local populace, within the reserves, to supply water for cattle in the hot weather.

4. TIMBER TRANSIT RULES.

68. *East Kurnool.*—Yeguvacherlopalle was notified under section 4 of the Timber Transit Rules, in order to prevent theft of timber from the surrounding reserved forests.

Chittoor.—The Timber Transit Rules framed for the *Chittoor* and *North Arcot* districts have not yet been sanctioned. The need of them is great, and it is hoped that a final decision may be arrived at, in the matter, at an early date. As regards the rules already existing in *Chittoor*, the exclusion of zamindaris from the scheduled areas is being taken advantage of by the timber thieves who remove sandalwood through them.

5. JUNGLE TRIBES.

69. *East and West Kurnool.*—The Chenchus as usual have kept us from feeling dull. There have been one or two murders of forest subordinates by these enterprising little people, and generally speaking, considerable increase of crime, or possibly of detection of crime, it is always difficult to differentiate between the two. Eleven crimes involving fifty-five Chenchus were detected this year as against eight, involving fifteen persons, last year.

On the whole, however, they have been fairly amenable to discipline and—after persuasion in some cases—have done the work provided for them.

The industrial and educational schools maintained for their benefit have been attended in increasing numbers by the younger generation; in the former basket work, carpentry and the manufacture of carts have formed the chief subjects of instruction.

By sale of some of the baskets made by the more advanced students, at Srisaillam festival, a large part of the expenditure on certain of the industrial schools in *West Kurnool* has been covered. It is amusing, and a little pathetic too, to note that even these efforts of the Forest department, to improve the condition of the Chenchus, have been used by our enemies against us, and a report has been circulated in the district to the effect that the Forest department are forcing the Chenchus to make baskets for them on payment of four pies a day. The truth being, of course, that the Forest department is put to considerable expense in providing teachers material, etc., for this work, in order to instruct the Chenchu young, and in addition have to pay the children four pies a day each as a bribe, before their graceless old parents will allow them to attend the schools.

Cultivation of lands by these people has been further encouraged and in several cases considerable advance made.

One most satisfactory result of our efforts at education is worthy of note, namely, that of the eight Chenchus who were studying in Markapur Board High School, one has now returned to the Chenchu School at Chinna Mantrala in the capacity of a teacher on Rs. 18 per mensem.

The cost of maintenance of the schools has been as follows :—

	RS.	A.	P.
(1) Capitation allowance paid to teachers ...	681	0	0
(2) Feeding charges	1,688	14	11
(3) Cleaning charges	715	14	0
(4) Purchase of books	78	8	0
(5) Repairs to sheds	66	14	0
(6) Cost of clothing	595	0	0
(7) Cost of furniture	144	12	0
(8) Cost of establishment	5,872	15	0
(9) Construction of petty sheds	280	0	0
(10) Contingencies	5	0	0
Total ...	10,128	13	11

The problem of finding work for the Chenchus has been now largely solved by employing them in the timber-felling operations of *South Kurnool* district. Their objection to travelling the few

miles that intervene between their Gudems and the work spot have been at length overcome, and it is hoped that both they and the department will be considerably benefited by their employment in the extensive forest operations of this division.

The Forest department is the only medium that has been able hitherto to deal with the Chenchus with any success. And we are, of course, quite ready to continue the management of them and our efforts to tame them, but in these modern days, the Forest department is being organized quite rightly on commercial lines, with the result that the administration of any district which shows a loss on the year is questioned. Under these circumstances, it is clear that the expenses of administering the Chenchus should no longer be debited to the Forest department. This point of view has been placed before the Chief Conservator who is making representations to Government in the matter.

6. MINING AND QUARRYING.

70. *Bellary division*.—A licence for prospecting manganese ore in Gunda reserve, and another in Alagilavada reserve and a thirty years' lease for mining red earth in Joga reserve, were granted during the year. A quantity of 6,314.25 tons of manganese ore was removed from the mining area of Thummaraguddi reserve since October 1923; a sum of Rs. 395-13-0, representing royalty, and Rs. 778-10-0, representing the dead rent for the half year ending February 1925, was collected in advance pending settlement of the question of royalty. A quantity of 155 tons of old ore, lying in Thonsegeri reserve, was given by the Collector to the General Sandur Mining Company; but the amount of royalty to be recovered is still under correspondence.

South Kurnool.—The manganese mine opened last year in the North Veligondas is in good working order. An application received for prospecting for copper in Jaladurgam reserve of Owk range is under consideration.

West Kurnool.—The slab and building-stone quarries leased out for five years were worked during the year; the lease expires on the 31st December 1925; the yearly rental of Rs. 4,454 was realized.

Two lime-stone quarries were leased out in Dhone range for Rs. 560 and the revenue realized.

Two mining leases for barytes and steatite granted in previous years were worked during the current year.

A licence to prospect for barytes was issued to Mr. B. P. Sesha Reddi of Bethamcherla.

The prospecting licensees of previous years closed their operations in four cases, and no work was started in two cases; only two licensees carried on operations, prospecting for barytes and iron ore in North Dhone reserve and Veldurthi unreserve respectively.

South Cuddapah.—Of two applications for prospecting for manganese which were under consideration at the close of the previous year, one has been rejected and the other approved, and sanctioned by the Board.

7. LIVE-STOCK.

(a) Elephants.

71. The two baggage elephants maintained in *West Kurnool* for transporting the camp kit of officials were used during the year to a small extent for dragging timber at Isukagundam. They were untrained in this work and were reported to dislike it; but personal investigation showed that it was the mahouts and kavadis who disliked the work rather than the elephants, and matters were suitably adjusted. The elephants now do what timber dragging is required.

(b) Bulls.

Of the three bulls in *South Kurnool* two were sold in auction as they were unserviceable and the third died of colic. Of the five bulls in *West Kurnool* three died in March of rinderpest which was prevalent at the time. Of the above, none were replaced as their utility was doubtful.

(c) Buffaloes.

In *Chittoor* one of the two buffaloes had grown old and was sold, another being purchased in its place.

8. VETERINARY ESTABLISHMENT.

72. Nil.

9. SUITS.

73. The suit filed in the District Munsif's Court, Vellore, against the Tangedu bark contractor, Vati Ibrahim Sahib, for recovery of the balance due by him on account of the *South Cuddapah* contract is still pending.

In the suit instituted by the zamindar of Bangarupalaiyam in *Chittoor* district claiming certain land in the Musalimadugu forest the District Munsif's decree was adverse to the zamindar. The latter has appealed and the result is not yet known.

10. CONTROL OF UNRESERVED LANDS BY THE FOREST DEPARTMENT.

74. In the *East Kurnool* division, the general control of the unreserves of Bommilingam, Velagalapaya and Papinenipalli villages continued to rest with the Forest department.

11. GENERAL.

75. In *East Kurnool* division the man-eating tiger referred to in last year's Administration Report was shot by the Forest Range Officer of Gudem range, Mr. A. Bhaviah, and he drew the Rs. 500 reward which he thoroughly deserved.

Two Forest Guards were murdered by Chenchus during the year, as stated above in paragraph 69. In one case certain individuals were convicted of murder and sentenced to death, but they were let off by the High Court on appeal. In the other case the police have been unable to apprehend the offenders. Fresh efforts are now being made by them to do so.

In the first case, a pension of Rs. 5 per mensem for life was sanctioned by Government for the widow of the deceased Forest Guard. In the second case, the old mother of the murdered man has been recommended for a gratuity and the matter has not yet been finally decided.

Muskets and ammunition have now been supplied to many of the Forest Guards and Foresters in these wild tracts; it is hoped that this will enable them to protect themselves successfully.

12. COLLECTORS' REMARKS.

76. The following forwarding endorsements were made by Collectors when transmitting District reports:—

Collector of Bellary.

Forwarded.

I think the District Forest Officer is mistaken in saying that limited demand of hay by the Military authorities accounts for the smaller outturn. The reason is that the hay was not available.

Collector of East Kurnool.

Forwarded.

I have nothing to add to the views I recently expressed on various aspects of the Chenchu problem. I do not agree with the remark in that the money now being spent on the elementary education of Chenchus is wasted. The benefit of the education the young Chenchus are receiving will appear only after a generation or two. Progress will be more rapid when Chenchus can be employed as schoolmasters.

Collector of South Kurnool.

Forwarded.

With reference to the remark that a proposal to assign some cultivable land to the Chenchus of Byrenni was vetoed lest they should go away from Byrenni where their labour is in demand, I think it is far better that the Chenchus should be encouraged to take agriculture rather than that they should be dependent for a living on labour procured for them by the Forest department.

Collector of Cuddapah.

Forwarded.

I have no remarks to offer.

Collector of Chittoor.

Forwarded.

2. The further decrease in the number of fires and in the extent burnt is very 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 the comparatively short duration of the dry season. It also indicates their more cordial relations with the public.

BELLARY,
8th August 1925.

C. C. WILSON,
Acting Conservator of Forests,
Second Circle.

ANNUAL ADMINISTRATION REPORT OF THE FOREST DEPARTMENT

FOR THE
YEAR ENDING 31st MARCH 1925

FOURTH CIRCLE

CHAPTER I.—CONSTITUTION OF STATE FORESTS.

1. ALTERATION IN AREA.

Reserved forests.—During the year twenty-seven square miles were added due to final settlement and adoption of correct boundary. Ten square miles were disforested due to—

- (1) adoption of correct boundary and erroneous inclusion of certain patta holdings, and
- (2) assignment of land for cultivation.

Reserved lands.—The decrease from 51 square miles to 28 square miles is due to transfer of areas to reserved forests chiefly in *East* and *South Salem* divisions.

2. FOREST SETTLEMENT.

2. Three blocks with an area of $26\frac{1}{2}$ square miles were finally settled during the year under report.

3. DEMARCATION.

3. Eleven and three-fourth miles were permanently demarcated during the year.

4. FOREST SURVEYS.

(a) *By the Survey of India.*

4. Nil.

(b) *By Madras Survey.*

5. Nil.

(c) *By Departmental Survey.*

6. The survey of fuel coupes was as usual done departmentally.

CHAPTER II.—MANAGEMENT OF STATE FORESTS.

1. REGULATION OF MANAGEMENT.

Preparation and control of regular working plans.

7. *Preparation.*—A working plan for all operations except sandalwood was sanctioned for the *West Vellore* division during the year and another similar working plan for the *South Vellore* division was sanctioned by the Chief Conservator after the close of the year. A scheme for the Class II panchayat areas in the *East Salem* division, a revised scheme for the sandal areas in the Dharmapuri range, *North Salem* division, a scheme for Lokkur Manakondamalai bamboo series and another revised scheme for the Shevaroy's North working circle, *Central Salem* division, were sanctioned by the Conservator during the year. The scheme for working the Upper Plateau in the Valasamalai reserve, *South Vellore* division, referred to in last year's report was dropped.

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

(1) Tentative scheme for all fuel and bamboo coupes in Gudiyattam range and the old working plan for bamboo coupes in the other ranges in the *North Vellore* division.

(2) Sandalwood working plan for the Javadis and Yelagiris in the *South* and *West Vellore* divisions.

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

(4) Preliminary working plan for the sandal areas in the other three *Salem* divisions.

(5) Working plan for fuel, bamboo, and minor forest produce in *South Vellore*, and bamboos in *West Vellore*.

(6) Sandalwood, bamboo and grazing working plan in Chitteri range, *East Salem* division.

(7) Working plan for the Kavaramalai Working Circle, revised scheme for the ten bamboo series sanctioned by the Chief Conservator, and one sanctioned by the Conservator, and a scheme for the six fuel series sanctioned by the Chief Conservator, and another for the six fuel series sanctioned by the Conservator in *Central Salem* division.

(8) Tentative schemes for working the lower slopes of hill ranges for fuel sanctioned by the Conservator in the *South Salem* division.

Almost all the forests covered by working plan in the *Chingleput* district have been transferred to panchayat management during and after the close of the year except 80.28 square miles which

was under the control of the Forest department and worked under the provisions of the working plan. The prescriptions of the Hosur sandalwood working plan for the seven felling series in Denkanikota range in the *North Salem* division were suspended as in last year owing to the prevalence of spike, the whole staff being fully engaged in the extraction of spiked trees. The other working plans are either obsolete or not worked for want of demand.

2. COMMUNICATIONS AND BUILDINGS.

9. Form 70 shows the length of the roads constructed and the expenditure incurred on new works and repairs to roads, buildings and other works.

(a) *Roads and Bridges.*

The cost of new works and repairs during the year was Rs. 3,275 and Rs. 10,200 against Rs. 3,967 and Rs. 12,121 respectively, in the previous year. The new works undertaken were the construction of a cart-track in the Kambakkam reserved forest, *Chingleput* district, the completion of the diversion road from Denkanikota to Aiyur, *North Salem* division, construction of an approach road to the inspection shed at Sanniyasimalai, *Central Salem* division, metalling Kalapatti-Pillayarnatham road and Uppilipuram-Sengattupatti road, and the completion of a gap of about two furlongs in the Mavar-Thammampatti road in the *South Salem* division. The following new works were also undertaken during the year:—

West Vellore.—The alignment of Mandarakuttai-Kavalur and Vasanthapuram-Kavalur cart-track, construction of new culverts on the Gillman road, improvement to Melpat-Paramanandal bridle path and the construction of a cart-track from Local Fund road to Paramanandal Subordinates' quarters.

(b) *Buildings.*

10. The expenditure on new buildings and the maintenance of existing ones (including the pay of watchers) during the year was Rs. 11,060 and Rs. 12,177 against Rs. 11,463 and Rs. 14,534 respectively in the previous year. The important new buildings constructed were—

South Vellore.—(1) Completing the construction of Range Officer's quarters at Santhavasal.

(2) Completing the construction of subordinates' quarters at Nadanur.

West Vellore.—(1) Completion of the Range office at Alangayam.

(2) Part construction of Range Officer's quarters at Alangayam.

(3) Extension to the sandalwood godown at Tirupattur.

North Salem.—(1) Part construction of inspection shed with outhouses at Shulagunta.

(2) Part construction of inspection shed with outhouses at Manchi.

(3) Part construction of inspection shed with outhouses at Siddhapuram.

(4) Part construction of subordinates' quarters at Urigam.

(5) Part construction of rest-house with outhouses at Denkanikota.

(6) Extension of final cleaning sandalwood shed at Denkanikota.

(7) Improvement to the Range Officer's quarters at Denkanikota.

South Salem.—(1) Completing the subordinates' quarters at Poosaripatti.

(2) Completing the inspection shed at Kanapadi.

(3) Completing the inspection shed at Malayalapatti.

(4) Flooring the sandalwood godown at Sobanapuram.

(5) Improvement to Vasalur rest-house.

(6) Construction of inspection shed at Malliyakarai.

(c) *Miscellaneous.*

11. The cost of new works and repairs was Rs. 340 and Rs. 822 respectively against Rs. 1,017 and Rs. 804 in the previous year. The most important new works undertaken were—

South Vellore.—(1) Digging a trial pit for a well at Satham-pattu on the Javadis.

(2) Construction of a well in the Pakkam rest-house compound.

West Vellore.—(1) Construction of a well in the Tirupattur rest-house compound.

The expenditure on repairs was chiefly on the improvement of the existing sources of water-supply in all divisions.

3. PROTECTION OF FORESTS.

(a) General protection.

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

	1924-25.	1923-24.	
Injury to forests by fire ..	314	232	Increase.
Unauthorized felling ...	9,531	9,732	Decrease.
„ „ grazing ...	2 202	2,160	Increase.
Other offences ...	306	283	„
Total ...	12,353	12,407	

The increase under injury to forests by fire was in *North* and *West Vellore*, and *North* and *South Salem*, and was chiefly due in *North Vellore* to the exceptional drought of 1923-24 on account of which forests were exposed to the danger of fire in the early part of 1924-25, to the severe and prolonged dry weather on account of the failure of the north-east monsoon in *North Salem* and to the concession allowed for free cutting of grass in *South Salem*. A quantity of sandalwood (about 192 quarters, valued at Rs. 2,489) stored in Gangadevanahalli Forest depot, *North Salem*, was intentionally burnt in February 1925. Two accused were prosecuted, but were acquitted by the Sub-Magistrate, Hosur, for want of evidence. The decrease under unauthorized felling occurred in *South Vellore* and *East Salem*, and was due to the migration of a large number of people to Ceylon who used to make a living by stealing forest produce. The increase under unauthorized grazing was in *North* and *West Vellore* and *East Salem*, and was due to the enforcement of higher rate of grazing fees after the 1st September in *West Vellore*, and to the vigilant watch kept by the beat subordinates in *North* and *East Salem* and by the panchayatdars under the 'Forset village system' in *East Salem*. The increase under other offences is small.

Cases brought to trial.

Year.	Number.	Convictions.	Acquittals.	Percentage of failure.
1923-24	2,722	2,973	743	26.12
1924-25	4,841	3,783	1,058	21.85

The increase was in *South* and *West Vellore*, *East*, *North* and *South Salem* divisions due to the withdrawal of a large number of cases as the accused absconded.

13. A sum of Rs. 82,490 was collected as compounding fees during the year against Rs. 90,880 in the previous year. The instructions issued in Government Order No. 1990, Revenue, dated 13th June 1910, were generally followed in fixing compounding fees.

Patrol system.

14. The special patrol system was in force in *North Vellore* division only, and the party received rewards to the extent of Rs. 210 during the year. The system was not followed in *South Salem* as in previous years as the grazing areas and manure leaf coupes were handed over to panchayats, and the beat subordinates were held responsible for the protection.

Rewards.

15. A reward of Rs. 40 was disbursed at the close of the year to one Forest Guard, one watcher, one police head constable, and two village munsifs for detecting an important timber theft case in the Kuttiroyan reserve, *North Salem* division, and Rs. 82-8-0 to one Range Officer, one Forest Guard, two S.P.C.A. peons, and three ryots for detecting a valuable sandalwood case in *Central Salem*.

(b) *Protection from fire.*

16. *Protection from fire.*—The total area attempted to be protected from fire during the calendar year 1924 was 3,258 square miles, of which 3,213 square miles were successfully protected at a cost of Rs. 5,959. Form 72 shows the area attempted to be protected, cost of protection and the area actually protected. Appendix A shows the details and the causes of fires.

Special protection.—The area which was under special protection was 1,094 square miles as compared with 1,129 square miles in the previous year. An area of 1,078 square miles was successfully fire-protected during the year against 1,122 square miles in the previous year. The percentage of failure being 1.46 against .62 in the previous year. The increase is small and requires no comment.

General protection.—The area under general protection was 2,064 square miles against 2,153 square miles in the previous year, the percentage of failure being 1.40 against .69 in the previous year. The area burnt was 29 square miles against 15 square miles in the previous year.

Early burning.—This system was not followed as the conditions in this Circle do not appear to require it.

(c) *Protection from cattle.*

17. There was an increase in the number of cattle impounded in *North* and *West Vellore* divisions and a decrease in the remaining divisions. Appendix B shows details. The increase is attributed to the successful detection of cases by the patrol parties in *North Vellore* and the beat subordinates in *West Vellore*. The decrease is attributed to some reserves having been transferred to panchayat and to the vigilant protection by the subordinates.

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

18. *Prickly-pear.*—No measures were undertaken to eradicate this pest owing to the prohibitive cost.

Lantana.—A sum of Rs. 52 was spent in clearing lantana over an area of about $4\frac{1}{2}$ acres in the Javalagiri bungalow observation area, and a sum of Rs. 44 for removing and burning *Zizyphus Oenoplea* over an area of 11 acres in the Panai reserve in *North Salem* division. Lantana is prevalent in the Kudimaduvu reserve in the *East Salem* division, and in the Solamathi reserve of Perambalur range and in portions of Musiri-Pachamalais and in the Jambuthu reserve of the Namakkal-Kollimalais, *South Salem* division, but owing to financial stringency, no attempt was made to eradicate it.

Creeper-cutting.—This was done in all sandalwood areas. Creepers were also cut in the coupes to be exploited at the time of standard marking. In Chingleput, *Euphorbea* and other noxious growths were cut by contractors in coupes worked by them.

Loranthus.—The branches of young sandal trees affected with this pest in *South Salem* were lopped off wherever found and the dead and dying trees were also removed.

Spike.—This is dealt with under research and experiment.

Bison.—Bisons continued to do damage to the young sandal growth on the Javadis particularly in special tending areas in *South Vellore*, and the sandal saplings in the Chitlingi and Karungal reserves in the Chitteri range, *East Salem* division. Mr. Chandy shot a bison with 38 inches horns which he met accidentally during his inspection of the Kottapatti extension on 10th December 1924.

Wild animals.—No remarks.

CHAPTER III.—SYLVICULTURE.

SECTION 1.—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 in this Circle.

(ii) *Establishment of reproduction of working plans or schemes (with Form 75-A).*

(a) Mainly natural.

20. *Chingleput*.—Coppice reproduction in all the felled coupes is satisfactory. Simple coppice or coppice with standards was adopted according to the species and the nature of growth, and the fuel coupes under closure were fenced with thorns. *North Vellore*.—Natural regeneration under seed-bearers was good in the Ammanur reserved forest and Palar plantations and natural regeneration of sandal is fair in coupe II of Rangampet series. In other places, it was a very poor seed year, especially for the superior species. *Hardwickia binata* which seeded profusely in previous years did not seed at all this year. Reproduction from coppice shoots was normal. *South Vellore*.—The year was generally adverse to natural reproduction on account of prolonged drought. *West Vellore*.—Natural regeneration of sandal was not generally favourable during the year on account of failure of rain. The natural reproduction of teak seedlings on the Yelagiris and particularly in the Kottur specially protected block was very good and that of other species such as *Chloroxylon Swietenia*, *Albizzia amara*, etc., is good in Bargur and Nandibanda reserves of Krishnagiri range. Regeneration by coppice is fairly good in the felled coupes. Coppice shoots of *Premna tomentosa*, *Chloroxylon* and *Albizzia amara* are reported to be very vigorous. *East Salem*.—Reproduction of coppice shoots in felled fuel coupes was fairly satisfactory, especially those of *Chloroxylon Swietenia*, *Albizzia amara* and *Accacia Sundra*. Except in Veppampatti extension reserve, regeneration of sandal was a failure for want of rain. The regeneration of bamboos is excellent in places where we had gregarious flowering. *North Salem*.—Natural reproduction of sandal is good in Dharmapuri and Anchetti ranges and that of *Melia indica*, *Albizzia Lebbek*, *Hardwickia binata*, and *Terminalia arjuna* is fair in Dharmapuri range. The natural regeneration of *Hardwickia binata* is very good in the reserves adjoining the Cauvery. *Central Salem*.—Natural regeneration of sandal trees in the higher elevations of Shevaroy's and Bodamalais was satisfactory. Frenella seedlings in the Sanniyasimalai reserve are growing well as well as root-suckers from the burnt trees of *Accacia decurrens*. *South Salem*.—Natural regeneration of sandal is promising in the upper slopes of the Kollimalais and in the sandal areas of Perambalur and Thamampatti ranges; also along the streams at the foot of the Pachamalais and on the higher slopes except in badly spiked areas. Regeneration of *Dalbergia latifolia*, *Pterocarpus*, *Marsupium*, *Anogeissus latifolia*, *Albizzia odoratissima*, *Albizzia procera*, *Terminalia Chebula*, *Terminalia tomentosa*,

Pterospermum rubiginosum, *Chloroxylon Swietenia* is good. In all the fuel series reproduction by coppice shoots is quite satisfactory and live fences erected by fuel coupe contractors do well. The regeneration by seeds is not promising due to prolonged drought. The regeneration of bamboos is fairly satisfactory.

(b) Mainly artificial.

Hardwickia binata seeds dibbled in the felled coupes of Odugathur range of *North Vellore*, *Pongamia glabra* seedlings in Kannamadai reserve in *South Vellore*, cuttings of *Jatropha Curcas* in the Denkanikota rest-house compound and the Javalagiri bungalow observation area as well as the sowings of this species in *North Salem*, tamarind and sandal seeds in Shevaroy's North range were successful. In other places, prolonged drought made matters difficult. The North Salem District Forest Officer states that *Jatropha Curcas* should form a useful host for sandal in the dry weather as it does not shed its leaves.

(c) Afforestation.

None during the year under report.

(iii) *Plantations and other forms of regenerations not under working plans or schemes (with Form 75-B).*

21. *North Vellore*.—In the Pichanur tope, there has been very good regeneration of Red Sanders and *Pterocarpus Marsupium*. Ditch and mound sowings were done in plot II of Ambur plantation with *Hardwickia binata*, *Dalbergia latifolia*, Red Sanders and teak. The result is fairly satisfactory. Sandal seeds were dibbled in small plots all over the division according to Mr. Wood's suggestion, but except in Ambur, Pichanur and Naikaneri, the operations have not been a decided success. *South Vellore*.—*The Amerdi plantation*.—A brief history of this plantation was given in last year's administration report. The total area under plantation remained the same. The work carried out during the year was the replacing of casualties in some of the compartments with Red Sanders, Sissoo, and *Melia dubia* seedlings raised in a nursery in the plantation. In spite of the plantings having been carried out in ideal weather, practically all the seedlings died in the subsequent drought. The planting was done by the subordinates assisted by a few coolies at a cost of Rs. 71. *Muttakadu experimental plantation*.—A brief description of this experimental plantation was given in the last year's report. The work during the year consisted of ploughing up a blank plot of about one acre and sowing it intensively with 6 lb. of *Hardwickia binata* seed and dibbling in pits in other plots 16 lb. of *Pterocarpus Marsupium* seeds to replace casualties. These sowings were unsuccessful on account of the adverse season. The old plants in the several plots of the

experimental area were weeded during the year. The cost incurred on the plantation during the year was about Rs. 10. The survival of the old plantings as compared with those of the previous year is shown in the following statement:—

Species.	Sowing at the end of June 1924.	Sowing at the end of March 1925.
<i>Pterocarpus Marsupium</i>	253	236
<i>Gmelina arborea</i>	218	172
<i>Albizia Lebbek</i>	21	29
<i>Acacia ferruginea</i>	230	187
<i>Hardwickia bima</i>	923	926

Central Salem—*Kurumbapatti* plantation.—No work was done except sowing seeds. *Sanniyasimalai* plantation.—Pit sowing of *Acacia decurrens* was done in the area where the fire did havoc in the previous year with a view to form a fire-break. They came up very well to start with, but during the hot months most of them died.

(iv) Tending.

22. General tending was carried out in all sandalwood coupes except in Denkanikota sandal felling series where the staff was fully occupied in extracting spiked sandal trees; climbers and creepers were cut and sandal trees freed from overhauled shade. In *South Vellore*, new special tending areas were selected and fenced in all the coupes in which dead and dying trees had been extracted in the previous year. The fences of all the old special tending area were repaired and strengthened during the year. Further opening out of cover was carried out in the two acre experimental plot in the special tending area in coupe II of the *Veerappanur* sandal series referred to in the last year's report. The results are being watched. In *South Salem*, the scheme for special tending sanctioned for the whole of Pachamalais and Kollimalais with effect from 1924-25 was not taken up owing to the attenuated budget.

(v) General.

23. The drought reported last year continued, and the sub-soil level of water in many places is reported to be lower than it has been in living memory. Under these conditions, it is not surprising that failure has to be reported. Still, it is most important that experiments on a small scale in artificial reproduction should be continued to add to our knowledge on the subject, and the small amounts spent should not be regarded as money wasted.

SECTION 2.—TENDING OF THE GROWING STOCK.

24. Though provision has been made for the improvement selection fellings of timber in *West Vellore*, the coupes could not be worked during the year owing to the late receipt of sanction

of the new working plan. In *East Salem*, in coupe V of Kudi-maduvu, 42 trees were felled and 18 trees were girdled, and in coupe VI, 54 trees were marked for felling solely to facilitate the growth of superior species, but the operation was dropped as ordered in Chief Conservator's No. 608, Routine, dated 1st December 1924. In *North Vellore*, the coupes in the Palar river-side plantation were felled under the system of improvement fellings by which all dead, dying and malformed trees were removed.

CHAPTER IV.—EXPLOITATION.

(a) SYSTEM OF MANAGEMENT.

25. The total area under working plan during the year was 2,259 square miles and the various silvicultural systems in force are detailed below:—

	Area in square miles.	Percentage to the total area under working plan.
Method of clear fellings by compartments	...	...
Uniform method	...	...
Group method	...	...
Selection method	172	7.61
Simple coppice	600	26.95
Coppice with standards	56	2.48
Method of improvement fellings	543	24.05
Unworked or other fellings	879	38.91
Total area under working plans	2,259	100.00

(b) EXPLOITATION BY DEPARTMENTAL AGENCY.

26. The chief item of departmental extraction was sandalwood. A quantity of 272½ tons was sold at Tiruppattur against 259 tons in the previous year and 160 tons at Vellore against 49 tons in the previous year. The average rate realized was Rs. 1,250 per ton at Tiruppattur and Rs. 1,171 at Vellore against Rs. 1,057 and Rs. 1,082 respectively in the previous year. The quantity sold was considerably larger than the average of past years and this is due to the extraction of a greater quantity of spiked sandalwood trees in *North* and *South Salem* divisions, to the large quantity of sandalwood extracted from Ponakad areas, and to the purchase of sandalwood trees from patta lands in *Central Salem*.

Timber.—Four hundred and thirty-seven cubic feet of *Terminalia Arjuna* timber was felled in Karuthamalai and Thellai reserves in *North Vellore* division to test the market. As there was no local demand for it owing to superstition, the timber was brought to Vellore and sold. Two hundred and seventy cubic feet of timber was extracted in *North Salem* as an experimental measure

for sale to the public and other departments. Small quantities of timber were extracted from other districts for building purposes.

Fuel.—Thirty tons of fuel was extracted in *North Salem* for sale to the pilgrims who attended the Adi festival at Hoganakal and 240 cubic feet by the students of the Vernacular Training School for the manufacture of charcoal. About 16 cart-loads or 220 cubic feet of *Frenella* wood in *Central Salem* division which found no sale last year was sold to the public by issue of permits departmentally. In other districts, a small collection was made from clearing lines. This was partly used for burning bricks required for departmental buildings and partly sold.

Bamboos.—Seven thousand seven hundred bamboos were cut for free grant under Chief Conservator's sanction in *South Salem*. A small quantity was also extracted in this and other districts for departmental use.

Minor forest produce.—Two hundred and eighty-seven quarters of *Divi Divi* pods in *North Vellore*, about 60 quarters of *Nux-vomica* in *South Vellore*, and about 897 measures of *Nux-vomica* in *South Salem* were collected departmentally as the bids at the public auction for the produce were unsatisfactory.

(c) EXPLOITATION BY PURCHASERS.

27. Except in the cases referred to in the above paragraph, 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 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.
1923-24	929	1,519	Rs. 1,13,500	Rs. 3,96,019
1924-25	890	2,015	82,222	3,72,357

Timber is a fluctuating item.

Fuel.—The increase was chiefly in *East*, *Central* and *South Salem*, and due to handing over a portion of Class II reserves to panchayat management for fuel working in *Salem*; to better sales in *Central Salem*, and to more correct figures obtained from fuel coupe contractors in *South Salem*.

Bamboos.—The fall is in all divisions and is due to the flowering of bamboos in *North Vellore* and *East Salem*, to the collection of three kists during 1924-25 the third year of the 3 years' lease as

against four kists in the previous year in *South Vellore*, to want of keen competition in *West Vellore*, *North Salem*, and *Central Salem*. to the collection of the first kist for 1925-26 lease in April 1925 instead of in March itself as in the previous year in *West Vellore*, and to the sale amount of 3 years' lease having been brought to the last year's return in *South Salem*.

Grazing.—The decrease is in almost all districts and is due mainly to the failure of the monsoon and to consequent scarcity of water and fodder and the mortality of cattle. It is also due to the restriction of grazing possibility by the formation of panchayats.

Minor forest produce.—The decrease is in almost all districts and due to the failure of the monsoon, and dullness of markets.

In *North Vellore*, 574,344 lb. of hay was removed by the Military Grass Farm department and its royalty Rs. 512-12-7 at Rs. 2 per ton adjusted during the year.

In *South Vellore*, out of seven coupes leased out to co-operative societies in *Tiruvannamalai* range, only three were worked during the year, the reason being that fuel coupe contractors were supplying fuel to *Tiruvannamalai* town from the disforested areas of *Chengam* range at cheaper rates. In *Chengam* range, 18 fuel coupes were worked by panchayats under the 'Forest village system'. This is the first year that the system of working small coupes in panchayat blocks has been tried. A satisfactory start has been made and it is hoped that coupes in other blocks will be taken up by panchayatdars next year. Seven fuel coupes in *Tiruvannamalai* range were leased out to co-operative societies and one coupe in *Polur* range to a co-operative wood-cutters' society during the year at the average rate obtained in previous years, 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, 90.87 per cent was opened to grazing against 94.94 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.
Chingleput	93,440	8,988	10.39
North Vellore	250,880	48,726	5.15
South Vellore	291,200	73,189	3.97
West Vellore	238,720	55,758	4.28
East Salem	313,600	65,370	4.95
North Salem	308,480	47,102	6.55
Central Salem	247,680	55,622	4.46
South Salem	231,040	52,785	4.38
Total	1,975,040	407,440	4.85

There is a great decrease in the number of cattle grazed during the year as compared with the previous year. The explanation given above for the decrease in grazing revenue holds good here also.

(d) EXPLOITATION BY RIGHT AND PRIVILEGE-HOLDERS.

28. The rights granted to the villagers at settlement in V. Kana-padi and Palamalai Extension reserved forests and in Gundur, Ariyur Shola reserved forests in *South Salem* were not enjoyed as the patta-owners at the time of settlement were not traceable, many having emigrated to Ceylon. Another reason was that the villagers did not dispose of their goats. In *North Vellore*, 23,055 lb. of hay valued at Rs. 20 was supplied to the Military department without any royalty being recovered. The Malayalees of Thellai Arasampet and part of Athiyur reserved forests had the usual grazing concession of 3 annas per cow unit in return for the protection of forests. In *South Vellore*, as in the previous year, the system of free grazing of cattle of the Malayalees on the Javadis on a deposit of 3 annas and the distribution of rewards to hill tribes for the successful protection of reserves from fires continued to work satisfactorily during the year. In some instances, however, the privilege of carrying knives into the reserves to cut creepers infesting sandal trees was abused by certain Malayalees who hacked bamboos instead to feed their cattle on the leaves. The system of grazing either free or on payment of half or one-fourth of the grazing fees under the 'Forest village system' in force in Tiruvannamalai and Gingee ranges and Alliala-mangalam reserved forest of Polur range, in return for effective protection of the block entrusted to each village, has worked satisfactorily. In *West Vellore*, the Malayalees on the Javadis and villages adjoining the reserves in the plains were paid rewards for successful protection of reserves from fire. In *East Salem*, the grazing of cattle of Malayalees on the Chitteris and Periyakal-royans 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. In *Central Salem*, free grazing was allowed in Samiyasimalai reserved forest for 150 cattle to protect the area from fire.

(e) EXPLOITATION BY FREE GRANTEES.

29. The quantity and value of produce removed under the head are given below. The free grants were made chiefly from un-reserves, and in a few cases from reserves for rebuilding houses destroyed by fire or floods. The usual grant of 10 tons of firewood for Masimakam and Kanthri festivals were made from the Pichavaram reserve in *East Salem* division. In *Chingleput*, there was

one case of free grant from Guindy Park reserve to the villagers of Velacheri to rebuild their houses burnt by fire. It was given with the permission of His Excellency the Governor and was appreciated by the grantees at a public meeting.

	Timber in thou- sands of cubic feet.	Value.	Fuel.		Bamboo value.	Grazing.	Other minor forest produce.	Total.
			In thou- sands of cubic feet.	Value.				
Right-holders		RS.		RS.	RS.	RS.	RS.	RS.
Free grantees	79	10,285	..	40	341	20	226	20
Total	79	10,285	..	40	341	32	226	10,924

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:—

						1924-25.	1923-24.	Average of the preceding quin- quennium.
						RS.	RS.	RS.
Revenue	..	..	..	..	..	* 13,09,772	12,27,828	12,32,411
Refunds	..	..	..	..	..	18,903	18,290	20,748
Net						12,90,869	12,09,538	12,11,663
<i>Expenditure.</i>								
B. Conservancy and Works	..	..	..	..	..	1,31,251	1,40,776	2,01,793
C. Establishment	..	..	..	..	..	5,03,376	5,19,639	4,72,132
Total expenditure						6,34,627	6,60,414	6,73,925
Surplus						6,56,242	5,49,124	5,37,738

* Excludes Rs. 6,640 relating to other Circles as explained at the foot-note of Form No. 80

The increase under revenue was mainly under I (d) and was due to the increased supply of sandalwood to the Tirupattur and Vellore sale depots from *North* and *South Salem* divisions owing to the extraction of spiked sandal trees, to the larger quantity of sandalwood extracted in the *South* and *West Vellore* and *Central Salem* divisions, and to better prices realized during the year.

There was decrease of expenditure by Rs. 9,524 under 'B. Conservancy and Works,' and by Rs. 16,263 under 'C. Establishment,' as compared with that of last year. The various contributions to the gross receipt of Rs. 13,09,772 are detailed below :—

	Per cent.	
Major produce ...	55 93	(This includes 41·97 per cent from sandalwood.)
Grazing ...	17·23	
Bamboos ...	6 83	
Minor forest produce ...	11 80	
Miscellaneous items ...	8·21	
Total ...	100·00	

Under 'B. Conservancy and Works'—

Per cent.

58·90 was spent on exploitation.

28·67 was spent on upkeep and improvement of forests, and

2·42 was spent on miscellaneous items.

Total. 100·00

31. The important variations are explained below :—

RECEIPTS.

(i) By Departmental Agency.

Sandalwood.—Plus Rs. 1,90,892. The reason for the increase is the same as explained above.

Variations under other heads are small and call for no remark.

(ii) By Purchasers.

	Rs.	
Timber ...	—8,532	The variations have been explained in Chapter IV.
Bamboos ...	—19,764	
Grazing ...	—20,658	
Minor forest produce ...	—32,874	
Fuel ...	+ 6,966	(Compared with the figures of IV Circle alone) due to the reason given in Chapter IV; and — Rs. 2,604 (compared with the figures of IV Circle including Chingleput and North Vellore due to non-sale of fuel coupes by the formation of panchayats and to the realization of less revenue from unreserved lands in the Chingleput district, and to the price of fuel having gone down on account of drought in North Vellore.

RS.

Miscellaneous V (a)—99,698 Due to the change of head of service for compounding fees from V (a) to V (b)

EXPENDITURE.

'B. Conservancy and Works' and '52-A. Forest Capital Outlay.'

The important variations are explained below :—

RS.

I (d) ...	+ 3,965	Due to corresponding increase of revenue under this head.
II ...	—3,651	Due to the reduction of watchers, to issue of permits by the subordinates, and to the savings effected under commission to Permit Issuing Officers on account of Class II panchayat system in certain districts.
VII ...	—5,494	Due chiefly to postponement of the construction of subordinates' quarters at Sathiyedu in Chingleput district.
VIII ...	—4,957	Due to restricted expenditure under tending, sowing and planting operations and other works.

C. Establishments.

RS.

C I to III ...	19,016	Due to the transfer of Imperial officers from this Circle, to less payment of leave salary during the year than in the previous year, and to the salary paid to the actual establishment employed during the year.
C IV ...	2,694	Due to the strict observance of Travelling Allowance Rules and to non-payment of fixed travelling Allowance to some Foresters who were considered ineligible under the rules.
C V ...	2,979	Due to the restricted expenditure during the year and to the adjustment of cost of maps supplied by the Map Officer, Dehra Dun, in 1923-24, in the Direction Office and to not incurring similar expenditure during the year.

CHAPTER VI.—RESEARCH AND EXPERIMENT.

32. Spike continues to devastate the sandal forests of *North Salem* and *South Salem*. In the latter division, a larger number of trees had to be destroyed this year than the total number extracted in the previous three years, yet in all the areas from which trees have been removed new attacks are seen. One doubtful case of spike reported from Pudupatti reserve in *Central Salem*, was verified at Dehra Dun, but no new cases seem to have occurred in the locality. There was also a recrudescence of spike at Nellivassal in *West Vellore*: twenty suspected trees were extracted and specimen leaves of trees Nos. 1, 7 and 8 were sent to Dehra Dun, and the Forest Botanist declared them as spiked.

It would certainly be an economy to appoint an expert to track down this disease.

Observations were continued in *North Salem*. Apparently spike kills sandal trees within two years of the time of infection. The main experiments in connection with sandal with special reference to spike were to determine—

- (1) whether sandal is self-fertilized;
- (2) whether plants grown from seeds from sandal trees in spiked areas are immune from the disease, also whether seeds from spiked trees will produce healthy plants;
- (3) what insects feed on sandal leaves and visit the flowers;
- (4) whether sandal can be infected by gratifying with spiked *Zizyphus Oenoplia* and *vice versa*;
- (5) how long sandal seed remains fertile;
- (6) which is the best time of year to sow sandal and what is the best way of treating seeds to prevent insect attack;
- (7) whether spike can be arrested by pruning spiked branches, treating with chemicals, and coppicing;
- (8) whether root-suckers from infected trees become infected;
- (9) whether infection takes place by contact with spiked leaves or wood.

It is not possible yet to make any definite conclusions, but there seems to be justification for supposing that infection takes place above ground, and it has been suggested that a likely cause of infection is the pollen from the flowers of diseased plants. Experiments to test this hypothesis thoroughly are being made.

The District Forest Officer, *North Salem* (Mr. Hart) asserts that lantana is not always the pest it is made out to be, for under its shade is generally found promising sandal regeneration which has the power of pushing its way through and above the lantana.

Among other experiments in *North Salem* may be mentioned clearing and burning strips in semi-evergreen forest in Gulhatti reserve containing mainly *Memecylon edule*, and introducing more valuable species such as teak, sandal, rosewood, *Melia dubia*, and *Albizia odoratissima*. The same was done in deciduous forest in Aiyur and Nyamasandiram agra-haram reserve. This method of regeneration has much to commend it, being safer than clear felling and planting, and also being easier to work and to check than improvement fellings, or coppice with standards.

In *South Vellore* experiments on the growth of *Dendrocalamus strictus* were continued, the object being to ascertain—

- (1) the best rotation,
- (2) the best method of felling, and
- (3) the life of individual culms.

As these experiments are to be continued for a further period of three years, thinnings were carried out and observations noted during the year, and the results were tabulated and sent to the Sylviculturist, Dehra Dun.

CHAPTER VII.—ADMINISTRATION.

33. At the close of the year, the headquarters of *North Salem* was transferred to Mattigiri in G.O. Mis. No. 130, Development, dated 26th January 1925. *North Vellore* division, revised to include part of *Chingleput*, was added to this circle and at the same time the *Chingleput* division was abolished.

Mr. H. A. Latham was in charge of the Circle up to 24th November 1924 and Mr. T. Clear for the rest of the period.

34. *Tours*.—All the District Forest Officers except *South Vellore*, *East Salem*, and *Central Salem*, spent the prescribed number of days in camp. The short touring by the three District Forest Officers is due to changes in the personnel of District Forest Officers.

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

Forests.—Certain forests of *South Vellore*, *South Salem*, and *North Salem*, were inspected by Mr. Latham.

By the District Forest Officers.—All the Range offices were inspected.

Sandalwood depot.—The sandalwood depots, Vellore and Tiruppattur were inspected by the District Forest Officers, *South Vellore* and *West Vellore*, respectively.

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

37. *Vernacular Training School*.—The session for 1925 was held in North Salem division from 2nd February 1925 with 29 students on the roll. One was removed for absence without leave. During the 1924 session, 16 out of 28 students got first-class certificates.

38. *Health of establishment, including an account of the measures to improve sanitation and casualties*.—The health of establishment was not very satisfactory. Malaria continues to attack subordinates working in the Javadis, Chitteris, Kollimalais and Pachamalais. Measures to improve sanitation were taken in South Vellore where quinine and mosquito-nets were supplied and good drinking water provided. The improvement in the health of the staff seems to be worth the trouble taken.

Casualties.—Three Foresters, 3 Forest Guards, and 1 watcher, died of malaria, 2 Forest Guards died of cholera, and one head clerk died of plague.

CHAPTER VIII.—GENERAL.

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

(a) *Formation and Management of Panchayats.*

39. *Formation*.—Panchayats for Class V forests remained under the control of the Forest Panchayat Officer.

Forest village system.—Panchayats for Class II forests have been introduced in South Vellore, West Vellore, East Salem and South Salem. The results of working are reported below. As was the case last year, the best results were obtained in South Vellore for which the District Forest Officer, Mr. Gaudoin, deserves credit.

South Vellore—Working of the system.—In the Tiruvannamalai and Gingee ranges, the system continued to work very satisfactorily. The panchayatdars and forest villagers co-operated with the department and helped in the protection of their blocks. There were no instances of disagreement between panchayatdars and the Forest subordinates. As usual panchayatdars were re-elected for the year at general meetings. In the case of 18 blocks in Tiruvannamalai, with the Chief Conservator's sanction, the period of agreements was extended to three years at the request of the panchayats. A feature of the elections this year was that a certain number of Adi-Dravidas were elected to work on some of the panchayats.

During the year certain blocks in the Tiruvannamalai and Gingee ranges were re-constituted, in some cases by combining 2

or more blocks to make the panchayats solvent and enable them to employ watchers, and in others by re-arranging the boundaries to meet the requirements of the forest villages.

During the year, the Chief Conservator sanctioned the adoption of the system for the Allialamangalam reserve in the Polur range; with a few modifications, in respect of refunds and concessions, the conditions of working are the same as in Tiruvannamalai and Gingee. The system was introduced in this reserve in September 1924 and promises to be successful.

Concessions.—Women and children were allowed to remove dead fuel as a concession in most of the blocks in the Tiruvannamalai and Gingee ranges. No instances of abuse were brought to notice. This concession has not been sanctioned for the Allialamangalam reserve.

The removal of shrubs and non-woody species for green manure was allowed as a concession in a few blocks in the Tiruvannamalai range, and in practically all the blocks in the Gingee range. The system was also introduced later into Allialamangalam. No instances of abuse were brought to notice. There has, however, been a general complaint that the rate of Rs. 2 per cart-load is high.

The free removal of thatch grass was allowed to forest villages in most of the blocks in all the reserves.

Permission was granted during the year to the Thanipadi and Reddipalayam forest villagers to pen their cattle for three months in the hot season on the banks of the Ponnai river, in the Ponnai reserve, to facilitate the watering of their cattle.

Fuel coupes.—During the year, 4 coupes in Allialamangalam, 3 in Tiruvannamalai and 18 in Gingee were marked out in the various forest village blocks and sold to the respective panchayats. The working on the whole was very satisfactory. The advantage of selling small fuel coupes in forest village blocks is that each coupe serves as a local fuel supply to villagers and to some extent obviates thefts of fuel and small agricultural timber from the reserves.

Sowings.—Celebration of 'Arbor' day by the panchayats was continued during the year in some of the Forest village blocks. One panchayat in Allialamangalam reserve carried out sowings of *Leucaena glauca* seed in blank areas of its block.

Darbar day.—The sixth annual Darbars at Tiruvannamalai and Thanipadi for the Tiruvannamalai panchayats and the second Darbar for the Gingee panchayats at Shanikolam and Turinjikadu were held during the year. All the Darbars were well attended by the public. The District Forest Officer presided at all the Darbars and as usual distributed the grazing refunds.

West Vellore.—The system of managing Class II reserves under the control of the Forest department was first started in this division during the year under report in respect of Mudanai and Paramanandal reserved forests of Chengam range and Bargur and Kottur reserves of Krishnagiri range. In spite of much persuasion, the villagers around the former two reserved forests could not be brought round to form a panchayat and the proposals had therefore to be dropped. The Chief Conservator in his Proceedings No. 562, Routine, dated 11th November 1924, has sanctioned the formation of Class II panchayats in respect of the latter two reserved forests and they have been since actually handed over to the panchayat management.

East Salem.—The system of managing Class II reserves under the control of the Forest department was adopted in the whole of Kallakurichi range, except in the Mangrove reserves of Pichavaram and its extension. Altogether 38 panchayats have been formed for that range. The scheme was approved by the Chief Conservator in his Mis. No. 139, dated 23rd April 1924. According to this scheme the panchayatdars are permitted to issue permits for grazing and removal of manure leaves. They are also permitted to work a fuel coupe for fuel and small timber. The grazing possibility is fixed at 3 acres per cow unit excluding the area unfit for grazing and the area of the coupes felled during the past six years. The manure leaf and fuel coupes are worked on a 3-year and a 40-year rotation respectively. Ten reserves of the Harur range were also given to panchayat management for grazing alone. Two panchayats were formed for the management of the Mannur reserve of the Atur range for grazing and removal of manure leaves and fuel on the same lines as the Kallakurichi panchayats. The panchayatdars are paid a commission of $6\frac{1}{4}$ per cent for writing out permits for grazing. They are given a refund up to 25 per cent of the amount collected by the issue of grazing and manure-leaf permits if the protection of the reserve is satisfactory. This is the first year of working and the result so far has been satisfactory.

South Salem.—Eleven panchayats were formed during the year in Vaiyampatti range to manage grazing only in all reserves of the range with a rebate of 25 per cent *plus* commission on the value of permits sold. In Musiri range, one panchayat was formed to manage fuel, grazing and manure leaves, and 4 panchayats to manage manure leaves only. There were 6 panchayats for grazing and manure leaves in Perambalur range, of which 3 undertook also to work fuel coupes. The fuel coupes were not managed well. In one case, removal of manure leaf was effected in carts drawn by two pairs of bulls, on permits issued for single cart-loads, from which it may be inferred that the concession was

appreciated. In Namakkal range, five panchayats were formed to manage grazing and manure leaves; three fuel coupes were handed over to panchayat, but were not worked and were not paid for. In one case the President misappropriated the money collections and the panchayat had to be dissolved immediately. In Thammapatti range the village panchayat of Gangavalli Class I forest was reconstituted with fresh members, undesirable members of last year being removed. A sum of Rs. 54 was disbursed as reward against Rs. 134 in the last year. On the whole, the system did not work well in this division, but improvement is hoped for when the benefits of it are realized.

2. MEASURES FOR IMPROVING LOCAL SUPPLIES AND FACILITIES 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 *South Vellore*, five tanks were repaired, for four of which the panchayatdars contributed half the cost. One step well was repaired for Rs. 250, the entire cost being met by one individual. One well in *West Vellore* division was repaired for Rs. 32, and eight tanks in *North Vellore* for Rs. 305. Four wells and one tank were repaired in *East Salem* at a cost of Rs. 184. Besides this, the ryots have themselves removed silt in certain tanks at their own cost. One well was repaired in *Central Salem* at a cost of Rs. 96. One pond in Chingleput was repaired for Rs. 156.

(b) The supply of Forest Produce to meet the wants of the People.

41. This was attended to generally by coupe contractors and panchayatdars. Co-operative societies in Tiruvannamalai range, *South Vellore* division, continued to work coupes satisfactorily.

(c) Supply of manure leaves.

42. Manure leaves were distributed through panchayats in the districts where they have been formed. The question of leaf manure has been re-opened in Chief Conservator's Proceedings Ref. No. 2934/25-1, dated 8th June 1925, G.O. Press No. 652, Development, dated 2nd May 1925.

3. TIMBER AND SANDALWOOD TRANSIT RULES.

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

Sandalwood Transit Rules.—Proposals for the revision of rules in *Chittoor* and *North Arcot* are awaiting sanction of Government. Revised rules for the *Salem* and *Trichinopoly* districts are under consideration.

4. JUNGLE TRIBES.

44. The Malayali hill village system is in force in Thellai reserved forest of *North Vellore* division, the Javadis of *South* and *West Vellore* divisions, and the Chitteris and Kalroyans of *East Salem* division. The system has worked satisfactorily. In the Tiruppattur-Javadis, however, eleven villages are still unwilling to join. The Co-operative stores opened for the benefit of the Malayalis at Komattiyeri was wound up during the year. Steps are being taken to form a new one. The Malayali schools at Komattiyeri and Veerappanur are reported to be working satisfactorily. A thatched school-house with mud walls was constructed under the supervision of the Forest department during the year at Peria Ettipet, a hill village near Thongamalai, for the benefit of the children of the neighbouring villages. The funds were supplied by the *Vellore* Taluk Board which will run the school with the usual help rendered to the hill schools by the Forest department.

5. MINING AND QUARRYING.

45. *Mining.*—The prospecting licence to Mr. E. K. Dickens for working Emery in Sanniyasimalai in *Central Salem* division was renewed from 1st December 1924 by the Collector.

Quarrying.—The quarries in the Tambaram reserved forest with old *Chingleput* division are being worked by stone masons and those in the reserves of *North Vellore* division are being leased to contractors. Local Fund contractors are allowed free removal of road metal from reserved forests adjoining roads in this district.

6. CIVIL SUITS.

46. The second appeal regarding the ownership of Arana and Thirthagiri blocks, *East Salem* division, referred to in the last report to be pending with the High Court is reported to have been disposed of in favour of the department, but no official communication is reported to have been received about it. In *North Salem*, the coupe contractor whose suit was dismissed is reported to have preferred an appeal to the District Court, *Salem*.

7. CONTROL OF UNRESERVED LANDS BY THE FOREST DEPARTMENT.

47. The land revenue administration of the Javadi Hill villages of Tiruppattur taluk, *North Arcot* district, continued to be under the District Forest Officer, *West Vellore*. This system has been ordered to be continued for another year in G.O. Memo. No. 206-I/25-3, Development, dated 30th June 1925. As the new set of accounts prescribed in G.O. Mis. No. 761, Revenue, dated 20th May 1924, were adopted during the year and as some practical difficulties were felt, certain modifications were sanctioned by the Board in its Mis. No. 2438, dated 14th October 1924. The unreserves of the Pachamalais and Kollimalais in *South Salem* division continued to remain under the partial control of the Forest department in the matter of protecting and extracting timber and sandalwood and sale of minor forest produce.

SALEM,
14th August 1925.

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

ANNUAL ADMINISTRATION REPORT OF THE FOREST DEPARTMENT

FOR THE
YEAR ENDING 31st MARCH 1925

FIFTH CIRCLE

CHAPTER I.—CONSTITUTION OF STATE FORESTS.

ALTERATION IN AREA.

Reserved forests—*Tinnevely*.—Vaipar and Virusampatti reserves were disafforested as also a portion of the Kudiramoliteri reserve. The total area at the end of the year was 3,243 square miles against 3,251 of the previous year.

2. *Reserved lands*.—Sixteen acres were transferred to reserve forest.

FOREST SETTLEMENT.

3. The settlement of two blocks of .356 square mile in *Madura*, referred to in last year's report, as pending, was completed but the notification under section 16 in respect of one block with an extent of .343 square mile was not sent up until after the close of the year.

DEMARCATATION.

4. Thirteen miles in *Kollegal* and 15 in *Madura* were permanently demarcated for the first time at a cost of Rs. 454 and Rs. 863 respectively. Rupees 100 was spent in preparing slabs for demarcating an enclosure in *North Coimbatore*. In *South Coimbatore* reserve boundaries were cleared and estates on the Anamalais were surveyed and demarcated at a cost of Rs. 188. 2,137 miles were kept clear by subordinates free of cost.

FOREST SURVEYS.

5. (a) *By the Survey of India Party*.—None undertaken.

6. (b) The survey of coupes, regeneration areas, roads, etc., was done as usual by the subordinates.

7. Reference maps were maintained in all districts and posted to end of 31st March 1925.

CHAPTER II.—MANAGEMENT OF FORESTS.

1. REGULATION OF MANAGEMENT.

Preparation and control of regular working plans.

(a) Preparation.

8. No new working plans were sanctioned but in respect of a fuel felling series included in the *Madura* fuel working plan, re-arrangement in the order of working was approved by the Chief Conservator.

A temporary scheme for the extraction of dead and dying trees, chiefly teak from the Talakerai forests in *North Coimbatore*, and the addition of 4 new fuel felling series to the revised working plan of *Tinnevely* received the approval of the Conservator.

(b) Control.

9. The provisions of working plans and schemes were generally adhere to; but for want of demand 3 fuel coupes in *North Coimbatore*, 3 fuel and 2 bamboo coupes in *South Coimbatore* and 1 fuel coupe in *Tinnevely* remained unsold. For the same reason an extent of 10.09 square miles included in temporary schemes sanctioned for *North Coimbatore* for the supply of agricultural implements to hill villages had to be abandoned.

Working in one sandal coupe in *Kollegal* had to be stopped to avoid complication in enquiry into a case of theft of sandalwood now before the Sessions for trial.

COMMUNICATIONS AND BUILDINGS.

(a) Roads and Bridges.

10. The expenditure on new works and that on repairs was Rs. 5,098 and Rs. 35,525 respectively. The amount spent on the former represents the construction of 29 miles of bridle paths in the evergreen forests of *Tinnevely* the alignment of a trace for 3 miles in *Kollegal* and the construction of a road in *Tinnevely* for 7 furlongs to tap a fuel working circle. Rupees 299 was spent in *Tinnevely* for the acquisition of 4.53 acres of land for constructing a road, Rs. 263 in *Madura* for the completion of a culvert commenced last year, and Rs. 69 in *South Coimbatore* for the construction of a suspension bridge.

11. The existing roads were in most cases kept in repair. In *Madura* district Rs. 5,878 was contributed by the District Board for repairs to roads and this sum was credited to 'V (b) Revenue'. The construction of the new Mount Stuart Ghat road entrusted to the Forest Engineer was completed and opened to traffic in November 1924. This has reduced the cost of carting timber from Topslip.

12. The bullock tramway continued to work and the quantity of timber trammed to Topslip during the year was 123,443 c.ft. or 20,160 ton miles against 112,174 c.ft. or 24,482 ton miles in the previous year. The average lead was 5.22 miles as against 7 the previous year. The cost of feed and keep of trammimg cattle rose from Rs. 18,844 to 20,938 due to the adoption of revised rate of rations prescribed by the Inspector of Livestock.

(b) Buildings.

13. The expenditure on new works amounted to Rs. 12,229 and the works executed were—

Tinnevely.—Completion of a rest-house at Kannikatti, an inspection shed at Kandavarai. Construction of an inspection shed at Kuttalam Kalaruvi, subordinate lines at Kodamadi, inspection shed with outhouse at Kodamadi, cooly shed at Kuttalam Kalaruvi (part) and Ranger's quarters and Range office at Ambasamudram.

Madura.—Improvements to the Range Officer's quarters at Periakulam and to the Park Lodge at Kodaikanal.

South Coimbatore.—Construction of Instructors' sheds at Topslip for the Madras Forest College and 3 inspection sheds at Konapallam.

(c) Miscellaneous.

14. Rupees 695 was spent on the completion of 2 wells in *Madura* and one at Pollachi depot in *South Coimbatore* for the use of the subordinates. The water-supply scheme to Topslip, the proposed headquarters of the Tunacadavu range, is still under investigation.

15. *Telephone*.—The Engineering branch of the Telegraph department was engaged in completely overhauling the telephone line between Anamalai and Anaipidi. Effect was not given to the proposal to extend the line from Anamalai to Pollachi. The Chief Forest Engineer has after the close of the year submitted a scheme for taking over the whole line under his control and extending it to Pollachi.

PROTECTION OF FORESTS.

(a) General protection.

16. 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.	
	1923-24	1924-25.	1923-24.	1924-25.	1923-24.	1924-25.	1923-24.	1924-25.	1923-24.	1924-25.
A. Taken into Court ..	1	1	1,365	1,301	327	314	43	46	1,734	1,662
B. Compounded ..	5	..	2,217	2,206	506	630	125	131	2,853	2,967
C. Undetected ..	316	235	51	34	9	32	..	3	376	304
Total ..	322	236	3,631	3,541	842	976	168	180	4,963	4,933

The difference is small.

17. *Cases old and new dealt with during the year.*—The total number of cases taken into court, including the old ones, was 2,884, of which 1,666 ended in conviction and 546 in acquittal, leaving 672 cases pending with Magistrates. The punishments inflicted by Magistrates were on the whole adequate. Rupees 35,855 was realized as compounding fees against Rs. 33,865 in the previous year. The increase was chiefly in *Kollegal* and *North Coimbatore*.

18. *Rewards.*—Nil.

19. *Patrol system.*—Special patrol parties were occasionally organized in *Kollegal*, *Madura* and *Tinnevelly*.

Beyond the publication in the District Gazettes of the usual notice of warning to the villagers against setting fire to the reserved forest, no other special measures were taken such as closure, enhancement of grazing fees, etc.

(b) Protection from fire.

(Calendar year 1924.)

20. *Special protection.*—The area attempted to be specially protected during the calendar year 1924 was 242,311 acres against 241,977 acres in the previous year and the cost of protection Rs. 3,808 against Rs. 5,285 the previous year. The decrease in the cost of fire protection is due to a larger area having been treated under the early burning method.

21. The area burnt during the year is reported to be 5,909 acres against 13,009 acres in the previous year, the percentage of successful protection being 95.9 against 94.6 in the previous year.

I fear the figures furnished give an unduly favourable impression of the state of fire protection, but as I only took charge after the close of the year I cannot state this definitely.

22. *General protection.*—The area under this heading was 1,762,559 acres of which 24,933 acres were burnt, against 1,762,825 acres the previous year when 14,430 acres were burnt. The increase in the area burnt was mainly in *Kollegal* and *North Coimbatore* due to the exceptional drought.

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

23. The average cost per square mile of special protection and general protection was Rs. 10 and As. 8 respectively per square mile attempted.

(c) Protection against cattle.

24. The revised grazing scheme for *Udamalpet* in *South Coimbatore* received the sanction of the Chief Conservator. The number of cattle is in excess of the amount of fodder available.

2,367 square miles of forests were open to grazing against 2,270 square miles in the previous year. In addition 282 square miles were open to all animals except browsers. Goats were excluded from all reserves.

25. *Incidence of grazing.*—In *Kollegal* the incidence was 7.8 acres per cow unit against 6.1 in the previous year. This includes many inaccessible and rocky areas. In *South Coimbatore* the incidence was 15.5 acres per cow unit against 14.9 in the previous year, but the area open to grazing includes shola forests and grass hills of the upper Anamalais where cattle are seldom or never taken for grazing. The grazing incidence in *North Coimbatore* fell from 5.2 acres in 1923-24 to 4.4 in 1924-25, in *Madura* from 12 to 9 acres and in *Tinnevelly* from 3.9 to 3.6 acres.

The number of cattle impounded was 21,783 against 17,477 in the previous year and 18,126, the average of 3 years ending with 1923-24. The increase was in *Coimbatore* due partly to the withdrawal of the concession of free grazing permitted during 1923-24.

26. *Protection against injuries due to natural causes.*—The amount of damage being done by 'spike' in *Kollegal* and *North Coimbatore* year after year is horrible. To check its spread the uprootal of all trees affected was carried out, and they were burnt after removing the scented wood, if any. In *Kollegal* division alone 13,265 trees were so treated at a cost of Rs. 1,069.

27. *Weeds and climbers.*—In *Kollegal* and *North Coimbatore* creeper-cutting was done in sandal working circles over an area of 18,821 acres at a cost of Rs. 726. In *Tinnevelly* weeding operations were carried out in the regeneration areas of *Kannikatti* range at a

cost of Rs. 342, and in the Kariar teak plantations at a cost of Rs. 437. Climbers on important species of trees were cut as usual by the subordinates free of cost.

28. *Prickly-pear, lantana and strobilanthes*.—In *South Coimbatore* Rs. 176 were spent in Mount Stuart on the experimental burning of lantana, in a plot of 1,000 acres but it was not a success. In *Madura* and *Tinnevely* the right to remove dead *strobilanthes* was leased out.

29. *Damage by animals*.—Damage by wild elephants continued in all districts except *Kollegal* where the damage to forest growth is reported to be not much. 7,096 teak plants in the *Vannathi-parai* plantations in *Madura* and the experimental teak sowings at *Karaipalayam* in *North Coimbatore* are reported to have been much damaged.

30. *Damage by rain and floods*.—*Kollegal*.—The unprecedented heavy floods in the Cauvery in July and August 1924 washed away the main bridge at *Sivasamudram* and seriously damaged the smaller bridges thus causing serious dislocation of traffic over the road to *Maddur* railway station.

In *North Coimbatore*, all sandal nurseries near the bank of the *Bhavani* were washed away by the high floods. In *Madura*, there was considerable erosion on the steep hills to the west of the *Cumbum* valley where fuel coupes had been worked.

CHAPTER III.—SYLVICULTURE.

SECTION I.—FORMATION AND REGENERATION.

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

31. *Kollegal*.—Spike and fires continue to kill many thousand sandal every year in *Kollegal* and *North Coimbatore*. Very shortly there is likely to be a fall in the sandalwood revenue of about 75 per cent.

Bambusa arundinacea has started flowering gregariously in all the three *Coimbatore* divisions.

North Coimbatore.—The experimental regeneration work in the *Minchiguli* valley undertaken in previous years was discontinued as the experiment proved expensive and unsuited to the locality.

South Coimbatore.—An area of 226 acres in the *Mount Stuart* working circle was sown with teak (after clear felling) and the crop established during the year.

1919—*Regeneration area*, 28.50 acres.—The height growth varies from about 15 ft. in the very poorest parts to 32 ft. in the best. The average height of the better parts is about 27 ft. and

in the poorer parts about 18 ft. The growth is very patchy, and far from uniform. The most disappointing feature is the prevalence of forking. The most vigorous stems appear to fork as much as the less sturdy ones.

1920—*Regeneration area*, 8.30 acres.—This area, is practically speaking, a failure.

1921—*Regeneration area*, 29.10 acres.—Here the height growth of the teak varies from 10 ft. in the very poorest bits to 27 ft. in the best parts. The average for the better areas is about 25 ft. and for the poorer areas about 15 ft. Here again as in the 1919 regeneration area forking is only too common.

1922—*Regeneration area*, 126.08 acres.—This is the best of the areas on the hill-side facing *Anaipadi*. The height of the teak in the very worst places is 9 ft. and in the best, 25 ft. The average height for the whole area is about 16 ft., but many patches are much better, than this. Here again, forking is common, but not quite to the same extent as in 1919 and 1921 areas.

All the above areas are in the same locality, and the locality does not seem to be quite suitable for growing pure teak.

1923—*Regeneration area*, 193.50 acres.—This area is considerably better than the older ones. Forking is uncommon, at present any way. The best areas have a height growth of 18 ft. which is excellent for teak which is only two years old. Excluding patches where the soil is obviously unsuitable, the average height of the teak in this regeneration area is 11 to 13 ft.

Punachi.—An area of 25.00 acres was similarly established with teak in the *Punachi* working circle. Further concentrated regeneration in *Punachi* has been stopped as the results have been very poor, and the cost exceptionally high.

Madura.—Natural regeneration in the *Cumbum* valley and in the valleys of the *Palni* hills and that by coppice in the fuel areas are reported to be generally good. In the upper slopes of the *Anjikulipatty* series where teak and *Anogiessus* occur, the coppice growth is good, and in the *Methugamalai* north series coppice regeneration of *Albizia*, *Chloroxylon* and *Premna* is most vigorous. Sandal is spreading naturally in patches in several parts of the district and regeneration in the reserves near *Mulayur* is reported to be exceptionally good.

Tinnevely.—Natural regeneration from both seedlings and coppice is reported to be good on the whole but bad where *Strobilanthes* or grass occur. In the sholas, the regeneration from *Pygeum*, *Hardwickiapinata*, *Diospyrus*, *Balanocarpus*, *Gluta* and *Chickarasia*

has been good all round parent trees. Prolific growth of *Acacia arabica* seedlings is met with in the Muttur tank, Wolf Hill reserve. Sandal in the Alagarcoil valley is still spreading.

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

(a) Mainly natural.

32. *North Coimbatore*.—In the hill slopes near Kunjapanai, Jacknari timber coupes and Mannar sandalwood compartment which are closed to grazing, there are young natural sandal seedlings growing satisfactorily.

(b) Mainly artificial.

33. *North Coimbatore*.—Sixty-six acres in Mannar sandalwood compartment were dibbled with sandal seeds. Many seedlings died of drought and many others were damaged by the unprecedented floods in the Bhavani.

South Coimbatore.—Mount Stuart working circle.—226 acres clear-felled in 1924 were sown with teak $4\frac{1}{2}' \times 4\frac{1}{2}'$ and with *Terminalia tomentosa* in marshy places. Casualties were replaced during the monsoon by planting seedlings from dumps. Clean weeding was adopted. The height growth varied from 2 ft. in the worst areas to 7 ft. in the best—average about 4 ft.

260 acres were clear-felled, and burning was in progress at the close of the year.

Punachi working circle.—Twenty-five acres clear-felled and burnt last year were dibbled with teak $4' \times 4'$ and weeded. Twenty-five acres were clear-felled during the year, but as the cut material was green no burning could be done.

(c) Afforestation.

34. *North Coimbatore*.—The experiment in shola reclamation near Aiyangiribetta undertaken in previous years was discontinued under Conservator's orders, as it was more than doubtful whether these few additional acres of shola forests would appreciably affect the water-supply in the plains or improve the yield capacity of the surrounding deciduous forests.

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

35. *Plantations*.—*Tinnevely*.—Fifty-six acres of teak plantations were added to the existing plantations at a cost of Rs. 2,024 for the first year's maintenance.

Other forms of regeneration not under working plan or schemes.—*Kollegal*.—The one chain sandal plots raised in the past were maintained and others added.

In the former there were 9,942 and in the latter 14,686 seedlings. These figures are misleading, as in many cases there are hundreds of seedlings in a plot whereas only half a dozen are required.

North Coimbatore.—Similar sandal extension work to that mentioned in *Kollegal* continued in this district also and 9,450 seedlings were raised during the year.

South Coimbatore.—The attempt to introduce sandal at Mount Stuart was a failure.

Madura.—Out of 666 sandal seedlings reported as surviving in last year's report many have died for want of timely rains and only 142 are now existing. Sandal seeds were sown departmentally in some of the reserves and only 46 are reported to be surviving. The results are disappointing.

Tinnevely.—During the year further experimental regeneration operation in the shola forests was stopped after going over $21\frac{1}{2}$ acres at a cost of Rs. 177-8-0. Cutting of inferior species below 18 inches in girth was done.

Seeds of *Hopea*, *Mesua*, *Dalbergia latifolia*, *Artocarpus hirsuta*, *Terminalia tomentosa* and rosewood were dibbled in the regeneration areas of Kannikatti and Kodamadi ranges.

As in other districts, sandalwood extension work was undertaken on the lines already described and 2,342 seedlings raised.

(iv) *Tending*.

36. *North Coimbatore*.—Creper cutting in Mannar sandalwood compartment was done at a cost of Rs. 212.

South Coimbatore.—Pulling out lantana and clearings in the felled coupes of Pollachi and Udamalpet ranges were executed at a cost of Rs. 705. Thinning in the 1919 regeneration area of the Mount Stuart working circle was done at a cost of Rs. 129. The prescribed weedings in the regeneration areas at Mount Stuart and Punachi were undertaken.

Madura.—All the sandal areas in the district were periodically tended by the subordinates free of charge.

Tinnevely.—The necessary weeding was done in the teak plantations and thinning was carried out in 1917 teak plantations at a cost of Rs. 170. 5,352 saplings were thinned and sold for Rs. 363. In 1923-24 Kannikatti area, girdling of inferior species up

to 24 inches in girth was carried out over 50 acres at a cost of Rs. 89 and in 1922-23 and 1923-24 (Kodamady) areas at a cost of Rs. 115 over 52 acres.

(v) *General.*

37. *South Coimbatore.*—*Bambusa* has been flowering and dying in patches in several parts of the Tumacadavu range during the last few years including the Mount Stuart working circle. Very little natural regeneration of timber species is to be seen. In one such place near the Ulandy ridge where a fire had followed the death of bamboos, the area is now a mass of weeds and climbers about 12 ft. high. A very few *Terminalia tomentosa* and rosewood seedlings were found but no other useful species.

Madura.—Weeding was done in the Vannathiparai teak plantation and Valankombai plantation at a cost of Rs. 137. The cutting of creepers on standards and other useful species was carried out by the subordinates free of cost.

SECTION 2.—TENDING OF THE GROWING STOCK.

Creepers-cutting for the benefit of sandal was done over an area of 13,821 acres in *Kollegal* at a cost of Rs. 340 and in *North Coimbatore* over an area of 5,000 acres at a cost of Rs. 174, besides uprooting and burning spiked trees to check the spread of spike. Climbers on important species were cut as usual by the subordinates free of cost.

CHAPTER IV.—EXPLOITATION.

SYSTEM OF MANAGEMENT.

(a) *Major Produce.*

38. The area under working plans including the temporary schemes sanctioned, during the year was 1,433 square miles and the various silvicultural systems in force are shown below.

	Area in square miles.	Percentage to the total area under working plans
Selection method	143	24.02
Simple coppice	380	26.61
Coppice with standards	143	10.01
Unworked or other fellings	562	39.36
Total ..	1,428	100

The forests in Kodaikanal and Palni ranges in *Madura* and 29 square miles of forests in *Kollegal* which are not under any working plan are also worked under the simple coppice system. Dead sandalwood and that damaged by elephants in *Tinnevely* was collected departmentally and sent to Vellore for sale.

(b) *Minor Forest Produce.*

39. Bamboo coupes were leased as usual to contractors except in parts of *Kollegal* where removal on permits was allowed. Honey and wax were collected departmentally in *Kollegal*. Elsewhere all minor forest produce was leased.

40. In *North Coimbatore*, 688 tons of fodder grass were removed by consumers and purchasers.

AGENCY OF EXPLOITATION.

(i) *By Departmental Agency.*

41. *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 the collection of dead and wind-fallen trees in *Madura* were also done departmentally.

2,113 c.ft. of *Terminalia tomentosa* and 3,173 c.ft. of rosewood were shipped to London for sale through the agency of Messrs. Howard Brothers. The shipments sent were reported to be of the best quality so far received by the firm.

42. *Minor produce.*—The quantity collected departmentally is very small.

(ii) *By Purchasers.*

43. Fuel coupes in all the districts and one timber coupe in *North Coimbatore* for extraction of dead trees were sold standing. The agricultural implements coupes and 8 fuel coupes in *Kollegal* were worked under the regulated permit system.

44. *Minor Forest Produce.*—Bamboo coupes in all the districts except 2 coupes in *Kollegal* and the collection of other minor forest produce except honey and wax in *Kollegal* were in the hands of contractors.

45. *By right and privilege holders.*—The quantity and estimated value of the different kinds of produce removed by right

and privilege holders and free grantees is 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 value	Total.
Right and privilege holders.	..	RS.	..	RS.	RS.	RS.	RS.	RS.
Free grantees	17	6,118	2	212	2,462	187	..	8,979

Cattle up to 30 in number belonging to a temple in grazing block II of *South Coimbatore* were allowed to graze free. In *Madura* the right to free grazing, in the *Amphill Downs* reserve was continued. 4,987 heads of cattle grazed free in the *Amphill Downs* reserve. In *Tinnevely*, the removal of the usufructs of palmyra trees to the value of Rs. 179 was allowed.

46. *By free grantees.*—The grants made were chiefly for rebuilding houses destroyed by fires or floods.

47. *Outturn and sources of forest produce.*—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 and 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.	
	1923-24. 1924-25.		1923-24. 1924-25.		1923-24. 1924-25.		1923-24. 1924-25.	
					RS.	RS.	RS.	RS.
By Government agency	167	184	2	8	261	62	3,058	2,162
Purchasers ..	343	213	3,350	2,701	34,695	32,031	2,24,721	2,22,926
Right and privilege holders.	..	..	..	..	..	..	1,290	1,751
Free grantees ..	14	17	..	2	16	2,462	474	187
Total ..	544	444	3,352	2,711	31,912	34,555	2,39,545	2,27,026

48. *By Government Agency—Timber.*—The increase was mainly in *South Coimbatore* due to the experimental extraction of timber with tractors by the Exploitation branch in addition to the usual quota from the district. Timber extracted by the Development branch for building works in *Tinnevely* partly contributed to the increase.

Fuel.—The increase was chiefly in *Madura* due to the extraction and sale of blue-gum trees on road margins in *Kodaikanal*.

49. *By purchasers—Timber and fuel.*—The decrease under these headings was in *Kollegal*, *North Coimbatore* and *Madura* due to non-sale of timber and fuel coupes and to the realization of smaller amount from dharkast lands—always a fluctuating item.

Bamboos.—The decrease is ascribed to non-sale of 2 coupes in *South Coimbatore* and to poor prices realized at the sales in *Kollegal*.

Grazing and minor forest produce.—The decrease was in *Kollegal* due to heavy mortality among cattle in 1923-24, and in *South Coimbatore* to poor prices realized at the auctions.

50. *Free grants.*—The decrease under timber and fuel was due to larger grants made in *Tinnevely* for reconstruction of houses damaged by floods in 1923-24.

The increase under bamboos was in *North Coimbatore* for building houses damaged by the floods of 1924.

CHAPTER V.—FINANCIAL RESULTS.

51. The revenue and expenditure of the year is compared with that of 1923-24:—

	1923-24.	1924-25.
	RS.	RS.
Revenue	13,23,773	* 11,69,954
Deduct Refunds	— 1,670	— 5,058
Net	13,22,103	11,64,896
<i>Expenditure.</i>		
B. Conservancy and works including 52-A. Capital outlay.	3,84,203	† 3,02,747
C. Establishment	4,24,070	4,06,282
Total	8,08,273	7,09,029
Surplus	5,13,830	4,55,867

* Includes Rs. 39,166 the revenue pertaining to 1923-1924 adjusted in 1924-25.

† Includes Rs. 3,901, the expenditure incurred in connexion with the British Empire Exhibition adjusted in *North Coimbatore* accounts.

52. Sixty-eight per cent of the revenue was derived from major produce, 11 per cent from minor produce, 11 per cent from grass and grazing and 10 per cent from miscellaneous items. Thirty-four per cent of the expenditure was incurred on exploitation, 19 per cent on upkeep and improvement and 47 per cent on miscellaneous items.

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53. *Receipts*.—The decrease was due to (i) the depression in the timber market and the realization of a smaller amount from Messrs. Howard Brothers; (ii) postponement of working of a sandal coupe in *Kollegal* and non-sale of a timber coupe in *North Coimbatore* and of 3 fuel and 2 bamboo coupes in *South Coimbatore*; (iii) cancellation of the three year fuel agreements in Ayyalur range in *Madura*; (iv) realization of smaller revenue under grazing in *Kollegal* on account of heavy mortality among cattle; and (v) poor prices fetched at minor produce auctions. The revenue outstanding at the end of the year was Rs. 93,897, of which Rs. 29,777 fell due within the year. The estimated value of timber at sale depots at the end of the year was Rs. 2,20,117 which exceeded the value of the stock at the end of the previous year by Rs. 75,908; this is principally due to a stock of unsold timber amounting to 123,008 c ft. at the Pollachi depot.

EXPENDITURE.

54. *B. Conservancy and Works, 52-A. Capital outlay, Rs. 81,456*.—The decrease was due to the extraction of a smaller quantity of sandalwood, reduction of expenditure on elephant capturing operations, purchase of livestock and repairs to elephant gear and tram trucks, and constitution of a separate Engineering branch to undertake important road and building works.

C. Establishment—Rs. 17,788.—The decrease was (i) on account of the transfer of three officers of the Madras Forest Service to other circles, (2) not holding a vernacular training school session during the year, and (3) not debiting half the cost of Forest Engineer's establishments as in previous years.

CHAPTER VI.—RESEARCH AND EXPERIMENTS.

55. *Kollegal*.—Sandal seedlings were raised as in the two previous years.

In the Hanur rest house compound the seedlings of 1922 are reported to be as much as 7 ft. on an average.

The experiment of burning the grass round the sholas in the Doddasampagai reserve was continued and was found to be effective in preventing fires, reaching the sholas and in protecting the tree growth in the grassy patches from the disastrous effect of late heavy fires.

The *Acacia dealbata* and *Erythrina lithosperma* seedlings of 1921 in the nursery near Bellaji in the Doddasampagai reserve are reported to be doing well. There are about 20 vigorous saplings of the first species of about 20 ft. in height on an average. The best have begun to seed and young seedlings have sprung up naturally. The experiment shows that *Acacia dealbata* is the better

suited for introduction in the extensive grassy patches on the higher slopes of this reserve.

South Coimbatore.—In this district 306 sandal seedlings were raised in Udamalpet range, but an attempt to introduce this species elsewhere was a failure.

Thirteen acres were sown with seeds of rosewood in the Topslip and Mount Stuart plantations in order to try and introduce it as an underwood to teak.

Madura.—Experimental thinning of coppice shoots continued during the year also and the results are not conclusive.

Tinnerelly.—Test measurements of saplings in the sample plot at Kannikatti were recorded in the journals to show the effect of removal of overwood.

CHAPTER VII.—ADMINISTRATION.

56. Since 22nd October 1924 the Range Officer, Nanguneri range, has been placed in charge of *Tinnerelly* range also prior to their being finally amalgamated. Proposals for amalgamation have been submitted to the Chief Conservator.

A list of officers who were in charge of the circle and of the several districts therein is appended to this chapter.

57. *Health of the establishment*.—The health of the establishment continued to be somewhat unsatisfactory in all the districts except *Tinnevely* where it is reported to have been good except in the Kannikatti and Kodamandi ranges. These ranges are reported to have become more malarious in recent years. Two foresters, 6 forest guards, 1 watcher and 2 peons died of malaria and 1 forest guard of cholera.

58. *Sanitation*.—A sum of Rs. 365 was spent in clearing and burning undergrowth round Mount Stuart and Attakatti as an anti-malarial measure. Proposals have been submitted to provide the staff located at these two places with mosquito-curtains and cots.

The anti-malarial party camped at Mount Stuart during the third week of June 1924 and carried out investigations with a view to transferring the headquarters of the Tunacadavu range to Topslip.

59. *Tours*.—The Hon'ble Sir Arthur Knapp, Executive Council Member, inspected the proposed site of the new Forest Settlement at Topslip during December 1924, and toured in the Kannikatti and Kodamandi ranges of the *Tinnerelly* district. The Chief Conservator of Forests inspected the Mount Stuart forests, and the pine and eucalyptus plantations and Gundar valley reserve in the *Madura* district.

The Conservator of Forests visited all the districts excepting the reserves of *Madura* during the year and spent 185 days on tour.

All the District Forest Officers spent more than the prescribed minimum period in camp. The District Forest Officer, *South Coimbatore*, paid a visit to Coorg towards the close of December 1924 to study the effect of burning forests overrun with lantana.

60. *Inspection of offices by the Conservator of Forests.*—All the District Forest Offices in the circle were inspected by the Conservator and the general result was satisfactory.

Inspection of offices—By District Forest Officers.—All the range offices in the circle were inspected during the year by the respective District Forest Officers.

61. *Audit of District Forest Office accounts.*—The accounts of all District Forest offices were audited by the staff of the Accountant General's office, and the results were satisfactory.

62. *Madras Forest College.*—No subordinate was deputed for training at the college. One student deputed for the 1922-24 course returned with Honours.

63. *Vernacular Training School.*—No school was held in the circle.

District.	Name of officer.
Direction	H. F. A. Wood, Esq., from 1st April 1924 to 12th October 1924.
Kollegal	A. Wimbush, Esq., from 13th October 1924 to 31st March 1925.
	M. R. Ry. J. Sadasiva Ayyar Avargal, B.A., from 1st April 1924 to 31st March 1925.
Coimbatore, North.	R. S. Browne, Esq., from 1st April 1924 to 22nd March 1925.
	J. E. M. Mitchell, Esq., from 23rd to 31st March 1925.
Coimbatore, South.	M. F. Bridge, Esq., from 1st April to 7th July 1924.
	J. D. Connolly, Esq., from 8th July 1924 to 23rd March 1925.
	R. S. Browne, Esq., from 24th March 1925 to 31st March 1925.
Madura	H. R. M. Law, Esq., from 1st April 1924 to 28th January 1925.
	D. F. Stileman, Esq., from 29th January 1925 to 31st March 1925.
Tinnevelly	M. R. Ry. George Venugopal Avargal, B.A., from 1st April 1924 to 31st March 1925.

CHAPTER VIII.—GENERAL.

(1) *Formation and Management of Panchayats.*

64. No new panchayats were formed during the year.

The term of working of 4 panchayats in *Madura* having expired, it was extended by one year from 1st July 1924. No panchayat for Permalmalai and Karadikuttu reserves could be formed as the villagers were unwilling to co-operate.

As a result of the mismanagement of the Andiyur village panchayat, the Revenue Divisional Officer proposed its dissolution and the Collector, Coimbatore, has, after the close of the year, issued orders to take over its management by the Revenue authorities as the whole area is an unreserved land.

(2) *Measures for improving local supplies and facilities.*

65. *Manure-leaf supply.*—Except in two ranges in *Tinnevelly* no leaf manure was removed from the reserves.

Supply of fuel and agricultural implements.—The fuel coupes near *Kollegal* were as usual sold standing to contractors; but the rates were as usual very low. Seven small village coupes were opened for the benefit of the villagers and worked under the controlled permit system. The rate charged is annas 10 a cart-load, and the felling is done by the villagers.

The scheme for the purchase at seigniorage rates and removal by the villagers of timber and agricultural implements from the agricultural implements coupes continued to be in force during the year. This was also worked under the controlled permit system. The concessions granted as a result of the Forest Committee's Conference in 1921 in the matter of grazing, penning, etc., were continued during the year.

North Coimbatore.—Four small timber felling series opened in *Satyamangalam* range last year for supply of ploughs and small timber to the plain villages continued to be worked during the year; but the working of the 3 coupes in *Talamalai* range had to be abandoned as the ryots were unwilling to get their requirements from Government coupes. Permits for removal of thorns from fuel coupes and bamboos from 3 coupes were also issued.

South Coimbatore.—Spokes and felloes obtained by conversion from the top ends of trees felled departmentally in the *Mount Stuart* working circle and from dead and dying trees in the *Villoni* valley were offered to the public at the sale depot at *Pollachi*. Brake-poles were cut departmentally and sold to the public through the agency of a contractor, at the 17th mile of the *Anamalai* ghat road, and also sold direct to cartmen at *Attakatti* at 2 annas each.

The attempt to sell an agricultural implement coupe in *Pol-lachi* range failed as the villagers resorted to illicit removals.

Madura.—The demands of the villagers were as usual met by the coupe contractors in accordance with the terms of their agreements.

Tinnevelly.—As in previous years permits were issued by the Revenue department for the removal of babul trees for agricultural implements from the unreserves.

(3) *Improvement of water-supply in grazing grounds.*

66. *Madura*.—An old pond was repaired at a cost of Rs. 182 and it contained 2 ft. of water in the hot weather.

67. *Jungle tribes*.—The hill tribes were employed in the same way as reported last year.

(4) *Mining and quarrying.*

68. The Public Works department was permitted to quarry metal free of cost for the use of the Anamalai ghat road.

(5) *Live-stock.*

69. *Elephants*.—In *South Coimbatore* there were 17 elephants at the beginning of the year, 5 were captured and 3 transferred from Nilambur thus making a total of 25. Of these 3 died leaving a balance of 22 with an estimated value of Rs. 77,300.

Other animals.—At Mount Stuart there were 50 bulls and 50 buffaloes at the commencement of the year. One bull was purchased at a cost of Rs. 135 and two buffaloes valued at Rs. 160 transferred from Dhoni, making a total of 51 bulls and 52 buffaloes. Of these one bull was destroyed, 4 buffaloes died and 3 were sold, leaving a balance of 50 bulls and 45 buffaloes, their aggregate value being Rs. 9,291.

(6) *Veterinary Assistant.*

70. The live-stock was in charge of an Assistant Veterinary Inspector and was inspected by the Inspector of Live-stock thrice during the year.

(7) *Civil Suits.*

71. In *Madura* the suit filed by a fuel coupe contractor was decreed against the department and an appeal has been preferred against this order.

In *Tinnerelly* a razinama was filed in the suit *re*: Aruguli tope. According to it, the price of the tope has been fixed at Rs. 45,000 and the defendant has deposited Rs. 22,500 in Court. The other half is to be paid in two instalments on 10th June 1925 and 10th December 1925.

(8) *Control of unreserved lands by Forest department.*

72. 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 acres of unreserves included in the *Bargur* sandalwood working circle and exploited for bamboos along with *Tamarakerai* bamboo working circle.

COIMBATORE,
18th August 1925.

D. T. BARRY,
Conservator of Forests,
Fifth Circle.

ANNUAL ADMINISTRATION REPORT OF THE FOREST DEPARTMENT

FOR THE

YEAR ENDING 31st MARCH 1925

SIXTH CIRCLE

CHAPTER I.—CONSTITUTION OF STATE FORESTS.

1. ALTERATION IN AREA.

(1) *Reserved Forests.*

The total area of reserved forests in the circle increased from 1,844 square miles to 1,849 square miles due to the transfer in the *Nilgiris* of 3,000 acres from reserved lands.

2. Two small areas were disreserved during the year (5 acres in the *Wynaad* and 17 acres in *Palghat*).

(2) *Reserved Lands.*

The area under reserved lands decreased by 5 square miles due to the transfer to reserved forests.

2. FOREST SETTLEMENTS.

3. 4.69 square miles in the *Nilgiris* (*Sigur* reserved forest) were finally notified during the year.

4. The draft notification under section 16 in respect of the *Mudumalai* forests in the *Nilgiris* referred to in the last year's report is under scrutiny in this office and the notifications in respect of all the additions except addition No. II to *Medanad* reserved forest were submitted to the Chief Conservator of Forests, but returned for further action in respect of the formal admission of certain rights of way.

3. DEMARCATION.

5. During the year under report about 12 miles of new boundaries were demarcated (10 miles in the *Wynaad*, part of *Tirunelli* reserved forest and the whole of *Ontangadi* reserved forest—and 2 miles of *Kottanikunnu* reserved forest in *Palghat*).

6. The usual reclearing of boundaries was carried out in *North* and *South Mangalore* and *Palghat* divisions and in parts of the *Wynaad*. In *Nilambur* reclearing was done as part of the fire-protection operations. In the *Nilgiris*, the special staff entertained in May 1924 for the general verification and demarcation of reserves was disbanded from 1st September 1924, but the work of verification was continued by an Extra Assistant Conservator of Forests. Petty encroachments were detected and these have either been leased or evacuated.

4. FOREST SURVEYS.

7. There was no survey by survey parties during the year.
8. The survey of coupes, plantations, roads, etc., was carried out by the subordinates.
9. The reference maps were maintained in all the divisions.
10. In the *Nilambur* division, a special cruising party of the Engineering branch made a detailed contour survey and stock-map of the *Nellikutha* reserve.

CHAPTER II.—MANAGEMENT OF STATE FORESTS.

1. REGULATION OF MANAGEMENT.

Preparation and Control of Working Plans.

11. In the *North Mangalore* division, the scheme for the extraction of *Catechu* trees in the reserves and unreserves of the *Coondapur* range referred to in the last year's report was submitted to and approved by the Chief Conservator after the close of the year. The areas of coupes in one of the fuel working circles of the *Coondapur* range, which were found to be too extensive to be worked in a year, were reduced with the sanction of the Chief Conservator of Forests thus forming two working series, a coupe in each being worked simultaneously.

12. In the *South Mangalore* division, the District Forest Officer is preparing schemes for exploiting over-mature timber from portions of *Nalkur* and *Aletti East* reserves. These forests were inspected by the Conservator and necessary instructions were issued.

13. The prescription of felling, viz., 'Coppice with standards' relating to the *Muliyar* working circle was changed into 'simple coppice' and the prescription regarding broadcast sowing of *Hopea* was cancelled.

14. In the *Wynaad* division, the reconnaissance work started last year covering the *Wynaad* forests including the *Nilgiri-Wynaad* was completed and the reconnaissance report was sent to the Working Plans Conservator after the close of the year.

15. In the *Nilambur* division, it is expected that the final fellings which had fallen into arrears will be brought up to date by the end of 1926-27.

16. In the *Nilgiris*, the scheme for the conversion of the *Coonoor* *Acacia* working circle referred to in the last year's report was sanctioned by the Chief Conservator of Forests. A scheme for a further felling series for a period of twenty years in the *Coonoor* *Eucalyptus* working circle was drawn up and the Chief Conservator's approval obtained for five years from 1925-26. An addendum for a further felling series for five years from 1924-25 in the *Aramby* and *Cairn Hill* working circles and in the *Snowdon* *Acacia* working circle was also sanctioned. A scheme for the extraction of sandalwood in the reserves of *Sigur* and *Coonoor* ranges drawn up by Mr. *Narasimha Ayyangar*, Extra Assistant Conservator of Forests, is under revision.

17. In the *Palghat* division, preliminary reports prepared by Mr. D. McD. Currie, Deputy Conservator of Forests, on the revision of the working plans for the *Walayar* and *Bolampatti* forests were sent to the Working Plans Conservator after the close of the year.

18. The prescriptions of the existing working plans and schemes were generally followed.

2. COMMUNICATIONS AND BUILDINGS.

Roads and Bridges.

19. There was an expenditure of Rs. 7,176 and Rs. 14,956 on new works and repairs against Rs. 11,444 and Rs. 15,229 respectively in the previous year. There were no new works of importance. The amount spent on new works represents the cost of collection of boulders and metal to improve the slushy portions of the *Chedleth-Kolvalli* road in the *Wynaad* and alignment and construction of nine miles of inspection paths in the *Attappadi* and *Silent Valley* reserved forests.

20. Three hundred and eighty miles of roads, bridle and inspection paths were maintained.

Buildings.

21. The expenditure on new works amounted to Rs. 71,661 against Rs. 33,583 in the previous year and that on repairs amounted to Rs. 8,476 against Rs. 9,023 in the previous year.

The large increase on new works is chiefly accounted for in *Nilambur* due to heavier expenditure on the reconstruction of buildings destroyed in the Mappilla rebellion, in the *Wynaad* due to the construction of buildings in connection with an additional range and the exploitation establishments and in *South Mangalore* due to the construction of a new Range office and Ranger's quarters at Uppinangadi, the old buildings having been destroyed in the floods of August 1923.

22. The important new works were:—

North Mangalore.

	RS.
Completion of the Range office at Karkal and construction of quarters for subordinates at Sitanadi	3,896

South Mangalore.

Range office and quarters at Uppinangadi	5,670
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The Wynaad.

Quarters for the Ranger, clerk and peon of the Sultan's Battery range	7,906
Quarters for the Exploitation Ranger and his peon at Chedleth	5,800
Serambis for the Exploitation Ranger, Forester and Guard at Boothakkal	1,997

Nilambur.

Reconstruction of the District Forest office	5,295
Rest-house at Nedungayam	4,427
Ranger's and subordinates' quarters	20,302
Acquisition of building site at Karulai	1,108

The Nilgiris.

Subordinates' quarters at Benne, Nanjanad, Hulikal and Bandyshola	3,142
Rangers' rest-house at Benne	429

Palghat.

Timber bungalows at Aruvamparai, Walghat and Havelocks	1,846
Outhouses at Thadagam	635

Miscellaneous Other Works.

23. The expenditure on new works, Rs. 3,485, mostly represents the sinking of wells for subordinates' quarters. The improvements to the Kumaradhari river to facilitate transport of fuel by water, undertaken at the close of the last year, were completed during the year.

3. PROTECTION OF FORESTS.

(a) General Protection.

24. The following statement compares the total number of forest offences reported during the year under report with those of the previous year:—

Cases.	Fire.		Felling.		Grazing.		Other offences.		Total.	
	1923-24.	1924-25.	1923-24.	1924-25.	1923-24.	1924-25.	1923-24.	1924-25.	1923-24.	1924-25.
Cases taken to court	31	32	145	126	37	48	36	24	252	230
Cases compounded	68	95	986	801	272	257	109	110	1,435	1,263
Cases undetected	95	91	1	3	..	..	4	..	100	94
Total	197	218	1,132	930	309	305	149	134	1,787	1,587

It will be seen that the total number of offences during the year fell by 11 per cent as compared with the previous year, the decrease occurring under all classes except that of injury by fire, which shows an increase chiefly contributed by *South Mangalore* due, as stated last year, to the burning of unreserves for kumri cultivation. The decrease occurs mainly under unauthorized felling in *North* and *South Mangalore* and is ascribed to the concessions granted by the Chief Conservator of Forests, while there is an increase in *Palghat* due, it is stated, to the introduction of gang patrols in Bolampatty range. Protection in the Mannarghat range is stated to have improved.

25. The percentage of cases prosecuted was 14.9, and the percentage of conviction in prosecuted cases was 58.2. This apparent low percentage is due to the fact that cases in which compounding fees were paid in court had been treated as acquittals, and the number of such cases was 78 forming 28.2 per cent of the total number of cases disposed of in court.

26. The amount of compounding fees realized was Rs. 20,218 against Rs. 22,210 in the previous year. The decrease occurs in all the divisions, and it is appreciable in *Palghat* due to less collection in the unreserves in spite of the increase in the number of offences, and to the levy of light compounding fees in the offences committed in the reserves as they were not serious.

27. The average compounding fees realized was Rs. 16-4-0 per case and Rs. 7-6-0 per person.

Rewards.—In *North Mangalore*, a reward of Rs. 25 was granted after the close of the year to a Sub-Inspector of Police and to the informant in a sandalwood case detected during the year.

28. In *South Mangalore*, a reward of Rs. 25 was sanctioned and paid to a Forest Guard for his courage in seizing the accused in a case of illicit felling of trees at the risk of his life.

29. In an illicit elephant-shooting case in the *Nilgiris*, a sum of Rs. 160 was disbursed as rewards to the subordinates and the informers and to a police constable. A sum of Rs. 10 was paid from the funds of the Nilgiri Game Association as rewards to the subordinates in this division.

(b) *Protection from Fire.*

30. *Special protection.*—The period dealt with is the calendar year 1924.

31. During the year early burning operations were continued in the Ghat forests of the *North Mangalore* division in all the ranges of the *South Mangalore* division, in practically the whole of the *Wynaad* division and in parts of the Mudumalai and Sigur ranges of the *Nilgiris*. There were fires in all such areas during the year. The area burnt is small in *North Mangalore* and the *Nilgiris*, while in *South Mangalore* and the *Wynaad* the area was 4.9 square miles and 2.4 square miles respectively. The District Forest Officer, South Mangalore, reports that the poor result as compared with last year is due to there having been very little rain during the hot weather of 1924. The District Forest Officer, Wynaad, states that the damage done consisted of burning only the grass and weed growth.

32. The old system of protection continued in the other parts of the Circle.

33. It is reported that the system of early burning did not meet with any opposition from the adjoining ryot population in *North* and *South Mangalore* and the *Wynaad*.

34. The area over which protection was attempted was 1,139 square miles against 1,132 square miles in the previous year. The increase occurs in the *Wynaad*, probably due to a larger area brought under early burning and in the *Nilgiris* where a portion of the Kundah reserve was treated under a scheme, whereby certain areas (where fire would do little harm) were set apart and burnt departmentally. The result of this operation was not particularly satisfactory, and a modified scheme of less detailed nature will be prepared before the next fire season.

35. The area successfully protected was 99.2 per cent and the area burnt was 5,667 acres. The cost of special protection (early burning as well as the old system) was Rs. 15 per square mile as in the last year. The cost of early burning varied from Rs. 4-13-0 to Rs. 5-7-0 per square mile, while the lowest rate for protection under the old method was Rs. 18-10-0 per square mile.

36. *General protection.*—The area under general protection was 493,717 acres, of which 2,172 acres were reported to have been burnt.

(c) *Protection against Cattle.*

37. The area closed to grazing decreased from 346 to 337 square miles (out of 1,950 square miles of reserved forests and reserved lands in the Circle). The decrease occurs principally in *South Mangalore* due to the opening of areas under *Hopea* regeneration and in *Palghat* to the opening of Walayar reserve to grazing. The whole of the forests in the *Nilambur* division continued to be closed to grazing. Out of the total area of reserved forests and reserved lands 69 per cent was open to all animals except goats and 13 per cent was open to all animals except browsers (sheep and goats). There has been a decrease of 21,288 in the number of cattle authorized to graze chiefly in *South Mangalore* due to the less number of cattle brought to the Kulgunda cattle fair and in the *Nilgiris* to the less number of slaughter cattle.

38. The grazing incidence was—

North Mangalore	...	...	13.7	acres per cow unit.
South Mangalore	...	...	13.3	" "
Wynaad	...	...	17.0	" "
Palghat	...	...	7.5	" "

The grazing incidence in the *Nilgiris* has not been worked out for want of proper data.

39. The number of cattle impounded during the year was 1,933 against 2,602 in the previous year. The decrease occurred in all divisions except *Wynaad* and *Nilambur*.

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

40. *South Mangalore.*—Some very vigorously growing *Artocarpus hirsuta* seedlings in the Jalsur East natural regeneration area were noticed to be dying. Samples sent to Dehra Dun show that a number of different species of insects were responsible. The Imperial Forest Economist states it is impossible to say what has happened to these plants. The insects merely indicate the usual miscellaneous attack on dead or dying plants. The damage was not extensive, and no more plants have been observed to have died.

The Wynaad.—The Assistant to the Forest Entomologist at Dehra Dun visited the nursery at Doddapallam in January 1925 where teak seedlings were being damaged by caterpillars. The Imperial Forest Entomologist has suggested that no preventive measures can be adopted until the complete life history of the insect is worked out. Some caterpillars have been sent to the

Assistant to the Entomologist. The damage by these caterpillars extends to teak regeneration areas of one to two years old.

Nilambur.—Defoliators of teak continued to do damage as usual. The investigation conducted by the Assistant to the Forest Entomologist resulted in the identification of 17 species, out of which 5 are reported to do excessive damage. The experiments are being continued in 1925-26 to work out the life history of each species, and to determine the extent of defoliation by each.

41. The floods of last year caused damage to the teak plantations in *Nilambur*, 167 acres of young plantations having been completely destroyed. These are now being reformed. In the *Nilgiris*, the teak nurseries at Moyar and Kargudi were damaged by the floods.

42. Elephants were found to do damage to the young plantations and regeneration areas in the *Wynaad*, *Nilambur* and *Palghat* divisions. Bison and sambur in the *Wynaad*, and sambur and deer in *Nilambur* also caused damage.

43. In the *Nilgiris*, practically every *Alder* plant in the experimental plantation at Lakkidi was killed by frost.

CHAPTER III.—SYLVICULTURE.

1. FORMATION AND REGENERATION OF FORESTS.

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

44. *North Mangalore*.—*Hopea* sowings were carried out over 535 acres prepared for regeneration in the previous year.

South Mangalore.—*Hopea* and *Artocarpus* were sown over 182 acres, and interplanting with a view to reduce the original espacement, was done over 475 acres.

The Wynaad.—Teak seeds were dibbled over 20 acres and *Hopea* sowings were done over 123 acres; stump-planting of teak was done over 9 acres.

Nilambur.—Planting and sowing over 204 acres of plantation and conversion working circle were undertaken.

The Nilgiris.—In the area of 100 acres prepared last year in Mudumalai forests 90 acres were planted with teak stumps and 10 acres were sown with Vengai and rosewood. Experimental afforestation work in the Kundahs over an area of 16 acres was undertaken during the year.

Palghat.—Regeneration works of various kinds were in progress in Chenat Nair and 20 acres were finally added during the year.

2. Plantations in the *Wynaad* and *Nilambur* suffered from floods and rain.

(ii) *Establishment of Reproduction under Working Plans or Schemes (Form No. 75 A).*

(a) *Mainly natural*.—Nil.

45. (b) *Mainly artificial*.—In *Nilambur*, 53 acres of original teak plantations clear-felled in Edacode were regenerated. Out of 53 acres, 24 acres were planted with teak, 4 acres were sown with *Bombax*, 15 acres were treated experimentally, of which 6 acres were planted and 9 acres were sown. The sowing of *Bombax* was a fair success. The whole plantation was under water for about a fortnight and parts of the area, 14 acres, were completely ruined. In the others, the casualties were heavy and no seedlings were available to replace them. Young plants are found forked from very near the base and require pruning.

Conversion working circles.—Fifty acres in Walluvassery (*Nilambur* range) were regenerated—16 acres planted with teak 6'×6', 7 acres with Karimarudu and Nirventeak and 27 acres dibbled with *Bombax* 6'×6'. This area was also subject to considerable damage by floods, 9 acres of the planted area were completely destroyed, and in the remaining 14 acres survivals amount to less than half and the teak plants are forked. The *Bombax*, being situated on rather high ground, did not suffer from floods, but there has been considerable damage by deer.

In another area of 102 acres in the Amarampalam range, teak was planted 6'×6' over 64 acres except in the first four rows where Karimarudu and rosewood seedlings were put in. Planting was delayed as the nursery was not successful, due to bad seed and defoliators. The portion planted in June was successful. The plantation area was on fairly high ground and did not suffer from floods, but heavy rain was responsible for soil wash and many seedlings were thus destroyed.

The balance area of 38 acres was planted with teak cuttings as an experiment—the result was not a success.

(c) *Afforestation*.—Nil.

(iii) *Plantations and other Forms of Regeneration not under Working Plans or Schemes (Form No. 75 B).*

46. *North Mangalore*.—An area of 535 acres in Halesomeshwar reserve where soil was prepared last year was sown during the year with *Hopea*. A small area of 10 acres was also sown broadcast with the same species. The result is stated to be very successful.

Hopea was also sown in prepared pits dug at intervals of 10' in lines 12' apart over 100 acres in Sabladi reserve. The result was fairly successful.

South Mangalore.—Seventy-two acres in compartment VI of Parappa reserve (where *Hopea* sowings were started in 1920-21) were sown with *Hopea* in prepared pits 9'×9' apart. The result of germination is reported to be good, the casualties being about 20 per cent; but the area is reported to be infested with strobilanthus. *Hopea* sowings in the whole of Parappa reserve are now complete.

An area of 110 acres was regenerated in Padnur reserve, 88 acres being sown with *Hopea* and 20 acres with *Artocarpus hirsuta* 9'×9'. Sowings were not a great success and about 28 acres were treated as a failure. Another area of 475 acres sown with *Hopea* and *Artocarpus hirsuta* in 1922 at an espacement of 27'×27' were interplanted to reduce the espacement to 9'×9'.

An area of 16 acres in Parappa reserve which was unsuited for raising *Hopea* was clear felled and burnt and sown with seeds of deciduous species; the result is reported to be satisfactory. Sowing and planting of deciduous species were also undertaken in 18 acres of a clear-felled timber and fuel coupe and another 2 acres in the same area were sown broadcast. Coppice shoots of useless species were broken and those of superior species were thinned. The result was fair.

Wynaad.—Clear-fellings of natural forests and re-stocking continued. In Begur range, regeneration works were in progress over 31 acres last year; of these in an area of 26 acres where teak seeds were dibbled 6'×6' germination was poor and seedlings about four months old were transplanted to replace casualties, but they were not able to withstand the heavy rains in July and August. The whole area of 26 acres was a failure; similarly, the swampy area of 2 acres in which Mathi (*Terminalia tomentosa*) was sown was also a failure. The area of 3 acres where Vengai (*Pterocarpus marsupium*) and rosewood seeds were dibbled was also not satisfactory. These were burnt and kept ready for sowing teak and mathi seeds in April 1925.

In the Chedleth range where 35 acres were sown with teak in the previous year, germination was not satisfactory, for want of timely showers in April and May. Fifty per cent of the patches were transplanted with four months old seedlings. In March 1925 the whole area was burnt and re-sown. As a result of burning, about 30 per cent of the previous year's surviving seedlings shot up vigorously.

During the year the following works were undertaken. In Boothakal (1924) of Begur range, 9 acres were planted 9'×9' with teak stumps about 1½ years old and the result was good. An area of about 43 acres was given on tuckle cultivation to Kurumbers who were required to sow teak seed 6'×6' along with ragi.

On account of excessive rain this proved to be a failure. A further area of 140 acres was clear-felled, of which 40 acres were burnt and more than half the area was sown with teak seeds 6'×6' by the end of March 1925.

In the Chedleth range, 35 acres were burnt and kept ready for sowing seeds in April 1925.

In the Kannothe range 100 acres were sown with *Hopea* 9 feet apart. The casualties at the end of the year were about 20 per cent. Twenty-three acres in a teak plantation of 1895 were undersown with *Hopea*. Though regeneration was good, the tender seedlings could not resist the heavy drip from teak leaves in the abnormally heavy rains.

An area of 6 acres in 1923 bamboo coupe was sown with *Eriodendron* seed by Kurichiyas along with paddy crop. The result was successful.

Nilambur.—In the Amarampalam range in a locality classed as unfit for teak, *Aiyini* seeds were sown over 40 acres in patches along lines cut 3' wide and 9' apart and another 10 acres were planted with jungle transplants. Germination was good, but the result was not encouraging as the seedlings were damaged by pigs, porcupine, etc., and by heavy rain.

The Nilgiris.—*Hardwood Eucalyptus plantation.*—The plantation at Doddabetta was further extended bringing the total area planted to approximately 100 acres. Four acres in Cairn Hill were replanted with bluegum, 12 acres in Bandyshola of Coonoor, *Acacia* working circle were cleared and replanted with hardwood *Eucalyptus*.

Mudumalai forests.—Regeneration operations over an area of 100 acres of mixed deciduous forests clear-felled were undertaken, 90 acres were planted with teak stumps 15'×15' and 5 acres were sown with Vengai (*Pterocarpus marsupium*) 6'×6' in prepared patches, and similarly rosewood in another 5 acres. The result was unsuccessful partly on account of the unsuitability of the locality, and partly on account of the small stumps used. Casualties were replaced from time to time, and in March 1925 the area was burnt and all teak cut back. This has resulted in a considerable improvement.

Vengai was moderately successful, but the growth is stated to be very slow.

In connection with the fire protection of the Kundahs and restoration of the sholas destroyed by fire, an attempt was made during the year to plant up 16 acres along the stream banks. Seedlings of *Alnus Nepalensis*, *Rhododendron* and *Eucalyptus*, cuttings of willow and kokkil and stumps of *Acacia* were planted and

seeds of *Broom* and *Frenela* were sown. *Alnus* was very promising until the frost in December which killed practically every plant. *Broom* is growing well. Apart from this, the experiment, which is being continued, met with very little success.

Palghat.—The chief item of work in the division relates to regeneration operations in Chenat Nair. An area of 20 acres of plantation was added during the year. In this area, transplanting of *Hopea*, *Dichopsis*, *Mesua* and *Calophyllum* plants was done. *Dichopsis* and *Hopea* have come out successful, but not *Mesua* and *Calophyllum*. Most of the other works done during the year consisted of maintaining the previous year's regeneration areas. A teak nursery was formed at Walayar for stump-planting in the felled coupes of Walayar.

(iv) *Tending*.

47. In *North Mangalore*, 1,861 acres of areas sown with *Hopea* were tended. Similar work was done in *South Mangalore* over some 3,300 acres. In the *Wynaad*, tending and replacing of casualties over 330 acres of teak and *Hopea* plantation were done during the year. *Lantana* was uprooted for a third time in twenty-four plantations. In *Nilambur*, all the plantations were weeded twice in the Amarampalam range, and thrice in the *Nilambur* range. In the *Palghat* division, natural seedlings in part of Chenat Nair were freed and the overhead cover in part of the *Mahogany* areas was removed. In the *Nilgiris*, plantations in the Mudumalai range were weeded and tended and casualties in the areas planted up with *Pinus* and *Eucalyptus* in Snowdon and Doddabetta were replaced.

(v) *General*.

48. *South Mangalore*.—Regeneration of bamboos is reported to be satisfactory.

Wynaad.—The result of sowing of teak in areas clear-felled is not favourable as compared with stump-planting in the same locality.

2. TENDING GROWING STOCK.

49. In *South Mangalore*, improvement works in coupes I and II of Nalkur were continued during the year with a view to help the existing advance growth of *Hopea*, *Artocarpus*, *Poon* and other valuable evergreen species. Similar work is being carried out since January 1922 and by now coupe I has been gone over three times and coupe II twice. Lines already cut 4 feet wide and 16 feet apart were kept cleared of useless growth, weeds and coppice shoots were cut back and seedlings liberated wherever necessary. The area over which improvement works was done is 650 acres in coupe I and 500 acres in coupe II.

Lantana in two of the fuel coupes covering 117 acres was uprooted and burnt or otherwise destroyed.

In the *Wynaad*, thinning was done in old plantations to an extent of 33 acres. It is stated that several old plantations are badly in need of thinning.

In *Nilambur*, thinning was carried out over 629 acres of plantations. Climber-cutting and removal of parasites and *Loranthus* were done in several plantations.

The Nilgiris.—Thinnings were done over 4 acres of the *Eucalyptus Eugenoides* plantation in Ketu, 2 acres of *Cryptomeria Japonica* plantation in Cairn Hill and 10 acres of bluegum plantations in Muthinad and Newman.

Improvement Fellings.

50. *North Mangalore*.—Improvement fellings were carried out over 50 acres in Jarvathu reserve.

Wynaad.—Dead, dying, mature and over-mature trees were cut in sub-coupe D, 300 acres, of Mavinahalla reserve.

CHAPTER IV.—EXPLOITATION.

51. During the year arrangements were made for the supply of sleepers to the South Indian Railway pool, and operations were in progress in *North* and *South Mangalore*, *Wynaad* and the *Nilambur* divisions.

In connection with the above arrangement, a portable saw mill was installed towards the close of the year at Beypore, opportunity being taken at the same time to saw the waste from sleeper cutting into scantlings, reapers, boards, etc.

In addition to the auction sales at Beypore depot, retail sales were reintroduced which are taken advantage of by the public.

Some business with the Madras & Southern Mahratta Railway in the matter of supply of timber to the Engineering and the Loco departments was also effected during the year.

Business in England through Messrs. W. W. Howard Bros. & Co., was continued, and further consignments of *Laurel* and rose-wood were despatched during the year.

(a) SYSTEM OF MANAGEMENT.

(i) *Major Forest Produce*.

52. The following silvicultural systems were in force:—

Clear-felling.—200 acres in the *Wynaad* division, 22 acres in the *Nilgiris*, and 196 acres (natural forests) in the *Nilambur*

division were clear-felled during the year, also final clear-fellings over 65 acres of mature teak plantations were undertaken in the Nilambur division.

Selection fellings.—Selection fellings in connection with regeneration of *Hopea parviflora* were undertaken over 1,032 acres in the North Mangalore division and over 400 acres in the South Mangalore division.

Improvement fellings.—Dead, dying, unsound, mature and over-mature trees of teak over 300 acres were felled in the Wynaad division.

Simple coppice.—This was in vogue in the case of fuel coupes in the North and South Mangalore divisions, the Nilgiris and the Palghat divisions, the area gone over being 1,343 acres.

Unregulated fellings.—This was confined to the extraction of sandalwood in North and South Mangalore and the Nilgiris, the outturn was 48 tons.

(ii) Minor Forest Produce.

53. *Bamboos.*—The right to collect bamboos was leased out to contractors in all divisions except in Nilambur, where bamboos were extracted departmentally for floating timber.

Miscellaneous produce.—Minor forest produce was collected departmentally only in the Mudumalai range of the Nilgiris; elsewhere it was leased out to contractors.

Fodder grass.—This was leased out in the Palghat division. In addition, the Military Grass Farms in Bangalore harvested 36 tons of hay from one of the closed areas in the Palghat range.

Grazing.—This was, as usual, controlled by permits.

The revenue realized from areas under departmental management (i.e., other than those under panchayats) was Rs. 33,415.

(b) AGENCY OF EXPLOITATION.

(i) Departmental Agency.

54. Timber and sandalwood were extracted by departmental agency as also bamboos required for floating timber in the Nilambur division. A combined timber and fuel coupe in the South Mangalore division was also worked departmentally.

(ii) By Purchasers.

55. *Major produce.*—Fuel coupes in North and South Mangalore, the Nilgiris and the Palghat divisions were worked by contractors.

Minor forest produce.—Bamboo coupes in the North Mangalore, Wynaad, the Nilgiris and Palghat divisions were worked through contractors. Permits were also issued departmentally to meet local requirements in North and South Mangalore, the Nilgiris and Wynaad.

Other items of minor forest produce were leased out except in a part of the Nilgiris.

(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.			
		RS.		RS.		RS.	RS.	RS.	RS.
Free grantees ..	11	3,834	1	17	2,060	22	1,297	1,159	6,329
Right-holders ..	19	6,908	..	..	..	..	..	..	6,988
Total ..	30	10,822	1	17	2,060	22	1,297	1,159	13,317

* Represents (excepting for Rs. 8) value of metal, etc., removed by the Public Works and Local Fund Departments.

(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.	
	1923-24.	1924-25.	1923-24.	1924-25.	1923-24.	1924-25.	1923-24.	1924-25.
					RS.	RS.	RS.	RS.
1. By Government agency.	544	675	732	343	34,073	12,929	1,536	2,046
2. By purchasers ..	375	322	3,451	3,040	17,780	13,942	64,941	69,482
3. By free-grantees.	1	11	..	1	2,785	22	1,395	2,456
4. By right-holders	27	19	..	..	..	..	..	..
Total ..	947	1,027	4,183	3,384	54,638	26,893	67,872	73,984

Timber.

56. The increase in the removals by Government agency was due to the increase in the areas clear-felled in the Nilambur and Wynaad divisions.

The decrease in the removals by purchasers was principally due to the fact that the outturn from clear-fellings in Nilambur of previous year's contracts appeared in the last year's account.

The increase in the removals by free-grantees was mostly in the Palghat division representing materials sanctioned for rebuilding houses destroyed in the floods and the timber was mostly palmyra trees.

Fuel.

57. The decrease was in all the divisions (except *Nilambur* and *Wynaad* where there was no fuel-working). The fall was due to small yield from top-ends of timber coupes in the *North Mangalore* division, and to the late working of fuel coupes sold to contractors in *South Mangalore*, the *Nilgiris* and the *Palghat* divisions.

Bamboos.

58. The decrease was due to there being no operations in *North* and *South Mangalore* as in the previous year necessitated by flood relief work and to the non-continuance of departmental fellings of bamboos from Kannothe undertaken as a trial in the previous year.

Grazing.

59. The number of cattle admitted to graze on payment was 121,676 against 142,964 in the previous year. The fall was in the number of slaughter cattle taken to the *Nilgiris* and in the number of cattle brought to the Kulganda cattle fair. The decrease in the former is attributed to floods and that in the latter to a misunderstanding of the date of the fair.

Minor Forest Produce.

60. The increase in minor forest produce is due to the inclusion of the revenue from the sale of Catechu trees in *North Mangalore* under this head, it having been previously included under timber.

CHAPTER V.—FINANCIAL RESULTS.

61. The revenue and expenditure for the year are compared below with those of 1923-24 :—

	1923-24.		1924-25.	
	VI Circle.	Forest Research Office.	VI Circle.	Forest Research Office.
Revenue	Rs. 8,48,160	Rs. 30	Rs. 9,66,037	Rs. 4
Refunds	2,590	..	4,352	..
Net ..	8,45,570	30	9,61,685	4
Expenditure.				
B.—Conservancy and works (including capital outlay).	4,33,025	1,956	5,40,104	2,689
C.—Establishment	4,30,179	23,733	4,67,413	22,329
Total ..	8,63,204	25,689	10,07,517	25,018

62. Compared with 1923-24, the revenue shows an increase of Rs. 1,16,000 and expenditure Rs. 1,44,000—Rs. 1,07,000 under 'Works' and Rs. 37,000 under 'Establishment'.

63. The increase in revenue is made up of Rs. 96,000 under I (a) timber, spread over all the divisions except *Palghat* due to improved sales; I (b) firewood and charcoal, Rs. 24,000 principally in the *Nilgiris* where wood felled in the previous year was sold during the year; I (d) sandalwood, Rs. 44,000 in the *Nilgiris* and *North Mangalore* divisions due to realization of previous year's sale amount in the current year in the case of the former, and in *North Mangalore* due to extraction in Coondapur range, which had to be postponed in the previous year owing to floods; and Rs. 12,000 under II (e) minor produce principally in *North Mangalore* due to the credit of the sale amount of Catechu trees to this head instead of to II (a). Against this increase there was a fall of Rs. 22,000 under II (a) due to there being no realization from the sale of standing timber from areas to be clear-felled in the *Nilambur* division as was the case previously; Rs. 12,000 under II (b) due to poor prices realized for fuel coupes in *North Mangalore* and *Palghat* and of Rs. 25,000 under V due to sale of fewer elephants. The revenue would have been greater had it not been for the reservation of stocks in *Nilambur* for sleeper-supply; also about Rs. 41,000 was realized from Messrs. Howard Bros., England, after the close of the year.

64. The increase in expenditure was mainly due to increased expenditure on works of a capital nature which amounted to Rs. 1,18,000 during the year against Rs. 45,000 in the previous year. There was a large expenditure on buildings—construction of quarters for subordinates, etc., in the *Wynaad* and *Nilambur* divisions; there was also a large expenditure in floating timber in *Nilambur* and in the despatch of timber to England in the *Wynaad* division. The expenditure in *Nilambur* also includes the installation of a portable saw mill.

65. The increase under establishment is due to the inclusion of the charges of the Logging branch in connection with operations in *North Mangalore* and *Nilambur* divisions and to the opening of a vernacular training school in the Circle.

66. The outstandings of revenue at the close of the year was Rs. 85,217 against Rs. 1,22,210 at the end of last year.

67. Of the revenue realized in the year 83 per cent was from major produce, 7 per cent from minor produce, 4 per cent from grazing and 6 per cent from other sources.

68. Of the expenditure 50 per cent was on exploitation, 30 per cent on upkeep and improvement of forests, and 20 per cent on miscellaneous items.

CHAPTER VI.—RESEARCH AND EXPERIMENTS.

69. Sylvicultural research work was in the hands of a Special Officer attached to this Circle, who was after the close of the year, transferred to the control of the Conservator of Forests, Working Plans Circle. The observation areas in this Circle are located in *Palghat*, *Nilambur*, *Wynaad* and the *South Mangalore* divisions. A special report is separately prepared and submitted by him to the Chief Conservator of Forests and to the Forest Research Institute, Dehra Dun.

70. Minor experiments were, as usual, carried out by the District Forest Officers. Briefly these are—

North Mangalore division.—Two acre sample plots were opened in the Baindur reserve for experimenting on *Catechu* (*Acacia sundra*). Both the plots were fenced to keep out cattle, and in one of them seeds were sown in lines 12 feet apart early in July 1924, while in the other no sowings were done. The percentage of success in the case of sowing was about 60, while there were only 28 seedlings in the plot not sown. The inspection of the plots in March 1925 showed that the seedlings in both the plots had attained an average height of 4" but did not look healthy.

The teak stumplings planted in Jattukattumale reserve during the previous year are growing well. Some of the plants are reported to be 18 feet in height.

Wynaad division.—An area of about $10\frac{1}{2}$ acres of old ponam cultivation in the Kannothe reserve containing a growth of inferior species was given for cultivation. With the field crop on definite and separate areas of 1 acre each *Bombax*, *Eriodendron*, *Terminalia paniculata*, *Jack*, *Aiyini*, Rosewood and Castor were sown, and in one patch *Vateria* was planted. One acre was set aside to be sown with *Hopea* in 1925 under the coppice growth. The espacement adopted was 9' × 9'. When the crop was harvested in November the following results were observed:—

Bombax 79 per cent.

Eriodendron 74 per cent.

Terminalia paniculata 25 per cent.

Jack 30 per cent.

Aiyini 54 per cent.

Rosewood 67 per cent.

Vateria 56 per cent.

The object of this experiment is to ascertain which of the above species can be grown with advantage in all the old ponam areas and the evergreen forests of the Kannothe range. It is too early to express an opinion on the experiment and it is necessary to try some more species.

Nilambur division.—In regard to the botanical specimens of the two varieties of rosewood trees flowering during February to April and August and September sent to Dehra Dun last year, with a view to find out the botanical difference between them, the Forest Botanist's reply was that it was very unlikely that any difference would appear in the timber since there was no difference in the botanical specimens. It was stated that the timber specimens had been sent to New York and that it was not known when the reply would be received. As similar specimens sent from Coorg some years ago were identified to be *Dalbergia latifolia* (as flowering in August-September) and as *Dalbergia sissoides* (flowering in February-March), the question is still under investigation.

Six broad-gauge sleepers of *Stereospermum chelonoides* were sent to the Principal, College of Engineering, Guindy, for testing. The results are awaited.

The following experiments were arranged to be carried out in compartment 62 of Edacode 1924 plantation in an area of 3 acres each:—

- (i) Sowing and hand-weeding,
- (ii) Sowing and plough-weeding,
- (iii) Planting and hand-weeding,
- (iv) Planting and plough-weeding, and
- (v) Pitting and sowing.

The espacement was 6' × 6' in all classes. Correct results could not be obtained on account of the heavy floods which partly destroyed the areas.

Seeds of *Helicteres Isora* were sown in compartment 84 to see whether this shrub would keep down weeds. Though the seeds germinated fairly well, the weeds got better of the *Helicteres*.

Sesbania aculeata seed was sown in 3 acres in 1924 plantation in the Amarampalam range to see whether it would keep down weeds in young plantations. The germination was successful, but when the plants reached a height of 1 to $1\frac{1}{2}$ feet they were browsed by sambur, deer and bison. In respect of its reputation for keeping down weeds, it was observed that it does not do so, but in fact it was itself a weed of luxuriant growth which hampered teak.

The Nilgiri division.—Experimental planting of a number of species chiefly *Alder*, *Broom*, *Acacia*, was made on an area of 16 acres along the stream banks near Lakkidi on the Kundahs, with the object of finding out the best way of re-afforesting the

grassy areas where sholas had been killed out by fire. Frost did a great deal of damage killing nearly every *Alder* plant. The results were unsatisfactory.

The survivals of *Pinus khasya* planted in 1922 show good growth, but there are not many of these.

Palghat division.—In October 1924, the Madras Forest College students felled about $\frac{3}{8}$ acre in the Sadivayal forests of Bolampatti range in order to calculate the yield. The yield was 74 pieces of small timber of 113 c. ft. and 456 c. ft. of fuel.

CHAPTER VII.—ADMINISTRATION.

71. Mr. R. D. Richmond, Conservator of Forests, held charge of the Circle throughout the year. The additional ranges sanctioned at the close of the last year in the *South Mangalore* division (Beltangadi range) and in the *Wynaad* division (Sultan's Battery range) were actually constituted during the year on 18th February 1925 and 16th August 1924 as Rangers became available.

Tours.

72. His Excellency the Governor visited the Nilambur teak plantations in October 1924.

Professor E. P. Stebbing visited the Dhoni forests in March 1925.

The Chief Conservator of Forests inspected the regeneration areas in the Jalsur East and Parappa reserves in *South Mangalore*, Boothakal in the *Wynaad* and Sappal in *Palghat*. He also inspected the forests in the Nilambur valley.

The Conservator toured in all the divisions of the Circle spending 183 days in camp and wrote inspection notes in respect of the *Wynaad* and Nilambur forests.

The touring of the District Forest Officers except *North Mangalore* and *Nilambur* fell short of the prescribed minimum. The short touring in *North Mangalore* is attributed to the District Forest Officer's (Mr. G. S. Lasrado) illness during February and March 1925, and that in *Nilambur* to the District Forest Officer's Hill recess (from 6th April 1924 to 2nd May 1924) to the District Forest Officer being held up for twenty days on account of floods and the several changes in the personnel of the District Forest Officer.

Inspection of District Forest and Range Offices.

73. The Conservator inspected all District Forest offices in the Circle, and the District Forest Officers all the Range offices in their divisions.

Besides Forest depots, the timber sale depots at Mangalore, Kasaragod, Beypore, Mysore and Nanjangode and the sandalwood depot at Masinigudi were also inspected by the District Forest Officers.

District Forest Officer's Accounts Inspection.

74. The audit staff attached to the Accountant-General's office inspected the accounts of all the divisions for 1923-24, and the general result was satisfactory.

Vernacular Training School.

75. After an interval of three years since the formation of this Circle, sanction was obtained to conduct a session of the Vernacular Training School. The session was held in the *Nilambur* division from 5th May 1924 to 6th November 1924, with Ranger K. R. Krishnan Nayar as Senior Instructor and Supernumerary Ranger K. Raghavan as Junior Instructor. Thirty students (8 Foresters and 22 Guards) were trained, and all of them were given certificates, 11 in the first class and 19 in the second class. A noteworthy feature was the assistance given by the students in building nine sheds at Karimpuzha and Chanthapura for families rendered destitute by the floods. The health, conduct and discipline of the students were good.

Health of Establishment and Sanitation.

76. The health of the establishment was on the whole fairly good except in the Ghat forests of *North Mangalore*, in Nalkur and Porkala sections of *South Mangalore*, in the *Wynaad*, in the Amarampalam range of the *Nilambur* division, in the low lying areas of the *Nilgiris* and in Chenat Nair, Walayar and Attappadi and Silent Valley reserves of *Palghat* division.

One Forester, 4 Forest Guards, 1 elephant Jamadar and 1 tappal watcher died of fever; one Forest Guard died of phthisis; one mahout died of smallpox.

CHAPTER VIII.—GENERAL.

(i) *Formation and Management of Panchayats.*

(To include the Forest Village System.)

77. The panchayat system was in operation in the *North* and *South Mangalore* and *Palghat* divisions. In *North* and *South Mangalore*, the panchayats are under the forest village system.

In *North Mangalore*, there were in all 7 panchayats in charge of 13 reserves, out of which all but one managed their charge

satisfactorily. In the case of the excepted panchayat in charge of two reserves (Todar and Hosabettu reserves), it has been ordered that separate panchayats should be formed for each of the reserves and that the bad management should be penalized by the withdrawal of the concession of the refund of any portion of the grazing fees.

In his inspection of the Matkalgudde and Mavinakodlu reserves under panchayat management, the Conservator (Mr. Richmond) found that a great deal of the cutting had been done ostensibly in favour of the *Hopea* plants resulting from the broadcast sowings of some dozen years ago and of some natural regeneration of the same kind. It was found that much good has been done to the growth in this way and that there was also demand for firewood from the ryots. It was ordered that the principle of located fellings should be applied to these areas for the people to carry out regular fellings to obtain their requirements for domestic purposes and that the people should in turn sow broadcast an area equal to that cut over. This arrangement was come to with the consent of the president of the panchayat. A working scheme with three felling series in these two reserves has been approved and suitable conditions are to be inserted in the agreement for 1925-26. The result of this scheme will be commented on in the next report.

In *South Mangalore*, the panchayats for the Bellere reserve and a portion of the Porkala reserve continued. The work of the Bellere panchayat was satisfactory, while that of Porkala was not quite satisfactory. The Porkala panchayat has resolved not to continue after 1st July 1925 arguing that all their requirements, viz., manure leaves, dead fuel, etc., can be secured under the concessions granted by the Chief Conservator of Forests, without undertaking the responsibility of protecting the reserve from fire and theft. It is apparent that the refund of half the grazing fee for good protection is not by itself a sufficient inducement to form a panchayat.

In the *Palghat* division, the panchayats of Ettimadai, Madukarai and Sundakamuthur under the control of the Revenue Divisional Officer are not reported to have worked properly. The forest panchayats of the reserves in the Erode taluk continued to be under the control of the Special Forest Panchayat Officer.

(ii) Measures for improving Local Supplies and Facilities.

78. In *North* and *South Mangalore* divisions, the Chief Conservator of Forests was pleased to grant the following concessions to the ryots for a period of one year from 1st August 1924:—

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 green manure leaves of unclassified species and dry leaves of all species and dead fuel.

These concessions are reported to have been availed of freely, and a report on the result of the working of the concessions will be submitted separately.

In *South Mangalore*, timber in the shape of logs and sized scantlings was, as usual, sold at fixed rates at Kasaragod and Mangalore depots and also in the coupes. In the *Nilgiris*, the demand for small timber and bamboos was met by the issue of permits. The removal of branchwood from coupes worked in Ootacamund was permitted at one anna per head-load. In *Palghat*, the demand was met from the coupes under working. In the *Wynaad* and *Nilambur*, no measures were called for owing to the existence of vast extent of private forests and unreserved lands.

No steps for improving the water-supply in grazing grounds are necessary owing to the well-watered nature of the country.

(iii) Timber and Sandalwood Transit Rules.

79. The rules are reported to have worked satisfactorily except in the Bolampatti range of the *Palghat* division, where large quantities of fuel, etc., are removed under cover of patta permits. The Collector of Coimbatore has ordered that all the patta permits should be countersigned by the village munsif.

The revised timber transit rules for the *Palghat* division consequent on the transfer of the Silent Valley reserve from *Nilambur* to *Palghat*, and the transfer of the Mettupalayam range from *Palghat* to *North Coimbatore* will be submitted shortly.

(iv) Jungle Tribes.

80. *Wynaad division*.—The policy of attracting Kurumbers and others to live in the forests and supply labour, by granting them small areas for temporary cultivation, was continued. The people, who were in addition advanced money by the Government free of interest for the purchase of cattle, are reported to have worked satisfactorily and have returned a part of the advance.

The school for Kurumber children sanctioned by Government was started at Muthanga in June 1924. The strength on the roll was 43 boy pupils and 2 girl pupils. There is a full-time teacher now in charge of the school, as the original arrangement under

which the tannahdar was looking after the school was rendered impossible by the transfer of the tannah to Mavinhalla (Iron bridge). The present strength of the school is 38, the reduction being due to the fact that some of the people had left the place.

The progress of the school during the year is stated to be satisfactory. Thirteen pupils were in the first standard, and 25 in the infant standard. The first-standard pupils can read and write and do simple arithmetic. The average attendance is 32 per day.

It is reported that the people have begun to realize the benefit derived by the school and that they take interest in repairing the school building themselves.

The Nilgiri division.—In Sigur range the Kasubas have been encouraged to settle at Anaikatti by giving them plots of land free for cultivation.

Palghat.—There are eighteen mulceer settlements in the Bolampatti and Mannarghat ranges. The lands assigned to these are free of assessment and the mulceers are expected to supply labour to the department.

(v) *Mining and Quarrying*—Nil.

(vi) *Live-stock.*

81. (a) *Elephants.*—The number of elephants at the beginning of the year was 83; 21 were captured and 2 were born, making a total of 106. Of these, 3 were transferred to the *South Coimbatore* division, 11 died and 12 were sold, leaving 80 at the end of the year, valued at Rs. 2,53,200. Of the 11 that died 3 were working elephants.

A sum of Rs. 10,350 was realized by the sale of elephants which were mostly calves and new captures.

82. (b) *Other animals.*—There were 22 bullocks and 45 buffaloes at the beginning of the year. Of these 3 bullocks and 6 buffaloes were sold and 1 bullock and 4 buffaloes were destroyed and 2 buffaloes died, leaving 18 bullocks and 33 buffaloes at the end of the year.

(vii) *Veterinary Establishment.*

83. The Veterinary Assistant at Gudalur was in charge of the animals of the *Nilgiris* and the *Wynaad* and the Veterinary Assistant at Nilambur was in charge of the animals in that division. The work of both these subordinates was supervised by the Inspector of Live-stock who also inspected the elephants in *Kanara*.

(viii) *Civil Suits.*

84. *North Mangalore.*—The civil suit filed last year to recover the loss of Rs. 1,701 from a Nux-vomica contractor was compromised after the close of the year on the contractor paying to Government Rs. 1,000.

South Mangalore.—The appeal in the High Court referred to in the last report is still pending.

In the suit filed by the timber merchant which was decided against the Government, an appeal has been preferred to the District Judge, and the appeal has not yet been taken up.

Wynaad.—The appeal filed by Contractor Venkatarama Chetti in the Chief Court, Mysore, against the decision of the District Court, Mysore, referred to in the last report, has not yet been heard.

Nilambur.—The civil suit in respect of the boundary of Kariem and Muriem blocks in the District Court, South Malabar, having ended in favour of the Tirumalpad, and the amount decreed in his favour having been paid by the department, a notice of suit has been served on the Uralan for the recovery of the amount paid to the Tirumalpad. The Uralan has preferred an appeal to the High Court against the decree of the District Court. The appeal is pending.

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

OOTACAMUND,
12th August 1925.

ADMINISTRATION REPORT OF THE MADRAS FOREST
COLLEGE, COIMBATORE, FOR THE PERIOD FROM
1ST APRIL 1924 TO 31ST MARCH 1925.

CHAPTER I.

CONSTITUTION.

Staff.

Principal.—Mr. W. G. Dyson held charge from 1st April to 18th July 1924, and Mr. C. R. F. Williams 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. C. R. F. Williams	1st April to 18th July 1924. (Vacant from 19th to 22nd July 24).
Mr. J. A. Wilson... ..	23rd July 1924 to 31st March 1925.
Mr. J. E. M. Mitchell	1st April to 25th July 1924.
Mr. R. H. Mitchell	26th July 1924 to 31st March 1925.
<i>Junior Instructors.</i>	
Mr. A. R. Brand	Throughout the year.
Mr. C. M. Kushalappa	Do.

Sub-Assistant Surgeons.—Messrs. P. Krishna Kurup, Krishnan Nair, H. M. Hande and Raju 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. R. H. Mitchell.

Board of Visitors.—Mr. H. Tireman, C.I.E., I.F.S., 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 officer.	Period.
Mr. H. A. Latham	1st April to 23rd November 1924.
Mr. H. F. A. Wood	1st April to 12th October 1924.
Mr. R. D. Richmond	Throughout the year.
Mr. D. T. Barry	Do.
Mr. T. A. Whitehead	Do.
Mr. T. Clear	1st April to 8th June 1924.
	24th June to 27th September 1924.
	24th November 1924 to 31st March 1925.
Mr. C. C. Wilson	28th September 1924 to 31st March 1925.
Mr. A. Wimbush	13th October 1924 to 31st March 1925

CHAPTER II.

INSTRUCTION.

Special lectures.—Two additional and particularly interesting courses of lectures were given during the year. Mr. J. K. Pearce, Logging Engineer with the Government of Madras, very kindly delivered a series of lectures in Logging Engineering which students and staff very much appreciated. Mr. H. P. Ward, Utilization Officer, delivered a series of lectures on 'Utilization'.

1922-24 *Division.*—The Final Examination of the 1922-24 Division was held in June 1924. Twenty-six students appeared for the examination of which 6 were awarded Honours Certificates, 15 Higher Standard Certificates and 5 Lower Standard Certificates. Though the results show a falling off from the standard reached in the previous year, actually the students of this Division were up to the average. Student K. P. Rajalingam, a Ceylon student, was of outstanding ability both in the field and class room.

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.	K. Puspa Rajalingam	Ceylon.
2.	B. H. Ananthathirtha Rao	Third Circle.
3.	S. Rangasawmi Ayyangar	Fourth „
4.	U. Vridhachallam Pillai	Fifth „
5.	Thermalai Krishnamachari	Private student.
6.	K. Dooma Shetty	Sixth Circle.

Rank.	Name of student.	Name of Circle, State or province to which attached.
<i>Madras Ranger Higher Standard.</i>		
7.	A. E. Perera	Ceylon.
8.	H. B. Devulweewa	Do.
9.	Gopal Das Mehta	Central Provinces.
10.	Babu Sarat Chandra Das	Orissa Feudatory States.
11.	Devraj Shukal	Central Provinces.
12.	Bachu Ramadas	Vizianagram State.
13.	Thomas Raja Bushanam	Court of Wards.
14.	Bhaiya Lal Gupta	Central Provinces
15.	Muhammad Mahfuzul Rabim	Do.
16.	Kushiram	Do.
17.	Shiv Ram	Do.
18.	Babu Harish Chandra Sen	Bihar and Orissa.
19.	Lakshmi Narayan Tiwari	Central Provinces.
20.	Karam Chand	Do.
21.	More Ganesh Sirpurkar	Do.

Madras Ranger Lower Standard.

22.	Mohammed Shamsuddin Khan	Hyderabad.
23.	K. Ganapathi Pillai	Ceylon.
24.	A. Jayasundara	Do.
25.	Shyam Sundara Nath Kaul	Central Provinces.
26.	Mohammad Abdul Aziz Khan	Hyderabad.

The Government and other Prizes were awarded as follows :—

(1) The Gold Medal for the best Second year student—K. Puspa Rajalingam.

(2) The Campbell-Walker Prize for the best all-round Ranger—K. Puspa Rajalingam.

(3) The Braizer Prize for the best practical out-door Ranger—K. Puspa Rajalingam.

(4) The Lodge Prize for the best Second year student in Forest Engineering—K. Puspa Rajalingam.

(5) The Madras Conservators' Prize for the best Second year student in Forestry—K. Puspa Rajalingam.

(6) The Indian Forester Prize for the best essay by present students—K. Puspa Rajalingam.

(7) The Chief Conservator's Prize for the best student of the Junior Division—S. Narayanasawmi Ayyar.

(8) The Pentland Shield for the best athlete in the College—Khan Muhammad, a Junior Student.

(9) The Fischer Challenge Cup for the best tennis player in the College—R. D. Phillips, a Junior student.

(10) The Muppil Nair Cup for the Marathon Race—Muhammad Kassim, a Senior student.

Messrs. M. F. Bridge, J. D. Connolly, Captain H. A. Irwin, J. K. Pearce, G. C. Robinson, J. W. K. Wernham, W. C. Hart

and Syed Abdul Qadir Sahib conducted the Final Examinations in June 1924. The papers set this year were of a more practical nature than usual. The result of this as might have been expected from previous years' reports was that the percentage of marks obtained in the Final Examination was slightly lower than in the previous year.

1923-25 *Division*.—The 1923-25 Division, the present Senior year, with one or two exceptions shewed very fair promise.

Of the 27 students of this Division who began the course, one, a private student, left the College within a few days of his arrival as he could not meet the expenses of the College; while a Central Provinces student was expelled from the College for tampering with his Second Periodical Examination answer paper.

The Final Examination in Physical Science was held in June 1924 with satisfactory results.

First Aid Examination.—Twenty-five students were examined in First Aid by a Medical Officer of the Government Hospital, Coimbatore, and all but three students gained the Saint John's Ambulance Proficiency Certificate.

1924-26 *Division*.—The 1924-26 Division, the present Junior year, is on the whole doing fairly well. Thirty-one students began the course, one of whom, a Muhammadan student from Hyderabad State, died quite suddenly from the effects of diabetes. He was found unconscious in his room one morning, and although immediately taken down to hospital by car, died the same day without recovering consciousness. A second student from the Central Provinces was sent down during the year as having insufficient education to follow the course.

2. *Periodical Examinations*.—The Periodical Examinations held during the year show that the 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:—

(a) Seedlings of the following species were planted in felled coupes:—

Cassia Siamia	Peltoforum ferruginum
Tamarind	Albizzia lebbek.
Pithecolobium Saman	

About 40 per cent survived the hot weather.

(b) *Planting out of young sandal plants in groups*.—The extremely healthy appearance of the sandal already planted out has made it desirable to increase planting under this head. An experiment in sandal germination conducted at the College showed practically no germination in black cotton soil.

(c) An attempt was made to introduce *Eucalyptus teretecornis*, but the seed was not good and the results were nil. A further supply of seed was received free from Australia and has been germinated.

(d) A number of species were germinated in seed beds in the nursery largely for instructional purposes. Among these were the Nilgiri acacias and *Eucalyptus globulus*, but the seedlings died soon after germination.

(e) *Dendrocalamus strictus* and *Bambusa* seed was obtained from various districts and a number of areas have been successfully carpeted with seedlings.

(f) Coupe 5 was felled and the fuel obtained was sold.

4. *Prize giving*.—On 28th June 1924 the usual Annual Prize giving was held at the College. The Hon'ble Sir Arthur Knapp, Member of Council, presided, and Lady Knapp very kindly presented the prizes and certificates.

The usual Garden Party in the College grounds followed.

CHAPTER III.

ADMINISTRATION, TOURING, HEALTH AND CONDUCT.

Administration.

1. *Board of Visitors' meeting*.—The Board of Visitors held their Annual Meeting at the College on the 26th June 1924.

Among the various points of College administration discussed were—

(1) *Dhoni Camp*.—The Principal reported that after a visit to Coorg he had come to the conclusion that any advantage which Coorg may possess as a camp for the students of the Madras Forest College is more than counterbalanced by the expense and difficulty of getting there, and recommended that the Sappal camp should be retained. This was approved by the Board.

(2) *Nilambur-Nedungayam Camp*.—The Principal's proposal to camp at Nedungayam during the whole period of the visit to the Nilambur division was accepted with the proviso that a minimum of six days should be spent in the older plantations near Nilambur.

(3) *Komattiyeri Camp*.—It was proposed that the Komattiyeri camp, being very distant and therefore very expensive, should

be abandoned, and that a combined camp at Sadivayal (Bolampatti) should be substituted. The proposal was accepted.

(4) *Campbell-Walker and Brazier Prizes*.—The Board resolved that the Campbell-Walker Prize should be granted (as was the case originally) to the best student in Forestry (i.e., Sylviculture, Working Plans, and Utilization) in the Final Examinations. In consequence it was agreed that the Conservators' Prize should be given in future to the best student in Survey and Drawing.

(5) *Concession to Honours and Higher Standard men*.—The Board resolved that it is advisable to continue the existing practice under which Honours and Higher Standard men obtain advantages in promotion. It was further resolved that Honours Certificates should be granted only in cases of very exceptional merit and on the advice of the Board of Visitors to those who obtain pass marks in the major subjects and not less than 80 per cent of the total number of marks. It was decided that this amended rule should apply to those who enter the College in and after 1925.

2. *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. 11,839 only, as against Rs. 63,562 of the previous year.

There were eight Madras students under training at the College, which makes the cost to Government per student Rs. 1,480, as against Rs. 7,945 the previous year. Students from outside Provinces pay Rs. 1,500 per annum tuition fees, and stipends and travelling allowance make up a further Rs. 1,000 per annum. It will be seen that if these figures were applied to the Madras students, the College would show a profit of Rs. 12,000 for the year under report, which is a very satisfactory condition indeed.

This is accounted for mainly by—

- (1) Increase of the number of students admitted.
- (2) Decrease in expenditure due to—

(a) Posting of Junior Officers to the College and consequent great reduction in pay and travelling allowance; and

(b) Curtailment of expenditure under various heads.

3. *Touring*.—The camping during the year under review was in accordance with the sanctioned programme—vide details below.

1922-24 Division.

April and May 1924, Arambyskola.—This was the last camp of the 1922-24 Division and as far as possible examples were discussed bearing on the whole two years' course. A road through Governor's Shola was aligned and an estimate for the work of construction prepared.

Statistics were collected and a simple working scheme drawn up. Practical Examinations in Survey, Botany and Sylviculture were held.

1923-25 Division.

April and May 1924, Bandyshola, Coonoor.—The Engineering work consisted mostly of Survey—coupes, reserve boundary and a forest road. An estimate for road repairs was prepared for Gass Road.

In Sylviculture the growth and yield of Eucalyptus was studied in detail, and also the manufacture of charcoal, and preparation of Eucalyptus oil was observed.

September and October 1924, Sadivayal.—The Division spent a considerable time stock-mapping the Vellapathi block, estimating the yield by sample plots and preparing a detailed reconnaissance report.

Under the Engineering Instructor they prepared a road estimate for the Bolampatti-Muthikulam road and actually carried out a little of the work. They also did a certain amount of survey through uncleared jungle.

November and December 1924, Nilambur and Nedungayam.—The construction of the new buildings at Karulai and Nilambur were made the most of, and the students were able to study building construction practically.

In Sylviculture, teak was studied in detail, and by the courtesy of the officers engaged in thinning a good deal of practice in this most important branch was obtained.

The principles of mensuration and enumeration were studied practically.

The students visited the Beypore Depot and Saw Mill.

January and February 1925, Dhoni.—This camp as usual was very interesting and instructive.

The method of mapping and stock-mapping with the Trailer Tape and Abney level was practised.

The Forest Exploitation Officer very kindly gave a good deal of time to the students explaining drag paths and slides, road construction and saw-sharpening. They also saw the mechanical haulage apparatus in action.

The Forest Exploitation Officer took the students round the various experimental plots and gave brief notes on their objects.

Inspection of natural and artificial regeneration took up a large part of the time.

The students inspected the new Saw Mill at Olavakkot.

1924-26 Division.

September and October 1924, Sadivayal.—The new juniors camped as usual at Sadivayal in September and October, where they were taught and shown the elementary rules of Forestry. They enumerated and stock-mapped an area, and did a certain amount of survey.

November and December 1924, Topslip.—During these months the Junior division camped in Tunacalavu range.

All the operations necessary for the regeneration of teak by dibbling were studied in detail. A 90-acre plot in Karianshola was enumerated, and the possibilities of methods of working and regeneration discussed.

The construction of the new Ghat road and the construction and working of the tram-line were studied. Part of the work of reconstruction of a suspension bridge between 1920 and 1922 regeneration areas was undertaken.

Shola species were identified and discussed.

January and February 1925, Kargudi.—At Kargudi some little time was spent in early burning, in which the students took part. Elephant capturing operations were also taken part in, there being a large number of falls during this camp.

Sandal was seen at Masinugoodi, and the teak nursery and planting operations were inspected and discussed.

The students laid out a line of levels for water-supply and aligned a road.

4. *Tour journals.*—A record of all work done in camp is maintained in the form of Tour Journals, and District Forest Officers are informed of any work carried out by the students which it is considered might be of use or interest to the district.

5. *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 everywhere, Dhoni must be specially mentioned for the amount of time that was devoted to us by the various officers.

6. *Inspections.*—The students were inspected in camp in the Nilgiris by the Chief Conservator of Forests.

7. *Swimming.*—During the Nilambur and Kargudi camps the students of both the divisions respectively were taught to swim.

Of the 1923-25 Division all but two had learnt to swim by the end of the Nedungayam camp.

8. *Health.*—The health of the Junior division at the beginning of the year was not good. The death of a Muhammadan student deputed by the Hyderabad State was followed by two other cases of serious illness, which had to be treated in hospital for some time. Fortunately both recovered, although one student was compelled to take three months' leave to recuperate. With these exceptions, the general health of both divisions both in headquarters and in camp has been good during the year.

There is no doubt that the students' general health improves considerably during their stay at the College. Regular work, regular exercise and constant medical supervision has a marked effect upon them.

9. *Conduct and discipline.*—The discipline at the College was, during the year, satisfactory. One Central Provinces student, S. R. Bali, was dismissed from the College in June 1924 for tampering with his examination answer papers after they had been sent in. No other cases of serious breach of discipline occurred, and the conduct of the students on the whole 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.

Public interest is maintained in the Museum and valuable contributions are continually received. The Museum was visited by Professor E. P. Stebbing, of the University of Edinburgh, who offered valuable suggestions for its improvement.

During the year, about a hundred selected botanical specimens were exhibited in glazed frames, showing the characteristic morphological features of the more important forest trees, with short notes, and floral diagrams.

Seedlings of four species of silvicultural interest were exhibited showing different stages of germination. Descriptive labels giving useful information were prepared for some of the exhibits of minor forest produce.

That the Museum continues to afford instruction and interest to visitors is shown by their increase in number from 22,934 to 24,495.

A few lectures were given by the Curator to the Senior students of the College on timber identification and Systematic Botany.

2. *General Library*.—Including periodicals 252 books were added to the General Library.

CHAPTER V.

SUPERVISION, WATER-SUPPLY, ROADS, BUILDINGS, ETC.

1. *Supervision*.—Mr. A. Marudachalam Pillai continued as Overseer throughout the year.

2. *Office establishment*.—The office establishment worked well during the year and the Auditor's inspection shows the accounts to be in a very satisfactory state.

3. *Water-supply*.—The new pump continued to give trouble during the year at intervals, and a sum of Rs. 494-9-6 was spent on repairs.

4. *Roads*.—The relay of roads in front of and around the Museum was not taken up during the year for want of funds.

All the existing roads have been kept in repair.

5. *Buildings*.—Necessary repairs to the hostels and other buildings under the control of the Principal were executed during the year.

Rupees 399 was spent for construction of Instructors' sheds at Topslip.

6. *Athletic ground*.—During the year Rs. 251 was spent upon repairs to tennis courts, hockey and football grounds.

CHAPTER VI.

GENERAL.

1. *Stock-taking*.—The stock of the College was checked in detail in July 1924 by the staff of the College and the articles missing or unserviceable were written off under proper sanction.

2. *Athletics*.—The Athletic Sports were held on 6th September 1924; the College record for the 100 yards was reduced to 11 seconds by Khan Muhammad.

The mile and half-mile also provided exciting finishes.

The Richmond Cup was won by Lagu with 18½ points, the runner-up, Khan Muhammad, scoring 16 points. Both students did extremely well.

The Inter-division football Match in June 1924 resulted in a draw.

The Cowley-Brown Challenge Cup for the Inter-divisional Hockey Match was won by the 1922-24 Division.

The Marathon Race was held on 28th September 1924 at Sadiyaval in Bolampatti range. It was won by Muhammad Kasim of the Senior division in 37 minutes and he thereby carried off the Cup presented by M.R.Ry. K. Rama Raja Mannarghat Moopil Nayar Avargal.

The Inter-divisional Challenge Cup presented by the late Risaldar Major Amir Muhammad Khan Sahib for this race was won very easily by the 1923-25 division who scored 62 points against 16. The Junior students on the whole put up a very poor show only securing three low places in the first twelve home.

The Pentland Shield for the best all-round athlete in the College, awarded in June 1924, was won by Khan Muhammad of the 1923-25 Division.

The Fischer Cup for tennis was won by R. D. Phillips of the 1923-25 Division.

The cricket team this year was not so strong as during the previous two seasons and the College did not win the Shield. The team put up several very exciting and sporting matches; especially against the Gynkhana, the winners of the Shield.

At the Grigg Sports the College was particularly successful, winning all the four open events and securing in addition one second and one-third place; thus very easily winning the cup offered for institutions taking part in the open events.

The Hockey Team managed to get into the second round of the Hockey Tournament, winning the first Match against the Reserve Police fairly easily. Again as last year Stanes School proved too good.

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. J. E. M. Mitchell	1st April to 22nd July 1924.
Mr. J. A. Wilson	23rd July 1924 to 31st March 1925.

COIMBATORE,
25th August 1925.

C. R. F. WILLIAMS,
Principal, Madras Forest College,
Coimbatore.

Statement I—Showing the revenue and expenditure of the Madras Forest College, Coimbatore, during 1924-25.

Budget head.	Amount. RS.
Receipts—	
I (a) Timber	749
(b) Firewood and charcoal	311
II (a) Grazing and fodder grass	303
V (a) Fines and forfeitures	1
(b) Other sources	75,049 *
Total receipts ...	76,413

Expenditure—

<i>B. Conservancy and works.</i>	
B VI (c) Stores, tools and plant	3,738
VII (a) Roads and bridges	1,593
(b) Buildings	2,845 †
(c) Other works	289
B VIII (c) Sowing and planting	2,528
IX (c) Other charges	603
Total B ...	11,896

C. Establishment and contingencies.

C I (b) Pay of officers appointed by the Secretary of State	25,065
II Pay of officers appointed in India	17,595
III (a) Pay of Subordinate Forest and Depot Establishment	8,035
(b) Pay of Office Establishment	8,964
C IV (a) 2. Travelling allowance of Superior Officers.	4,853
(a) 3. Do. of Subordinate Forest and Depot Establishment	2,545
(a) 4. Do. of Office Establishment	1,090
IV (b) 1. Fixed travelling allowance and conveyance allowance	7
(c) Honoraria	855
C V (b) 1. Rates and taxes	66 ‡
(b) 2. Pay of menials	2,811
(b) 4 Other charges	6,320
Total C ...	78,206
Total B and C ...	90,102

* Includes Rs. 150 realized by the District Forest Officer, South Vellore, by sale of sheds at Komattiyeri.

† Includes Rs. 1,924 spent for camp sheds.

‡ Includes Rs. 55 spent by the District Forest Officer, Nilgiris, for the sheds at Ootacamund.

Budget head.	Amount. RS.
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Deduct—

- (1) Revenue Rs. 76,413.
(2) Expenditure on Museum as follows:—

	RS.	RS.	
Pay of Curator ...	1,298	...	
Pay of Museum watchmen and sundry expenses ...	552	1,850	78,263
Net cost of the College ...			11,839

(Cost of training eight Madras students not taken into account.)

N.B.—The Accountant-General, Madras, in his Summary of Final figures for March 1925 has included Rs. 125 [(Rs. 100 under Travelling allowance of officers plus Rs. 30 Travelling allowance of subordinate establishment — Rs. 5 under C. V b 4 (contingencies)]. As it is not known how these figures were arrived at they have been excluded in the statement and the Accountant-General has been addressed in the matter.

Statement II—Madras Forest College, Coimbatore,
1924-26 division.

Serial number and name of student.	Circle or State to which attached.
1. Vydaynathan	I Circle.
2. V. N. Leapingwell	II Circle.
3. K. P. S. Narayana Ayyar	IV Circle.
4. S. V. Ayyar	VI Circle.
5. K. B. Jape	Central Provinces.
6. Muhammad Firoz	Do.
7. Gurdass Singh	Do.
8. K. Y. Rao	Do.
9. A. C. Sarawate	Do.
10. R. L. Yado	Do.
11. M. K. L. Mohan	Do.
12. A. Jabbar Khan	Do.
13. Harcharan Singh	Do.
14. Muhammad W. K. Kokar	Do.
15. Abdul Syed	Do.
16. H. P. Verma	Do.
17. Waliti Ram	Do.
18. N. G. Savant	Bombay.
19. L. G. Lagu	Do.
20. K. M. Verghis	Do.
21. S. A. J. Quraeshi	Do.
22. P. A. Desai	Do.
23. N. V. Divekar	Do.
24. S. A. A. Shaik	Do.
25. B. R. Avatar Singh	Bihar and Orissa.
26. M. S. Abdulla	Do.
27. Muhammad Oosman	Hyderabad.
28. L. L. Saha	Nilgiri State.
29. A. B. Mutunayagam	Private.

APPENDIX I.

Abstract showing the live-stock, stores, tools, etc., in the Madras Forest College, Coimbatore, for the year ending 31st March 1925.

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.							
		RS.	A.	P.		RS.	A.	P.		RS.	A.	P.
Survey and other instruments.	1,830	5,707	2	9	1,828	5,491	14	6	..	215	4	3
Tools	874	1,184	1	4	870	900	14	0	..	283	8	4
Furniture	1,699	22,013	14	3	1,697	20,832	14	11	..	1,120	15	4
Tents	79	1,854	8	0	77	2	11	6	..	1,851	12	6
Uniforms	65	163	10	4	65	159	9	2	..	4	1	2
Scientific apparatus ..	1,371	820	1	2	1,352	228	10	3	..	91	6	11
Photographic apparatus.	19	302	3	1	19	260	6	0	..	41	13	1
Gymnasium	9	328	2	4	9	307	1	6	..	19	0	10
Machinery (oil-engine, etc.).	2	2,208	11	6	2	2,089	1	0	..	119	10	6
Miscellaneous articles..	1,148	2,079	14	7	1,186	2,104	18	5	24 14 10	..	..	..
Total ..	7,091	36,160	5	4	7,056	32,438	0	7	24 14 10	3,747	3	11

* Will be given actual value this year ;

† Rs. 305-0-6 value of clothes issued.

ANNUAL REPORT ON THE WORK ACCOMPLISHED BY THE FOREST ENGINEERING BRANCH DURING THE OFFICIAL YEAR 1924-25.

The original intention had been to submit a report for the official year based on the form submitted annually by conservators, but on reviewing the material to be submitted it was decided to continue as last year a more or less informal account of the work accomplished. In the first place, the work of the Forest Engineering Branch varies largely from month to month and can follow no set programme except as applying to the Chenat Nayar Exploitation division and to large projects requiring several years to complete such as those under way at Papanasam and Someshwar. Much of the work is of a consulting nature, and during the past year a large part of the time was taken up in organization. Again, being new work it is not generally understood by those not familiar with the day-to-day details, and it is thought that a report on more or less narrative lines will be more widely read and will give a better idea of what is being done than one based almost entirely on statistics.

2. The various activities of the branch will be taken up in the same order as presented last year with the addition of new projects undertaken. Separate reports by the Forest Utilization Officer and the Logging Engineer will be included in order to give in greater detail the accomplishments of their departments.

3. An idea of the development of the work may be had from the increase in the organization. At the beginning of the year the headquarters staff consisted of the Chief Forest Engineer, the Logging Engineer and the Forest Utilization Officer, assisted by Mr. Irwin, Forest Engineer, who had charge of the Chenat Nayar Exploitation division.

The nucleus of the head office staff had been secured, and the Logging Engineer had made a start at training men for his mapping and survey operations.

At the close of the year the Forest Engineering Branch was employing 13 gazetted officers, 22 Forest Rangers, 32 Foresters, and 9 Forest Guards.

Mr. Wernham, Forest Utilization Officer, was deputed for special training to England, the United States, the Philippines and Borneo on 16th July 1924, and his work was taken over by Mr. Ward, Assistant Forest Utilization Officer.

Mr. Bridge came to Madras as Forest Economist on 8th July 1924 and was deputed for special training at Dehra Dun on 1st March 1925, his duties being taken over by Mr. Coode, who was assigned to the Forest Engineering Branch in December 1924 for special training.

Major W. F. Chipp joined the Exploitation division on 26th April 1924 and later took charge of the division from Mr. Irwin, who was placed in charge of roads and buildings and general forest engineering work in the Presidency.

That the amount of work to be accomplished fully justified this large increase in staff will be realized on a perusal of the report.

4. The principal activities of the branch during the year were as follows:—

I. CHENAI NAYAR EXPLOITATION DIVISION.

(a) Logging and extraction of fuel.

5. The entire operation has been systematized and costs have been reduced to a point where the products can be marketed competitively either in the log or as sawn products from the Olavakkot mill. Fuel is now being extracted and sold at a small profit, the amount gotten out being limited only by the transport facilities available. The removal of this fuel incidentally is a direct help to the regeneration operations and cheapens to some extent the extraction of logs by clearing away undergrowth at no cost to the logging operation.

Logs can now be placed on the Madras market at a rate which allows us to compete with Andaman timbers.

6. The reduction in logging costs can best be seen from a summary of the monthly cost and production statements for 1923-24 and 1924-25.

Month.	Outturn.		Cost.	
	1923-1924.	1924-1925.	1923-1924.	1924-1925.
	C.F.T.	C.F.T.	RS. A. P.	RS. A. P.
April	1,933	13,877	5 2 5	1 4 8
May	7,118	12,164	2 2 7	1 6 4
June	4,729	2,389	2 15 9	3 14 7
July	941	1,729	8 9 6	4 6 0
August	Nil.	* Nil.	..	..
September	966	* Nil.	10 11 2	..
October	2,607	3,605	4 14 1	2 9 1
November	4,179	16,194	8 2 1	0 15 9
December	6,381	16,782	2 1 9	0 14 11
January	4,309	14,391	2 13 3	0 14 1
February	12,159	9,571	1 11 8	0 15 7
March	16,088	9,107	1 6 3	1 0 9
Total	62,313	98,760	..	..
Average per month ..	11 months 5,665	10 months 9,876	4 2 5	1 13 4

* Unit working at Mount Stuart.

7. The Chief Forest Engineer had predicted that the cost of logging could be reduced to Re. 1 per c. ft. for logs delivered to the mill at Olavakkot, and from the monthly statements it can be seen that this was accomplished during the last five months of the year. As we build up markets and are able to increase production, the costs will be further reduced as they now depend largely on volume of outturn.

8. Our production is now hampered somewhat by lack of carts as the very steep road leading to Sappal makes carting both difficult and dangerous. Nor can we successfully use mechanical transport over this road. As soon as the operations in Sappal valley are completed and are shifted to the Elival valley where the outlet road will be fairly level, it should be comparatively easy to secure carts, and we will also be able to add a unit of mechanical transport, which can carry the very large size logs, which now have to be cut up by hand in the jungle.

(b) Olavakkot Saw Mill.

9. Due to some of the heavy machinery from England being months late in delivery, the saw mill was not ready for operation until the last of the year; hence no commercial results could be obtained. What sawing was done was for departmental use in the mill buildings.

10. From extended surveys and enumerations carried out by the Logging Engineer, we have established the fact that there is sufficient timber tributary to the saw mill to keep it supplied with timber for at least 20 to 25 years, which would cover the ordinary life of the machinery. This will fully justify the investment being made in buildings and plant as the operation will continue long enough to write off the entire value.

11. The main problems now to be solved are the increase of production by the mill and the development of markets to absorb the outturn. At the present time, the mill is busy with orders, not all of which will be immediately profitable, as we must accept orders to start with at the current market rates paid for inferior products. Consumers cannot be expected to pay higher rates until they have satisfied themselves through actual use of our products that they represent greater value. Also as the mill becomes booked up with orders, we can accept the more profitable ones only. The eventual success of the venture will have to be judged from now on by a monthly increase in income.

12. We have many problems to solve in the way of learning how to handle new timbers, what uses they are best adapted for, and in training our men in making the various products. For the first year or so much of the work must necessarily be of an experimental nature and experiments are costly. It must be kept in mind that thousands spent now in demonstrating the usefulness of some of these new timbers will be returned many times over in future years, when these same timbers will be made a source of profit from the thousands of acres of similar forest now lying idle.

(c) Mount Stuart logging.

13. During July and August the entire logging plant was moved to Mount Stuart in order to see whether it would pay us to keep it occupied there during the monsoon months when work at Sappal was not practicable. We also wished to learn whether this type of machinery was adaptable to Mount Stuart conditions.

The result of the experiment showed—

(1) That it will not pay to move heavy machinery and equipment long distances for short periods of work.

(2) That a saving in the cost of operations at Mount Stuart of Rs. 4,000 per annum could be made by the use of saws for felling and cross-cutting.

(3) That we can devise a system of working at Mount Stuart combining animal dragging and the limited use of machinery, which will be economical and more suited to some of the localities there than is the present method of working.

(4) The net cost of this experiment to the department was Rs. 520 as shown in the Chief Forest Engineer's report of 8th November 1924.

II. TINNEVELLY EVERGREEN FORESTS.

14. A great deal of work has been carried out in these forests during the year as will be seen from the Logging Engineer's report.

To summarize—

(a) 2,500 acres of timber forests have been enumerated.

(b) 22 miles of metre gauge railway have been surveyed and estimates are in course of preparation.

(c) About 12 miles of flume have been surveyed with estimates under preparation.

(d) Paper has been made from the bamboo cut from sample plots in the area and a report on it submitted by the Deputy Controller of Stationery, which gives a very satisfactory forecast of its value. It is a very high-grade paper being free from specks and of a very tough texture which promises good wearing qualities.

The work remaining to be done in this area before a complete scheme can be outlined is as follows:—

(a) Government's attitude towards the Public Works department hydro-electric-irrigation scheme must be determined before we can select definite locations for the proposed plants.

(b) The bamboo areas must be checked definitely by survey so that we can know exactly what areas of raw materials are available.

(c) Further experiments must be made in connexion with the regeneration of the Eta bamboo.

(d) Flume surveys must be extended.

(e) Final estimates must be worked out for all works to be undertaken.

The scheme can hardly be ready to present to Government before October 1926.

III. MOUNT STUART ROADS AND BUILDINGS.

15. The Mount Stuart Ghat Road was completed during the year and opened to traffic. The season's supply of logs from the forest coupes was taken out over the new road at a reduction in carting rates.

The exceptional monsoon storms of 1924 caused much damage to the road however and cost the department about Rs. 16,000 for repairs. Also the opening of the road to heavy log traffic before it could be properly consolidated caused the road surface to be cut severely.

Surveys were completed for an extension of the road into the timber coupes on a less expensive scale, the extension being authorized by Government in the 1925-26 budget.

The plans for a forest station at Topslip were also accepted by Government, and work is now proceeding in the erection of buildings.

IV. THE LOGGING ENGINEER.

16. As Mr. Pearce's work has been of such importance and is proceeding under methods new to India, his entire report is submitted as it is thought it will be of general interest.

Preface.—The Logging Engineering division was organized in October 1923 on the arrival of the Logging Engineer, Mr. J. Kenneth Pearce, from America. The ensuing six months (which are covered in detail in the report of the Forest Engineering Branch for the official year 1923-24) were occupied mainly in reorganizing the Chenai Nayar Exploitation operation, and planning the future logging work. The Logging Engineer rigged the first high lead logging setting with haul-back in South India and trained the operating crew, and assisted the Forest Exploitation Officer-in-charge in the installation of Tractor-trailer-pole roads and other systems which were successful in increasing output and reducing the cost of production. A saw mill and box factory was designed for Olavakkot and the mill site surveyed. Instruction of men posted to the Logging Engineer in forest engineering methods entirely new to India; surveys for wire ropeways and other miscellaneous works occupied much of the Logging Engineer's time.

"It seems advisable, as an introduction, to give the reader of this review some idea of what this newest of the forest and engineering professions which we call 'Logging engineering' really means. Following are extracts from a lecture delivered before the students of the Madras Forest College by Mr. Pearce (published in full in issue of the Madras Forest College Magazine):—

"From an economical and practical viewpoint, 'engineering' may be defined as the science of expending a rupee so as to bring the greatest returns, that is make a rupee earn the most interest. Logging Engineering then, makes the logging rupee, or in a broader sense, the forest rupee, bring the greatest returns. My subsequent remarks will I hope make this clear to you.

"With the logging off of easily accessible timber, on plains and foot-hills, forest exploitation operations have been pushed back into the mountains. Topographical difficulties had to be overcome by inventing new mechanical logging methods which made the logging game highly technical. Costly mistakes in laying out road or other transport systems have taught the necessity of planning out operations far ahead of actual logging so that mistakes might be anticipated and avoided and the whole operation more efficiently arranged.

"The most efficient harvesting of a forest crop requires also a knowledge of trees, their characteristics, habits, state of health, maturity, etc. The perpetuity of the forest crop must be borne in mind—necessitating a knowledge of silviculture and forest management.

"Thus we see how the demand arose for men with a knowledge of and training in forestry, engineering and technical logging.

"The profession of Logging Engineering was definitely established in 1912.

"Briefly the training of a logging engineer to-day includes (1) forestry in all its phases, (2) the basic principles of physical science—which includes something of civil, mechanical, electrical and hydraulic engineering, (3) all technical logging methods and systems, and (4) cost accounts. This training is required in order that the Logging Engineer may (1) conduct forest reconnaissance, (2) make timber enumerations or cruises and topographic maps, (3) determine the logging method best suited to the conditions, (4) make working and operation plans, (5) survey

transport roads and operation layouts, (6) determine water-supply, power transmission, etc., and (7) provide for the sustained yield of the forest, acting as the liaison officer between the exploitation on the one hand and the regeneration on the other.

"The actual felling, yarding and transportation of logs he leaves to others, apart from advising them on technical problems, while he goes on planning ahead for the most efficient operation, to get the greatest returns from the forest capital as well as money capital invested, thus fulfilling my definition of Forest Engineering'.

"*Sappal project*.—The 1st April 1924 found the reorganized Chenat Nayar Exploitation operation running satisfactorily in Dhoni valley; the designs and surveys for the Olavakkot Saw mill made; the Mount Stuart monsoon operation map and plan finished, and other work undertaken by the Logging Engineer during the previous six months completed.

"With the extension of logging operations into Sappal valley imminent, it was necessary to obtain a cruise or enumeration of the stand of timber, and to determine the most economical means of extraction. To do this in country of extremely rough and broken topography necessitates a large scale, accurate topographic map showing many details omitted in the ordinary small scale Forest maps available. Accordingly the Sappal Project was begun by the Logging Engineer in April with the assistance of an Assistant Conservator and 3 Rangers. A theodolite traverse baseline was run up the centre of Sappal valley, and elevations obtained with a dumpy level. Mapping strips were run from the baseline up to the timberline, offset 4 chains and back down, tying into the baseline again. Instruments used were the Topographic Trailer Tape, Improved Abney Level and U. S. Forest Service Type Compass. This system, first introduced in India by the Logging Engineer, and modified by him to suit local conditions, permits every detail of topography to be sketched on the ground. For the Sappal map the Topographer sketched in the contours for two chains on each side of his strip line. He was followed by a Cruiser who, using the same compass line, enumerated all the timber for a chain on each side of him, tallying middle diameters and merchantable heights. When 5 chains were covered the Cruiser was so informed by the Topographer, and he started a new cruise sheet. Thus the stand of timber on each acre and the location of that acre on the map is known. Since the strip mapped was twice the width of the strip cruised, a 50 per cent enumeration was obtained.

"The Sappal project continued through April and was completed in May. A number of changes in the staff were made, an Extra Assistant Conservator, Mr. B. A. Cariappa, being substituted for the Assistant Conservator, and a head surveyor, Mr. K. N. Achuthan who was an experienced transitman, being obtained from the Survey department in May. C. B. Pemmaia who had considerable experience scaling after the fallers and buckers in Chenat Nayar, was engaged as a Forester and taught cruising, at which he has become very proficient.

"During May the Logging Engineer, assisted by a portion of the crew, made a survey of the Beypore Forest Depot, Malabar, and worked out a log storage scheme which will enable the logs to be economically stored on land under shade, with a capital expenditure of only Rs. 15,000.

"Sales made indicate that an average increase in price of Re. 0-4-0 per c. ft. may be obtained for such shade stored logs as compared with those left in the water and mud exposed to the action of sun and teredos.

"The survey for a telephone line from the Olavakkot mill site to Sappal bungalow and thence to Naickampara in Dhoni valley was also made during May.

"In June the Sappal map was compiled, and operation plan prepared, and the alignment surveyed and location stakes set for the main transport (cart) roads. Having an accurate large scale map it was possible to lay out a road system so that the logs could be yarded direct to a cart-road and loaded on carts at the spar tree, eliminating slides and drag-paths.

"In addition to directing the above work the Logging Engineer lectured to the students at the Madras Forest College, Coimbatore, conducted the final examinations in surveying, and addressed the Forest Conference at which the Sappal and Mount Stuart topographic and cover maps were exhibited.

"As no volume tables for the evergreen species were in existence, in order that the cruise data could be converted into cubic feet, a method was devised by the

Logging Engineer, and volume tables, based on measurements of felled and bucked trees, were compiled. Poon, Mesua, Cullenia, Dichopsis, Venteak and Eugenia were among the important species for which volume tables were prepared.

"This involved a very large amount of work.

"The cost of Logging Engineer's staff during April, May and June totalled as follows:—Pay (Officers and Subordinates) Rs. 1,450; allowances Rs. 555; coolie labour Rs. 356. 2½ miles of baseline were run, 508 acres mapped and 442 acres cruised in Sappal valley, all computations and calculations completed and maps and cover maps drawn; 2 miles of logging road located; and the telephone line and Beypore Depot surveyed; and volume tables for the evergreen species compiled. It must be remembered that this was all entirely new work to the men necessitating their spending a considerable amount of the time in receiving instruction from the Logging Engineer."

"*Papanasam project*.—The entire party was transferred to Tinnevely district in July, and the Papanasam Forest project carried on under the personal supervision of the Logging Engineer until the end of September. The Location and valuation survey for 22 miles of metre gauge railway connecting Kodamadi in the Papanasam forest with the main line of the South Indian Railway was the principal task. This is an extremely important item in the solution of the transportation problem involved. Investigation of other details connected with the proposed development in Papanasam Forest, including selection of sites for pulp and paper mills, saw mills and other forest industries, was undertaken.

"A theodolite traverse-dumpy levelled line was run along the routes selected for the railroad by the Logging Engineer, plotted on a scale of 100 feet to the inch and accurate topography with 5 feet contours taken on each side of the line, from every 100' station. From the paper location map thus prepared, earthwork quantities and cost estimates are being prepared. The line runs as follows: From Ambur railway station across the plains via Mudaliyarpatti and Vadamalai-Samudram and Karumpani Kular, through the rock gap north of Papanasam, crossing the canals and river at Melpattu to the reserve boundary, thence climbing on the maximum gradient of 1 in 33 up the ghats (in general paralleling the Papanasam Mundanthorai road) to Kottantalam valley. This was selected as a mill site in case the proposed P.W.D. hydro-electric development, with a dam across the Tambraparani river at Pachaiamm Koil is carried out. A second line leaves the first near where it crosses the main road, continues at 1 in 33 around the head of Kottantalam valley and crosses the main ridge above the 750 feet contour, the height of the proposed dam. Owing to the narrowness of the ridge it is impossible to get even a maximum 20° curve around it, and a 600' tunnel will be necessary. After crossing the ridge the line continues level, keeping about 30' above the high water level of the proposed reservoir (750 feet elevation), to a mile west of Taravattamparai, and then continues on water grade along the North Bank of the Servai Ar to Kodamadi, another prospective mill site. An alternative 'Ghat section' was also run, taking off from the first described line near Melpattu, following up along the north-east side of the Papanasam valley, crossing it near the reserve boundary, and then climbing 1 in 33, crossing the Chepp Ar, through the pass at the head of Kottantalam valley, and thence level to the tunnel location on the second line.

"The actual survey of the line presented many difficulties owing to the huge rocks, cliffs, and dense scrub jungle, and the amount of work accomplished by the crew is highly commendable. The party in July consisted of Mr. Cariappa, Extra Assistant Conservator, Surveyor Achuthan, Rangers Monnappa and Appiah, and Foresters Pemmaiah, Poduval, Ramani and Muddappa, the latter two being selected by the Logging Engineer, with the permission of Government, from outside the Forest Service and entertained as Probationary V Grade Foresters. In August, Rangers Kuttapan Pillai and Doomashetty joined duty, and Forester N. C. Madapa was engaged. Ranger Vridachalam and Forester II Grade Raman Nayar joined in September. When the party left early in October Ranger Vridachalam was left to complete the contouring and to erect cairns for permanent marking of the line.

"The total amount spent on the Papanasam project, with the exception of the pay of the Logging Engineer himself, was Rs. 5,920 or Rs. 269 per mile of railway line. This expenditure consisted of pay of establishment Rs. 2,412 travelling allowance (including transfer travelling allowance) Rs. 2,712, coolie labour Rs. 654 and contingencies Rs. 142."

"*Elival project*.—The Logging Engineer proceeded to Olavakkot late in December and after advising the Forest Engineers on various problems connected

with the erection of the saw mill and in the logging operations, made a reconnaissance of the Elival country, Chenat Nayar reserved forest. The location of the baselines was planned, and on 16th October, with the arrival of the crew from Tinnevely, work began. The baselines were run by a party under the charge of Mr. K. T. Mathew, Assistant Conservator of Forests, who had joined the Division on October 1st. The personnel of the Baseline crew included Surveyor Achuthan, Ranger Doomashetty, Foresters Mudappa, Poduval and newly entertained Foresters Augustine, Aiyappa and Muthana (the latter in November).

"The topography being extremely broken and the slopes very steep, 22 working days were required to complete the 8 miles of theodolite baseline. The entire baseline crew was then (mid-November) transferred to Someshwar project.

"The mapping and cruising parties under Mr. Cariappa consisted of Rangers Monappa, Appiah, Kuttapan Pillai and Aiyanna and Foresters Panmaiah, Ramani, N. C. Maddappa, and new probationary Foresters selected by the Logging Engineer, Quadir Baig, Pooviah and M. B. Madappa. Forester Raman Nayar was draftsman for the project. Field work actually commenced on 24th October, the previous week being occupied with plotting baselines and preparing topog strips and cruise sheets. Approximately 2,500 acres were completed by 20th December.

"There was considerable loss of time through illness, principally malaria. Although there were enough men posted to the project to form three parties, it was only possible to muster two parties most of the time, and even then the officer in charge had to himself frequently fill some vacancy to complete a party.

"Difficulty was also experienced through the refusal of the coolies to camp in the jungle. Returning to their villages on the plains every evening, they could not reach the work spot until the middle of the morning.

"The mapping of the high inaccessible Mesua Area of Elival was continued after the holidays by Ranger Monappa and Foresters Ramani and Ramakrishnan. An additional $1\frac{1}{2}$ miles of baseline was run and 320 acres were mapped and cruised up to 31st March. The Party also spent a week in making a check enumeration of the logged portion of Sappal valley and another week demonstrating the Logging Engineer's mapping and cruising methods to the Dohra Dun and Madras Forest College students. The expense incurred during the last quarter totaled Rs. 1,454 of which Rs. 646 was for coolie labour, and Rs. 808 pay and travelling allowance of establishment.

"During October the Logging Engineer, in addition to directing the Elival project and instructing new men, lectured for a week at the Madras Forest College on 'Logging Engineering'. Those lectures, which have since been published by the College, included an exposition of the meaning of logging engineering; reconnaissance; planning and running baselines, mapping and cruising, compilation of cover maps, planning exploitation operations, and hydraulics. A second series of lectures on Logging Methods, Portable saw mills, etc., are to be given before the close of the school year.

"The Logging Engineer also erected the new two-drum skidder at Sappal and trained the crew in its operation."

"*Someshwar project.*—Three weeks of November were occupied by the Logging Engineer in making a reconnaissance of the Someshwar and Andar reserved forests in South Kanara to plan the organization and layout of the mapping and cruising project for these areas. The 24,000 acres comprising these reserves were covered very intensively, 16 to 18 miles a day often being traversed through the jungle. The Logging Engineer was accompanied on this reconnaissance by Ranger Doomashetty.

"With the arrival of Mr. Mathew and the baseline crew from Elival late in November, the Someshwar Project was instituted. By the 18th December (after 20 working days) 12½ miles of theodolite traverse dumpy levelled primary baseline and 8 miles of compass traverse-Abney levelled secondary baseline had been completed. This good record was made in the face of labour difficulties and an average sick loss of 15 per cent. The party was augmented in December by the arrival of 6 Rangers and 1 Forester posted to Someshwar by the Chief Conservator for training for the Working Plans Circle.

"Calculation of latitudes and departures and plotting of the baselines was taken up after the Christmas holidays, and field work on compass baselines was continued. Mr. P. W. Davis, Assistant Conservator of Forests, joined the division 15th January, and took over charge from Mr. Mathew, who was transferred to Papanasam project. With some 30 miles of baseline completed, the mapping and

cruising of the 18,000 acres of Someshwar reserve was started the third week in January. Rangers Appiah and Aiyanna from Elival project were, with Ranger Doomashetty, the only experienced men—Rangers Kannan and Ganapathy and Foresters Janardanan, Mudapa, Muthana, Aiyappa, Augustine, and D'Souza (the newly entertained) made up the balance of the useful crew. Rangers Thiruvengkatachari, Paramasivam Pillai and P. S. Nayar and Forester Poduval were absent so much as to be of little value and the two former Rangers were later reverted to the regular line at their own request. Forester Raman Nayar was occupied with drafting work for a time and then went on leave.

"Mr. Cariappa succeeded Mr. Davis in February and remained in charge during the rest of the official year. By 31st March approximately 5,000 acres had been mapped and cruised. It is anticipated that the entire project will be completed by June 1925. The expenditure on Someshwar project up to 31st March is as follows: pay Rs. 5,536; travelling allowance Rs. 4,831 (includes transfer travelling allowance of new Rangers from East Coast), coolie labour Rs. 1,359 and contingencies Rs. 215. Labour has always been very scarce at Someshwar and has seriously handicapped the work. Fever (malaria) was prevalent among the party in February and March and practically every man was off duty one or more times for a week or ten days."

"*Nellikutta project.*—In December the Logging Engineer made a reconnaissance of the Nellikutta reserved forest, Nilambur, and a portion of the new Anarampalam range. The Conservator of the Sixth Circle wanted this mapped to show the areas unsuitable for teak plantation, the area on which teak might be planted with expectation of a reasonable degree of success, and a cent per cent enumeration of the stand of timber. The Logging Engineer suggested mapping with the trailer tape system taking 10 ft. contours on a scale of 300 ft. to the inch, with particular attention paid to marking in bamboo growth and marshy or swampy areas; two Cruisers to tally DBH and merchantable height of all trees on each two-acre plot, and take additional notes on ground cover and soil classification in so far as possible.

"Mr. Hicks, Assistant Conservator of Forests, posted to the Logging Engineering division for training for the Working Plans Circle, was placed in charge of the project and work commenced on 20th January. A special baseline party under Mr. Cariappa ran the 6½ miles of baseline required during the period 20th to 29th January and were then transferred to other projects. The mapping and cruising work started the first week of February and was practically completed by the end of March. A total of 39 days of field work were occupied in mapping the 1,539 acres of the project (the northern hilly portion of the reserve was excluded by the District Forest Officer, Nilambur). Eight days were spent in office work, preparing topog and cruise sheets, calculating and plotting the baseline, and preparing field sheets.

"All the mapping work was done by one party consisting of Ranger Kuttapan Pillai, Cruiser and Chief of party, Forester Panmaiah, Cruiser, Forester N. C. Madappa Topographer and Forester Pooviah, Compassman. They were on the job all the time and accomplished more than any other crew in the Logging Engineering division. As Mr. Hicks was ill with fever much of the time, Ranger Kuttapan Pillai deserves special commendation for carrying on the project. Ranger Venkataraman was attached to the party for training during February and posted to Nalkur project in March.

"The cost of the Nellikutta project was Rs. 1,672 itemized as follows: Mapping and cruising—pay of 1 Ranger for two months and 1 Ranger for one month Rs. 375; pay of 3 Foresters for two months Rs. 240, travelling allowance, including transfer travelling allowance Rs. 378; peons and lascars Rs. 62 and coolie labour Rs. 128. Total Rs. 1,143.

"Baseline—pay of Extra Assistant Conservator, Surveyor, 1 Ranger, 1 Forester and lascars for one-third month Rs. 169; travelling allowance of the above Rs. 200; pay of 1 Ranger and 3 Foresters for half month Rs. 123; coolie labour Rs. 37. Total Rs. 529. This works out at practically a rupee an acre. This does not include the overhead of the Logging Engineer, a distribution of which has not yet been made; and the pay and travelling allowance of Mr. Hicks, as an officer was not really required with only one party, and as he was posted to learn the work, his expense is properly chargeable to the Working Plans Circle."

"*Papanasam Flume project.*—The Logging Engineer proceeded to Tinnevely district on 1st February and started a party to work on the second big unit of transportation in the Papanasam Development project—the survey of the line of a flume for the transportation of reeds from the reed area to Kodamadi. The

location of the main flume as planned is from Ossipathay Pass above Kodamadi up on a uniform gradient of 1 in 20 to the fork of the Servai Ar below Wood's Hut. Branch flumes up the Servai Ar and the Val Ar tap the enormous reed areas drained by these two streams. From Ossipathay Pass the reeds will be dropped down a chute to a pond at Kodamadi. The area traversed by the chute was mapped on a scale of 200 ft. to the inch, and the flume line had been run 4 miles from the Pass to the Fork by 31st March. Owing to the extremely difficult nature of the country, progress was very slow. An average of 20 per cent of working time was lost because of sickness. The party under Mr. Mathew consisted of Surveyor Achuthan, Rangers Fenn and Vridachalam and Foresters Quadir Baig, M. B. Madappa, Parameswaram Pillai and Chandrasekaran Nayar. Ranger Ponniah and Forester Pancha Nayudu were absent a large proportion of the time, and Ranger Rajagopala Ayyangar was on leave the whole time. Expenditure to 31st March was Rs. 6,407 divided as follows: pay Rs. 2,719, travelling allowance Rs. 2,447, labour Rs. 1,191, contingencies Rs. 50."

"Beynure Depot Saw Mill.—The Logging Engineer left Papanasam project the middle of February and undertook the erection of a portable saw mill at Beynure Forest Depot, Chaliyam, Malabar, which was accomplished in ten days with only the help of one fitter, a driver, cleaner and a few carpenters and coolies. The crew was then trained in the operation of the mill, filing saws, etc. The mill is cutting up Nilambur teak, principally into sleepers, of which it has a daily capacity of 80 to 100.

"In December the Logging Engineer inspected the Baliapatam saw mills at the request of the Director of Industries, they having approached Government for a loan under the Industries Act. A report was made on the efficiency of the plant and management, future prospects, and equipment needed to improve the mill."

"Nalkur project.—The Logging Engineer made a reconnaissance of a portion of the Nalkur reserved forests, South Mangalore division, South Kanara, in March at the request of the Conservator of the Sixth Circle. This forest contains much over-mature Hopea, as well as other evergreen species, and it is planned to convert these into railway sleepers. An enumeration had already been made, but as the stand was scattering and the topography very broken, and the existing maps of too small scale to show essential detail, a large scale topographic map showing the location of the exploitable timber, on which the most economical system of dragpaths could be laid out, was desired. Although some 6,000 acres are eventually to be covered, the Logging Engineer, owing to the tremendous amount of work to be done and the shortage of men, could only spare one party (one Ranger and two Foresters) which commenced at the end of March, and will, it is anticipated, complete the 1,000 acres to be worked during the ensuing year before the end of May 1925."

"While at Nalkur the Logging Engineer also rigged up a device for dragging a number of sleepers at a time by elephant. As the sleepers will be hand-sawn, it is hoped that this will permit the sawing to be done where a tree is felled, and the sleepers dragged by elephant to the cart-roads, thus paying dragging costs only on the finished product instead of the entire log with its large percentage of waste. The Range Officer and Rangers were taught to splice wire rope, so that they could rig up more of the dragging contrivances themselves."

"Mr. Davis accompanied the Logging Engineer to Nalkur as it was planned that he should exercise occasional supervision over the Nalkur project, as well as looking after the Beynure saw mill. He was invalided to Ootacamund with fever toward the end of March, however."

"Conclusion.—The work done by the Officers, Rangers and Foresters in the Logging Engineering division during the year under review has been accomplished under extremely difficult physical conditions. In probably no other branch of Government service is such an expenditure of physical energy coupled with a high degree of mental alertness and keen judgment required. Camping in tents or grass huts in the depths of the forests, lacking the normal comforts of civilization; walking and climbing miles through pathless jungle every day, in all weathers, continually exposed to fever and the risk of attack by the wild animals which every year cause great loss of human life in India—this is a severe test of the metal of a man. Many failed the test, some of them were reverted to the regular line, and, meriting no mention, receive none in this report. To those men with nerve and stamina who made good, credit for their accomplishment and recognition of service performed is due. A proposal has long been before Government to grant them a special monetary allowance, and it is to be hoped that this proposal will be soon approved."

"The Probationary Fifth Grade Foresters, a score of whom were engaged by the Logging Engineer from outside the Forest department, are worthy of mention. Selected from over 200 applicants, they are practically all men of S.S.I.C. educational qualifications, and some have even passed the Intermediate Examination of the Madras University. Some are ex-service men, all are of good physique. On a salary of Rs. 50 per mensem plus Rs. 10 fixed travelling allowance, some of them have not only done a Ranger's work as Topographers and Cruisers but have done it better than many of the Rangers themselves. A scheme for higher pay for these Foresters has also been put up to Government for sanction."

"The methods introduced in Madras by the Logging Engineer have attracted considerable attention among Forest Officers elsewhere in India. The Chief Forest Officer of the Andamans made a trip to Madras in November and inspected the operation planning work being done by the Logging Engineering division. He was so impressed by its value that he sent an officer to study under the Logging Engineer for a month, to introduce his methods in the Andamans."

"Coorg sent 2 Rangers to learn the work, and the Forest Engineer, Coorg, also paid a visit to various projects of the Logging Engineering division."

"New work starts slowly. Each new man posted to the Logging Engineer had to be given instruction and then gain experience through long practice before becoming adept and able to work rapidly. Consequently, it has required more time in the past to cover the ground than should be necessary in the future. The cost of the projects will decrease with the speed gained through long practice, and as the subordinates improve in ability to handle greater responsibility."

V. FOREST UTILIZATION.

17. The work of this branch has expanded so rapidly that it seems justifiable to include Mr. Ward's complete report in this review of the year's work.

The foundation of all forest development in the Presidency must be based on the work done in 'Utilization' and 'Forest Economy' and much has been done in the past year to place this work on a sound footing.

Report for the year 1924-25.

"1. Since the last report was issued, the staff of this branch has been increased, in accordance with the necessary organization required to deal with the various subjects reported on below, so that it now consists of—

(a) A Forest Utilization Officer, whose work it is to deal with the export of timber and the placing of all kinds of forest produce on the market to the best possible advantage, besides organizing supplies as they are required for each market. This post was held by Mr. J. W. K. Wernham from the commencement of the year up to 16th July 1924; Mr. H. P. Ward held charge for the rest of the year.

(b) A Forest Economist, who deals with general research work, the collection of reports received thereon, collection of data on Madras timbers and their uses, the co-ordination of the individual species with individual uses, the issue of pamphlets, the supply of timber samples, general propaganda work and the formation of an utilization library. Mr. M. F. Bridge started this work on 8th July 1924 and was confirmed in this post receiving official recognition on 26th February 1925 when, on being deputed to Dehra Dun for two months, the work was taken over by the Forest Utilization Officer as a temporary measure.

(c) Two Utilization Range Officers were appointed on 1st November 1924, one being posted to the southern area with headquarters at Trichinopoly and one to the West Coast area with headquarters at Calicut; their work is to act as liaison officers between the Forest department and local merchants. They enquire into all the markets extant and potential. They report the names of all interested persons, the quantity and condition of stocks held and the likely demands of timber dealers, the rates wholesale and retail; the sizes and species in demand, transport charges between important centres, the uses to which the various timbers are put and the methods by which the timber is brought to the market and disposed therefrom. They also assist in the recruitment of labour for forest works and do local propaganda work."

(d) The post of Assistant Forest Utilization Officer has just been sanctioned which will be filled from the beginning of the new year. This officer will be selected from the Madras Forest Service and his work will be mainly to deal with supplies and sales of minor forest produce.

(e) *Deputations.* During the year Mr. Ward has been on two months' deputation to Dehra Dun to study the works now being carried out there such as artificial seasoning, timber testing, wood preservation, wood working.

In July Mr. Wernham was deputed on an 18 months' course to the University of Washington to study the methods in vogue in America.

On 26th February 1925 Mr. Bridge was deputed to Dehra Dun for two months, to study research work. His first month was such a success that in all probability his deputation will be extended for a further four months.

2. Individual works now being dealt with in the Utilization branch:

(a) *Organization.*—A very real need has been met by the establishment of one central office where the consumer can apply for his requirements and to which the local officer can apply when requiring a market for any of his produce. During the year much has been done to organize some control of supply and demand whereby the two can be brought closer together, but there is much more still to be done.

(b) *Export of timber.* All timber exported to Europe passes through the hands of our London Agents, Messrs. W. W. Howard Bros. & Co., who have the sole right over the sale of Indian timbers, this in itself is not a very satisfactory state of affairs, but it must be stated that Messrs. W. W. Howard Bros. & Co. have done a tremendous amount of spade work in establishing some of our timbers on the home market.

A statement giving detailed transactions with Messrs. Howard Bros. & Co. is attached to this note, and on the whole, it will be seen that they have been fairly satisfactory.

While in America Mr. Wernham is investigating the possibility of selling some of our timber over there, already we have had several enquiries from various timber firms in America.

(c) *Sleeper supply.* Consequent on the formation of a Southern India Sleeper Pool, demands have greatly increased. A large and regular outlet for established sleeper species may be confidently anticipated. These latter, however, are not in all cases easily exploited, portable saw mills are urgently required to permit of stump site conversion and the consequent improved facility of, and economy in, extraction. In the meanwhile, tests are being made of certain of our commoner species which, it is hoped, may meet the exacting nature of service in the line as well as the no less exacting specifications of the railway companies. It is hoped that the suggested installation of a powerizing plant will in fact eventuate, since such would very materially assist the department in using lesser known and lesser naturally durable species. A small portable saw mill has already been erected at Beypore and it is now busily engaged in sawing sleepers from Nilambur timber, for supply to the railways in 1925-26.

(d) *Markets.*—In the past very few sales were ever executed other than by public auction of round logs, in these auctions logs were put up in lots containing both good and bad logs, with the result that very often the department did not obtain a fair price for its better timber. Although auctions can never be abandoned, much can and has been done to provide a better market for the larger and more valuable logs. With the installation of two new saw mills during the year, one at Olavakkot and one at Beypore, an opening has been made for the sale of sawn timber, and although these mills only started operations in the last month of the year, the Beypore mill is fully booked up in sawing sleepers, whilst numerous enquiries have been made for boxes and mine skids, etc., which should keep the Olavakkot mill busy for some time to come.

(e) *Timber testing, research and the collection of data on Madras timbers and their uses.*—This section of the work can be divided into three classes:

(i) Laboratory tests of timbers at Dehra Dun.

(ii) Practical tests of timbers in actual service by the Forest department or by interested persons, firms or other departments.

(iii) The collection and correlation of existing records.

In the case of (i), scientific reports of great practical value are received; such deal with the mechanical properties of the various timbers and with their adaptability to preservative processes; the information in such reports indicates

broadly the suitability or otherwise of each timber for various uses. It is impossible to overestimate the value of the work that the Forest Research Institute, Dehra Dun, is doing at present in this direction. In the case of (ii), the reports received are obviously of great value as indicating definitely whether such and such a timber is suitable, or is not suitable for any specific purpose, and the same may usually be said of (iii). Laboratory tests have up till now, been chiefly confined to potential sleeper woods, and to the production of strength figures of our lesser known (but common) species. With regard to practical experience tests, arrangements have been made with the various firms to test certain of our species for some given purposes, and those reports which have already come to hand are of very great value. Appended is a list of some of the tests which have been and are being applied to some of our timbers by private firms, and other Government departments:—

Dichopsis elliptica for slack cooperage.

Do. for mine skids.

Anogeissus latifolia for picking arms.

Lagerstroemia lanceolata for picking arms.

Various species for piles in salt water.

Dodonaea viscosa for ship fenders.

Grewia tiliafolia for motor hood frames.

(f) *Tool handles.*—Tests carried out at Dehra Dun on these implements show that *Anogeissus latifolia* is as good as Ash or Hickory, *Terminalia tomentosa* is also very satisfactory, and *Grewia tiliafolia* is good. There is the possibility of a very large market in tool handles, concerns such as railway companies and the Public Works department requiring a large quantity every year.

It is hoped, when all available information has been collected on the subject to arouse the interest of local enterprise, and start one or more factories for the manufacture of this article.

(g) *Paper pulp.*—Work is proceeding on the investigation of the pulp resources of the Presidency, notably of the Eta area in Tinnevely where data of Eta yield and lime supply are being collected, also of the bamboo area of Upper Godavari in connection with the Carnatic Paper Mills at Rajahmundry.

A very recent report from Dehra Dun holds out every hope of Eta developing into an excellent paper material.

(h) *Matches.* Enquiries are still being received for suitable woods, and the results of tests made on some sixty different species available in Madras have been collected, of these species many are of poor suitability, many are fit for good cheap quality matches, and some should do for a higher standard of quality, the greatest difficulty that is being experienced at present, however, is the inability to produce the raw material at a rate favourable to the manufacturer, this however is due in most cases to the distance of the factories from the source of supply, transport costs thus being out of all proportion to the value of the wood.

(i) *Pencils.*—Little progress has been made in this direction, as there is only one factory in the Presidency and that has not been working up to its full capacity. Several timbers however have been tried, some of which have proved suitable for cheap pencils, but so far no outstanding pencil wood has been found, as in the case of matches the factory is too far from the source of supply.

(j) *Boxes.* A box-making plant has been installed at Olavakkot in conjunction with the saw mill, but since the plant was only completed towards the end of the year very little has been done. Investigations have been made however regarding the demand, sizes required, etc., with the result that there is every hope of establishing a large market both for tea chests and packing cases and there should be little difficulty in the disposal of the output when the plant is working to its maximum capacity.

(k) *Minor forest produce.* Enquiries for minor forest produce continue to be received the most important of which are Cutch, Divi Divi, Myrabolams, Tannin-barks and Nux-vomica, there are prospects of developing our trade in these products to a very great extent, but little time has been found to take up this subject in detail. But with the appointment of a special officer for this purpose, it is hoped to increase our output considerably at the same time to place these products on the market in a better condition than has been possible heretofore.

(4) *Grading of timber.*—The work has been handicapped by the vast variety of sizes both of sawn timber and logs, in demand and by the lack of reasonable specifications in the bigger markets.

It is proposed now, in conjunction with Delhra Dun and other provinces interested, to form a set of grading rules applicable to the whole of India, so that the consumer may know exactly what he is purchasing even without inspecting the timber in question. This system has been carried out successfully both in America and Europe.

(5) *Miscellaneous.*—Enquiries for woods for uses ranging from billiard tables to walking sticks and skittle balls have been received during the year, many of these articles have been turned out in numerous species of Madras timbers. A large quantity of hand samples have been prepared which will be given to interested persons. When an enquiry for any specific work is received, samples of the most suitable timbers will be sent, so that the customer may make his own selection also it is hoped to get out small notes on the value of each species to be supplied with the hand samples.

One set of samples is being sent to Mr. Wernham in America at his request, since he feels sure he can interest some of the firms over there in our woods. During the year a considerable time has been employed in work in connection with the British Empire Exhibition.*

Results of transactions with Messrs. W. W. Howard Bros. & Co.,
during 1924-1925.

Items number and species.	Stock on hand on 31st March 1924.	Quantity exported during 1924-25.	Total quantity with Howards during 1924-25.	Quantity sold by Howards during 1924-25.	Net amount realized (after deducting charges incurred by Howards).	Stock on hand on 31st March 1925.
1. Laurel ..	C.F.T. 2,135	C.F.T. 7,995	C.F.T. 10,130	C.F.T. 9,007	RS. A. P.	C.F.T. 1,123
					49,965 15 0*	
2. Rosewood ..	T. CWT. Q.R. LB. 17 9 86 0 2 14	T. CWT. Q.R. LB. 103 9 2 14	T. CWT. Q.R. LB. 103 9 2 14	T. CWT. Q.R. LB. 103 9 2 14		
3. Kindal ..	C.F.T. 259	..	C.F.T. 259	C.F.T. ..		259
4. Haldia ..	307	..	307	..		307
5. Koko ..	29	..	29	..		29
6. Teak planks.	810	..	810	359		451 †

* The amount includes the proceeds of about 2,124 c ft. of timbers sent in connection with the Exhibition.

† Account sales not received; hence not possible to calculate the amount.
(The statement excludes the timbers sent to Messrs. W. W. Howard Bros. & Co., in connection with the Exhibition).

18. VI. In addition to the main activities of the Forest Engineering Branch noted above, the following work was undertaken during the year under review:—

(1) *Beypore Saw Mill.*—Plans and estimates for a portable saw-mill to be erected at the Beypore depot for sawing sleepers and converting the waste from the sleepers and low grade logs into products marketable at a better rate than was being obtained, were prepared and accepted by Government.

This mill is now operating with the technical advice of the Engineering branch.

(2) *Beypore Depot Scheme.*—A plan was drawn up for the piling of logs under shade at this depot in order to facilitate sales, secure better prices, and keep the logs in better condition.

This plan was postponed until funds were available and an alternative plan is now being put into effect.

(3) Plans were drawn up for a device for dragging sawn sleepers with elephants.

(4) A report was submitted to Government on the recommendations of the Sleeper Enquiry Committee.

(5) Another report was submitted on the proposal to change the specifications of railway sleepers.

(6) A scheme was put up to Government for the use of mechanical transport in the Nallamalais.

(7) Reports were submitted on forest operations in Coorg and Andamans and Forest Officers from these localities were shown over our work, following which men were sent for training under the Logging Engineer in mapping, enumeration, logging and in care of saws.

(8) Technical reports were submitted to the Department of Industries on companies applying for loans under the Aid to Industries Act.

(9) Technical advice was given to the Chief Conservator of Forests in connection with Russellkonda and to various Conservators with reference to work in their circles.

(10) Plans and estimates were drawn up for a crossing of the Kabani river at Kolvalli in the Wynaad.

(11) Surveys were carried out for the opening up of new roads at Mount Stuart and Elival and plans were submitted for a foot suspension bridge at Kodamadi in the Papanasam forests.

19. VII. The year as a whole has been one of organization and training. It is felt that a good foundation for future development has been laid.

The problem of securing a fuller utilization of the forest resources of the Presidency is too large and complicated to be solved in a year or so. Each year we may expect an improvement in conditions and some solid accomplishments to look back on, but the final development must be gradual to endeavour to rush it too fast would in the end mean more back-set than progress.

The economic development of tropical forests is being forced all over the world by the exhaustion of present supplies of timber. In the Phillipines, Formosa, Borneo, Java, Mexico, Brazil, and Central America, new capital is constantly going into forest enterprises, and it certainly behoves Madras with its large unused resources to keep pace with developments elsewhere.

CHEPAUK, MADRAS,
27th July 1925.

C. S. MARTIN,
Chief Forest Engineer.

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