

FOURTH ANNUAL REPORT
OF THE
FORESTRY COMMISSIONERS.

Year ending September 30th, 1923.

(Presented pursuant to Act 9 & 10 Geo. V., c. 58, s. 8(4).)

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1924

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for timber production. The acquisitions to the end of the Forest Year, 1923, are compared in the table above with the proposals of the Acland Report.

Planting Programme.

(A) STATE FORESTS.

Conifers.—The progress made towards the realisation of the area laid down by the Acland Report is shown in the table below. The area actually planted during the year was 9,807 acres compared with 10,000 acres under the Acland programme, while the total to the end of the year was 27,725 acres compared with 20,000 acres.

Planting Programme: Conifers.

Year.	Acland Com- mittee's Pro- gramme.	Com- mission's revised Pro- gramme.	Actually planted.	Surplus (+) or Deficit (-) on	
				Acland Com- mittee's Pro- gramme.	Com- mission's revised Pro- gramme.
	Acres.	Acres.	Acres.	Acres.	Acres.
1st year, 1919-20	Nil	1,600	1,296	+ 1,296	- 304
2nd " 1920-21	3,300	5,700	6,105	+ 2,805	+ 405
3rd " 1921-22	6,700	8,100	10,517	+ 3,817	+ 2,417
4th " 1922-23	10,000	11,500	9,807	- 193	- 1,693
5th " 1923-24	13,300	14,800			
6th " 1924-25	16,700	18,100	27,725	+ 7,725	+ 825
7th " 1925-26	20,000	21,000			
8th " 1926-27	23,300	23,000			
9th " 1927-28	26,700	23,000			
10th " 1928-29	30,000	23,200			
Total.	150,000	150,000			

Broad-leaved Species.—The Commissioners had laid down no definite programme at the time the necessity for effecting economies arose. The areas planted with hardwoods are:—

	Acres.
1919-20	121
1920-21	272
1921-22	176
1922-23	656

Total ... 1,225

Total.—The total area planted or sown during the year under report was 10,463 acres.

(B) ASSISTANCE TO LOCAL AUTHORITIES AND PRIVATE OWNERS.

The area proposed to be afforested or replanted by Local Authorities and private owners for the ten-year period was 110,000 acres, or an average of 11,000 acres per annum.

Owing to the restrictions imposed on State aid by the Forestry Act, 1919, no progress was made during 1919-20 and 1920-21, but

by means of the monies placed at the disposal of the Commissioners for the relief of unemployment a beginning was made on a large scale in 1921-22. The work accomplished in this way is as follows :—

Year.	Planted. Acres.	Prepared for Planting. Acres.	Cleared of Scrub. Acres.
1921-22 ...	10,192	9,127	3,322
1922-23 ...	6,148	6,075	2,015
Total ...	<u>16,340</u>	<u>15,202</u>	<u>5,337</u>

This table shows the areas in respect of which grants have been paid. Recipients of grants for "preparation for planting" undertook to plant up without payment of a further grant. The area planted will consequently exceed 31,000 acres.

The Commissioners also took over two schemes from the Development Commissioners of which one, dealing with some 390 acres, has since been abandoned. The area planted, additional to that covered by unemployment relief schemes, has amounted to :—

	Acres.
1919-20	357
1920-21	213
1921-22	257
1922-23	91
Total	<u>918</u>

The restrictive conditions attaching to grants for planting have now been removed by the Forestry (Transfer of Woods) Act, 1923, and it is hoped that apart from unemployment grants, satisfactory progress will be made with this side of the Commissioners' activities.

Education and Research.

There have been no changes in this branch of the Commissioners' work except in respect of the Apprentices' Schools. The number of schools was reduced from three to two towards the end of the year as it was found that two schools were sufficient to train the number of men required for the Commissioners' forests and to meet outside demands.

The Crown Woods.

Under the Forestry (Transfer of Woods) Act, 1923, provision has now been made to transfer to the Commissioners the main forest properties under the Commissioners of Woods. The total area to be transferred will amount to approximately 120,000 acres of which some 60,000 acres are under timber or young plantations. Good progress has been made in arranging the necessary formalities and the transfers are to take effect from April 1st, 1924.

Owing to the heavy depletion during the war the Crown forests and woods are at the present time being worked at a loss and it is estimated that, temporarily at least, the transfer will throw on to the Forestry Fund a net burden of approximately £10,000 per annum.

Ireland.

During the year final adjustments were made with the Governments of the Free State and Northern Ireland. The assets and liabilities represented by the Commissioners' forest properties in Ireland were transferred to the respective Governments and the sum of £9,446, representing the Irish share of the Forestry Fund, was shared between them.

Gifts to the Commission of Land and Money.

The Commissioners, who are empowered under Section 8 (3) of the Forestry Act, 1919, to accept gifts made for any of the purposes of the Act, desire to express their gratitude to the following donors:—Mr. C. H. Brassey for 826 acres of land at Apethorpe, Northants; Viscount Ullswater for 200 acres at Tunstall, Suffolk; Mr. Walter Boynton for 135 acres at Iken, Suffolk; and an anonymous donor for £131 which has been expended on replanting a woodland area felled during the War.

The British Empire Forestry Conference and the Imperial Economic Conference.

The Commissioners were represented at the British Empire Forestry Conference which was held under the auspices of the Dominion and Provincial Governments in Canada last summer and presided over by Lord Lovat. The Resolutions of the Conference were subsequently presented by the Commissioners to the Imperial Economic Conference which accepted and recommended them to the various Governments concerned.

OPERATIONS—FOREST YEAR 1922-23.

The Forestry Fund.

The position of the Forestry Fund at September 30th, 1923, and at the same date in previous years is shown in Table I.

Table I.—Forestry Fund Account.

Year ending 30th September.	Balance from preceding Year.	Receipts.				Total.	Payments. Table II. Heads A. to K.	Balance remaining in the Fund 30th September.
		For Forestry Fund Proper.		For Relief of Unemployment.				
		Parliamentary Votes.	Other (Table II. Head Z.)	Parliamentary Votes.	Total.			
(1)	(2)	(3)	(4)	(5)	(6)	(7)		
	£	£	£	£	£	£	£	
1920	Nil.	478,000	12,229	—	490,229	106,858	383,371	
1921	383,371	200,000	29,149	—	229,149	318,768	293,752	
1922	293,752	20,000	24,544	250,000	294,544	398,431	189,865	
1923	189,865	153,000	40,736	100,000	293,736	271,615	211,986	
Totals	—	851,000	106,658	350,000	1,307,658	1,095,672	—	

Receipts and payments by Parliamentary Heads of Accounts are shown in Table II. All the expenditure heads with the exception of Sub-head K, Special Services, show reductions as compared with the previous year, while receipts show an increase of £16,192; the net expenditure being £230,879 in 1923 against £373,887 in 1922. Sub-head K includes the sum of £9,446 paid to the Irish Governments as their share of the Forestry Fund.

Table II.—Payments and Receipts by Parliamentary Heads of Account.

Year ending 30th September.	A. Salaries, Wages, and Allowances.	B. Headquarters Charges.	C. Assistant Commissioners' Charges.	D. Divisional Officers' Charges.	E. Forestry Operations.	F. Advances for Afforestation Purposes.	G. Education.	H. Research and Experiment.	J. Agency and Advisory Services.	K. Special Services.	Total Payments.	Z. Receipts.	Net Payments.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	
	£	£	£	£	£	£	£	£	£	£	£	£	£
1920...	25,156	577	1,825	4,829	66,550	—	4,547	1,538	1,577	259	106,858	12,229	94,629
1921...	71,925	1,256	8,880	10,207	208,630	352	9,222	3,340	9,557	399	318,768	29,149	289,619
1922...	51,459	4,454	5,242	7,814	201,139	51,050	10,386	2,686	63,395	1,006	398,431	24,544	373,887
1923...	38,060	2,137	2,439	4,722	156,965	30,790	8,717	2,308	15,151	10,336	271,615	40,736	230,879
Total	186,590	8,424	13,386	27,372	633,284	82,192	32,872	9,872	89,680	12,000	1,095,672	106,658	989,014

Table IIa.—Expenditure and Income Classified by Objects.

Year ending 30th September.	Expenditure.										Income.						(18) Net Expenditure Col. (10) less Col. (17).	
	Subheads A to D, i.e. Superior Super- vision and Overhead charges.			E. Forestry Opera- tions.	F. Advances for Afforestation Purposes.	G. Education.	H. Research and Experiment.	J. Agency and Ad- visory Services.	K. Special Services.	(10) Total Cols. (3) to (9) Inclusive.	(11) Forestry Opera- tions.	(12) Education.	Z.2 Agency and Ad- visory Ser- vices.	Z.3 Research and Experiment.	Z.4 Advances for Afforestation Purposes.	Z.5 Special Services.		(16) Total Cols. (11) to (16) Inclusive.
	(1) Total.	(2) Allocated to Subheads E to K.	(3) Capital (In- allocated).															
1920 ...	86,990	85,170	1,820	334,148	1,373	21,544	15,472	7,809	5,401	387,567	37,337	199	688	—	—	—	88,224	
1921 ...	18,008	18,006	2	14,523	—	2,277	—	38,981	761	56,544	105	—	19,608	—	—	26	19,799	
1922 ...	53,384	51,868	1,516	229,644	60,426	12,357	6,646	60,658	13,495	384,742	30,999	1,396	547	567	411	252	34,172	
1923 ...	44,342	44,286	56	31,205	6,543	1,617	625	2,924	1,372	44,342	—	—	—	—	—	—	6,239	
	123	123	—	149,894	30,962	10,175	4,500	15,224	5,455	216,210	38,607	1,510	36	10	89	12	—	
	Direct			—	—	—	—	1,298	9,446	10,744	—	—	3	—	—	—	35,264	
Total 1923 ...	44,342	44,286	56	181,099	37,505	11,792	5,125	18,148	6,827	260,552	38,607	1,510	36	10	89	12	35,264	
	123	123	—	—	—	—	—	1,421	9,446	10,867	—	—	3	—	—	—	3	
Totals 1920-23:																		
Great Britain	184,716	181,524	3,392	744,891	99,304	45,098	27,243	86,615	25,723	1,032,861	101,943	3,105	1,271	577	500	264	107,660	
Ireland ...	27,262	26,479	783	18,674	—	2,877	—	57,965	10,215	90,514	690	80	25,245	—	—	26	26,941	
Grand Total ...	211,978	207,803	4,175	763,565	99,304	48,570	27,243	144,580	35,938	1,123,375	102,633	3,185	26,516	577	500	290	133,701	

Notes.—1. Figures in italics refer to Ireland.

2. Salaries of Instructors in Schools and of Research and Experiment Officers are shown under Salaries, Wages, etc. (A.) in Table II, but under Education (G.) and Research (H.) in the above Table.

3. Table II. shows under Forestry Operations the total payments made. In Table IIa., however, an amount representing uneconomic labour, etc., in respect of Unemployment Relief Schemes has been deducted from Forestry Operations (E.) and transferred to Special Services (K.).

The working results for 1923 and previous years are shown in Table IIa in which all salaries, wages, allowances and similar charges which have to be kept separate for parliamentary purposes are allocated to the appropriate objects of expenditure. Income and expenditure for each year are brought to account irrespective of whether they have been received and paid respectively, while a proportion of the cost of unemployed labour representing additional or anticipated expenditure on Forestry Operations (Sub-head E) is carried to Special Services (Sub-head K). Table IIa, which is the basis of the financial tables appearing later in the report, consequently differs in some respects from Tables I and II, which show cash transactions only.

Owing to the above changes in the method of presenting the accounts the figures given in this Report for the years 1919-20 to 1921-22 differ from those in previous Reports.

Sub-heads A to D, General Organisation: Expenditure, £44,465.

There have been no changes in general organisation during the course of the year.

**Sub-head E, Forestry Operations: Expenditure, £181,099;
Income, £33,607.**

The total direct expenditure amounted to £149,894 and overhead charges and superior supervision amounted to £31,205. The total represents a drop of £52,696 from the previous year which included, however, the purchase of all the nursery stock in the Crown Woods at a cost of nearly £20,000. The main items of expenditure are shown in Table E, which also gives comparative figures for previous years.

Table E.—Analysis of Forestry Operations.

Year ending 30th September.	Expenditure. (Table IIa. Col. (4).)								Income. Table IIa. (Col. (11).)					Net Expenditure. (15)	
	(1) Overhead Charges.	(2) Superior Supervision.	(3) Local Supervision.	(4) Acquisition of Land, etc.	(5) Cultural Operations.	(6) Preparation and Sale of Produce.	(7) Roads and Buildings.	(8) Stores and Miscellaneous.	(9) Total.	(10) Sales of Land, Buildings, etc.	(11) Rents.	(12) Forest Produce.	(13) Other.		(14) Total.
1920	£ 38,454	£ 28,227	£ 1,236	£ 40,393	£ 19,611	£ 357	£ 1,472	£ 2,432	£ 334,148	£ 300	£ 154	£ 9,272	£ 153	£ 9,879	£ 296,811
1921	£ 6,208	£ 383	£ 5,093	£ 85,803	£ 85,638	£ 1,680	£ 7,986	£ 15,766	£ 14,523	£ —	£ 5,059	£ 20,444	£ 1,955	£ 27,458	£ 14,418
1922...	£ 16,371	£ 17,639	£ 9,816	£ 17,191	£ 129,414	£ 3,918	£ 4,779	£ 30,516	£ 229,644	£ 540	£ 6,474	£ 7,283	£ 16,702	£ 30,999	£ 198,645
1923...	£ 18,496	£ 12,709	£ 10,552	£ 27,768	£ 82,359	£ 4,287	£ 5,049	£ 19,879	£ 181,099	£ 900	£ 5,951	£ 16,902	£ 9,854	£ 33,607	£ 147,492
Total	£ 73,321	£ 58,575	£ 26,697	£ 171,155	£ 317,022	£ 10,242	£ 19,286	£ 68,593	£ 744,891	£ 1,740	£ 17,638	£ 53,901	£ 28,664	£ 101,943	£ 642,948
	£ 6,756	£ 1,078	£ 192	£ 7,031	£ 2,788	£ 40	£ 51	£ 738	£ 18,674	£ —	£ 180	£ 17	£ 493	£ 690	£ 17,934

Note.—The figures in *italics* refer to Ireland.

Income amounted to £33,607 of which £16,902 represented sales of forest produce and £5,951 rents of land.

Overhead Charges, £18,496. *Superior Supervision*, £12,709, and *Local Supervision*, £10,552.—Overhead charges is an apportioned sum representing the expenditure on all salaries, allowances and office charges other than those of Divisional and District Officers and foresters. Divisional and District Officers are included under Superior Supervision and foresters under Local Supervision. There were no changes during the year as regards the numbers of the former, but the number of foresters and foremen increased by four.

Acquisition of Land, Buildings and Standing Timber: Expenditure, £27,768.—During the year £18,910 was paid in respect of the purchase of land, including the standing timber and buildings thereon, and £8,858 in respect of land held on long lease or feu.

The average rent or feu duty for land acquired during the year by lease or feu is approximately 1s. 4d. per acre or, if the whole be charged against plantable land only, 2s. 1d. per acre; the average price of the land purchased during the year—all plantable—was £2 17s. 6d. per acre.

Land acquired from 29th November, 1919, to 30th September, 1923.

	By Lease and Feu.			By Purchase.			Total by Lease, Feu and Purchase.
	Plantable (including planted).	Other Land.	Total.	Plantable (including planted).	Other Land.	Total.	
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
<i>England and Wales—</i>							
Finally completed ...	29,180	526	29,706	14,664	631	15,295	45,001
Entry secured ...	17,975	766	18,741	1,784	—	1,784	20,525
Total ...	47,155	1,292	48,447	16,448	631	17,079	65,526
<i>Scotland—</i>							
Finally completed ...	23,084	21,212	44,296	10,563	19,284	29,847	74,143
Entry secured ...	18,899	14,446	33,345	—	—	—	33,345
Total ...	41,983	35,658	77,641	10,563	19,284	29,847	107,488
<i>Ireland (to 31st March, 1922)—</i>							
Finally completed ...	2,287	532	2,819	2,579	795	3,374	6,193
Entry secured ...	—	—	—	—	—	—	—
Total ...	2,287	532	2,819	2,579	795	3,374	6,193
Grand Total ...	91,425	37,482	128,907	29,590	20,710	50,300	179,207

The actual area which the Commissioners had completely acquired that is to say, for which the legal formalities had been finished by 30th September, 1923, was 125,337 acres, the corresponding figures in the two previous Reports being 102,094 acres and 61,171 acres. From this area 6,193 acres situated in Ireland have now to be deducted. In addition to the completed acquisitions, entry had been secured to a number of other properties. Details are given in the table above, which also shows the area of "plantable" and "other land,"—*i.e.*, land which is either too poor to plant or is required for other purposes.

The total area acquired, as shown in the above table, is 179,207 acres, of which 121,015 acres were classified at the time of acquisition as plantable. Of the plantable area 63,603 acres (52·6 per cent.) are situated in England and Wales, 52,546 acres (43·4 per cent.) in Scotland.

Cultural Operations: Expenditure, £82,359.—Expenditure on cultural operations relates to plantations and nurseries of which the former absorbed £50,757 and the latter £31,602. An analysis of expenditure is given in Table E.5.

Of the total expenditure on plantations, £45,426 was in respect of first plantings and £5,331 in respect of weeding and beating up existing plantations. The total area planted or sown during the year was 10,495 acres, of which 9,839 acres (including 32 acres planted at Craigmyle under a proceeds-sharing scheme) were placed under conifers, and 656 acres under broad-leaved species.

The total addition to the woodland area of Great Britain was 6,984 acres, the remaining plantations being on the site of felled woodlands. In making these plantations and in beating up the previous years' plantations 17,800,000 trees were planted, of which 37 per cent. were Scots and Corsican pines, 27 per cent. Norway and Sitka Spruces, 17 per cent. European and Japanese larches, and 12 per cent. Douglas fir.

The cost of planting in England and Wales works out at £7 4s. 0d. per acre, and in Scotland at £6 17s. 5d. These figures include preparation of ground, drainage, fencing, plants and planting, beating up and weeding, but do not include supervision. The cost of clearing scrub is included but not the receipts. Except for seed, tools and wire the whole of the expenditure was on wages.

Table E.5.—Analysis of Cultural Operations (Table E, Column (5)).

Year ending 30th Sept.	PLANTATIONS.										NURSERIES.				Grand Total.
	First Plantings.					Second and Subsequent Years.					New Works.	Upkeep.		Total.	
	Prepara- tion of Ground.	Drain- age.	Fencing.	Plant- ing.	Weed- ing.	Other.	Total.	Weed- ing.	Beating up.	Total.		Seed.	Labour and Other.		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	
1920 ...	£ 3,375	£ 843	£ 3,279	£ 3,561	£ 705	£ 183	£ 11,946	£ —	£ —	£ 1,090	£ 1,127	£ 5,448	£ 7,665	£ 19,611	
	—	—	—	—	—	—	—	—	—	20	100	560	680	680	
1921 ...	10,781	1,794	12,550	27,310	1,033	2,342	55,810	827	665	3,731	5,297	19,308	28,336	85,638	
	155	160	162	144	—	6	627	—	—	15	—	647	662	1,289	
1922 ...	17,741	4,352	12,231	24,137	1,946	2,869	63,276	1,124	3,767	3,848	8,253	49,146	61,247	129,414	
	7	10	283	437	—	16	753	—	—	—	34	32	66	819	
1923 ...	11,550	4,065	10,577	12,622	3,227	3,385	45,426	3,196	2,135	1,050	2,739	27,813	31,602	82,359	
Total ...	43,447	11,054	38,637	67,630	6,911	8,779	176,458	5,147	6,567	9,719	17,416	101,715	128,850	317,022	
	162	170	445	581	—	22	1,380	—	—	35	134	1,239	1,408	2,738	

Note.—The figures in *italics* relate to Ireland.

SCOTLAND.

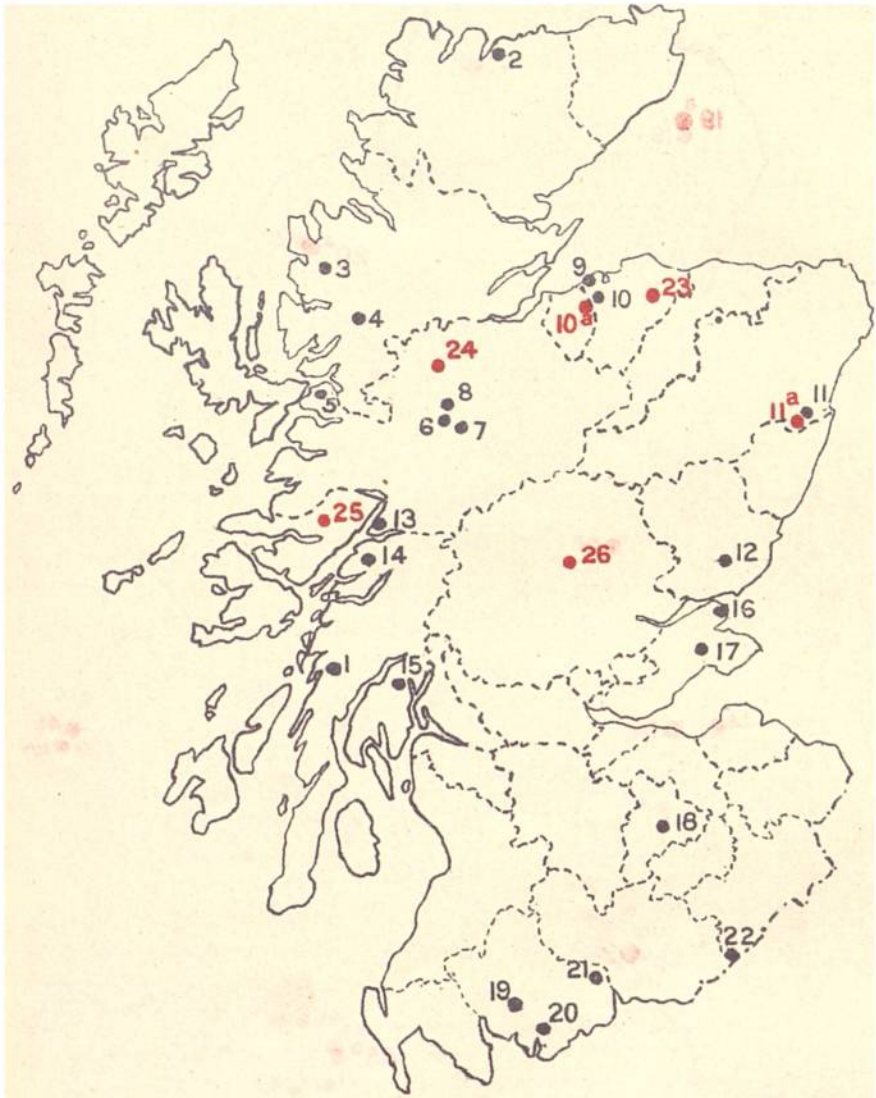
 CROWN WOODS.

1. Inverliever.

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FORESTRY COMMISSION AREAS.

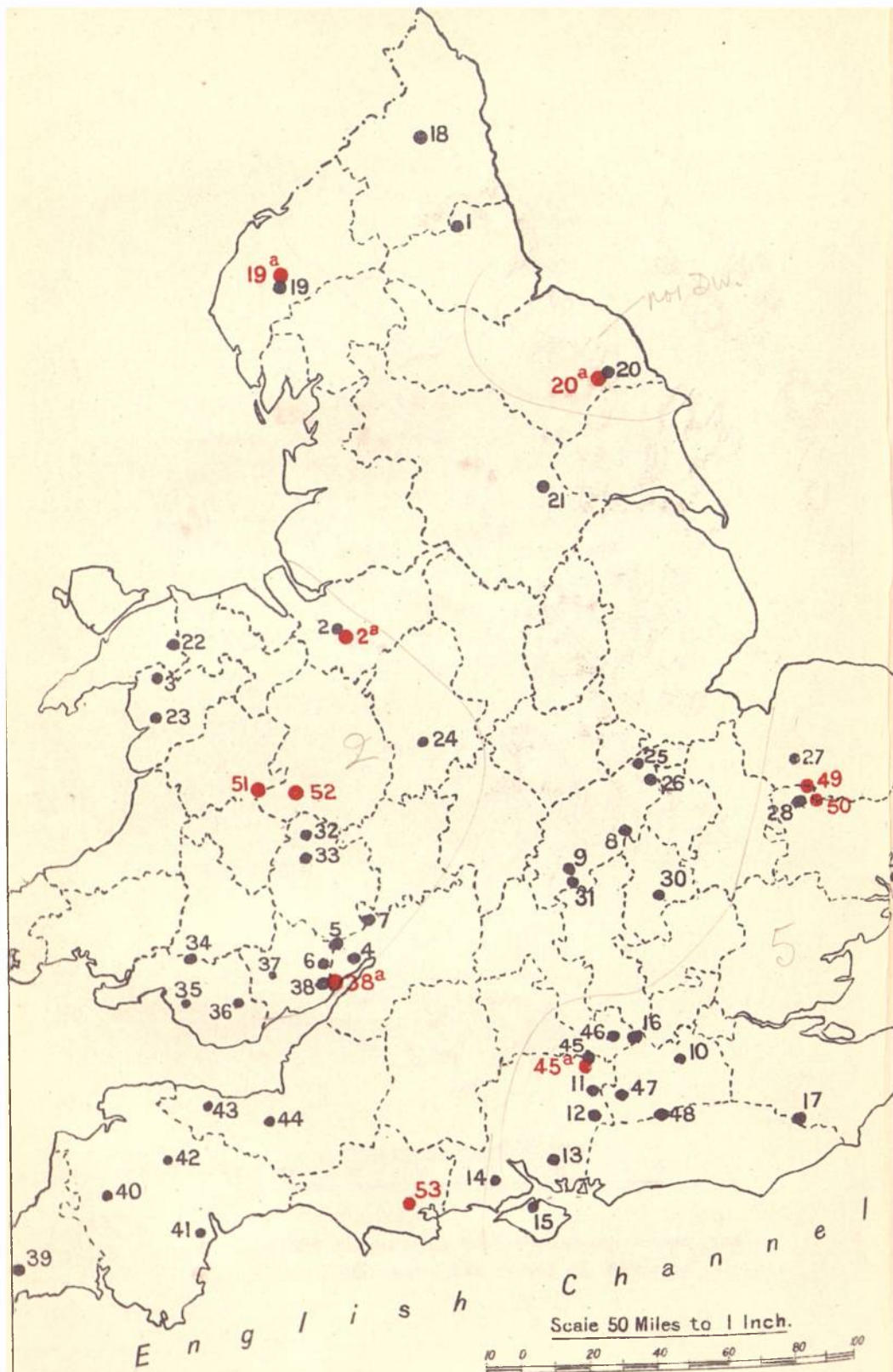
- | | |
|-------------------------|--------------------|
| 2. Borgie. | 14. Glenduror. |
| 3. Slattadale. | 15. Glenbranter. |
| 4. Achnashellach. | 16. Tentsmuir. |
| 5. Ratagan. | 17. Edensmuir. |
| 6. Inchnacardoch. | 18. Glentress. |
| 7. South Laggan. | 19. New Galloway. |
| 8. Port Clair. | 20. Screel Hill. |
| 9. Culbin. | 21. Aucheninnes. |
| 10. Monaghty. | 22. Newcastleton. |
| 10A. Do. (addition to). | 23. Teindland. |
| 11. Kirkhill. | 24. Glen Urquhart. |
| 11A. Do. (addition to). | 25. Glenhurich. |
| 12. Montreatmont. | 26. Drummond Hill. |
| 13. Glen Righ. | |



Scale 50 Miles to 1 Inch.



Land acquired before 30th September 1922.....●
 Land acquired in the Forest Year 1923.....●



Land acquired before 30th September 1922.●
 Land acquired in the forest Year 1923. ●

ENGLAND AND WALES.

CROWN WOODS.

- | | |
|----------------------|---------------------|
| 1. Chopwell. | 10. Esher. |
| 2. Delamere. | 11. Alice Holt. |
| 3. Hafod Fawr. | 12. Woolmer. |
| 4. Dean Forest. | 13. Bere. |
| 5. Highmeadow Woods. | 14. New Forest. |
| 6. Tintern. | 15. Parkhurst. |
| 7. Dymock. | 16. Windsor Forest. |
| 8. Salcey. | 17. Bedgebury. |
| 9. Hazelborough. | |

FORESTRY COMMISSION AREAS.

- | | |
|-----------------------------|-------------------------|
| 2A. Delamere (addition to). | 36. Llantrisant. |
| 18. Rothbury. | 37. Llanover. |
| 19. Thornthwaite. | 38. Chepstow. |
| 19A. Do. (addition to). | 38A. Do. (addition to). |
| 20. Allerston. | 39. Bodmin. |
| 20A. Do. (addition to). | 40. Halwill. |
| 21. Selby. | 41. Haldon. |
| 22. Gwydyr. | 42. Eggesford. |
| 23. Vaughan. | 43. Exmoor. |
| 24. Cannock Chase. | 44. Quantocks. |
| 25. Westhay. | 45. Bramshill. |
| 26. Apethorpe. | 45A. Do. (addition to) |
| 27. Swaffham. | 46. Wokingham. |
| 28. Elveden. | 47. Churt. |
| 29. Rendlesham. | 48. Chiddingfold. |
| 30. Ampthill. | 49. Downham. |
| 31. Brackley. | 50. Thetford. |
| 32. Wigmore. | 51. Kerry. |
| 33. Shobdon. | 52. Walcot. |
| 34. Rheola. | 53. Wareham. |
| 35. Margam. | |

Plantations. Year ended 30th September, 1923—England and Wales.

Forest.	Area planted (acres).				Species planted, including beating up (thousands).								Totals.			
	Afforested.		Re-afforested.		Total.		Scots and Corsican Pine.	Eur. and Jup. Larch.	Douglas Fir.	Norway and Sitka Spruce.	Oak.	Ash.		Beech.	Others.	
	Conifers.	Broad-leaved.	Conifers.	Broad-leaved.	Conifers.	Broad-leaved.										
Allerston, Yorks ..	586	—	—	—	586	—	315	405	17	428	—	—	—	—	39	1,204
Amphill, Bedford ..	—	60	58	—	58	60	46	35	37	—	—	—	—	—	—	118
Apethorpe, Northants ..	23	—	25	—	48	—	—	27	46	22	16	48	—	—	—	159
Bodmin, Cornwall ..	—	—	200	10	200	10	30	58	110	33	12	12	—	—	—	243
Brackley, Northants ..	—	—	—	151	151	—	13	22	50	70	130	132	—	—	—	417
Bramshill, Hants ..	—	—	470	—	470	—	440	10	50	49	—	—	—	45	—	594
Cannock, Stafford ..	200	—	262	—	462	—	972	—	—	—	—	—	—	—	—	972
Chepstow, Monmouth ..	—	—	234	12	234	12	34	117	51	46	—	5	—	11	—	271
Chiddingfold, Sussex ..	—	—	30	153	30	153	—	40	33	—	80	30	—	96	—	279
Churt, Surrey ..	—	—	200	—	200	—	53	—	170	—	—	—	—	—	—	228
Downham, Suffolk ..	215	—	58	5	215	5	11	33	63	64	—	6	—	2	—	182
Edgesford, Devon ..	—	—	—	—	—	—	602	—	50	—	—	—	—	3	—	655
Elvedon, Suffolk ..	453	—	—	—	453	—	307	18	7	—	—	—	—	—	—	336
Exmoor, Somerset ..	116	—	187	—	116	—	67	329	189	101	—	—	—	—	—	732
Gwydyr, Carnarvon ..	110	—	42	—	297	—	146	34	54	38	—	—	—	—	—	275
Haldon, Devon ..	80	—	19	—	140	—	93	17	35	172	—	—	—	—	—	320
Halwill, Devon ..	121	—	160	18	160	18	63	136	92	51	—	14	—	1	—	367
Llanover, Monmouth ..	—	—	169	20	169	20	18	56	100	74	—	12	—	—	—	273
Llantrisant, Glamorgan ..	189	12	169	—	189	12	37	124	57	118	—	8	—	—	—	353
Margam, Glamorgan ..	12	—	216	4	228	4	90	78	94	88	—	5	—	10	—	385
Quantocks, Somerset ..	287	30	—	—	287	30	636	7	84	—	—	—	—	64	—	791
Rendlesham, Suffolk ..	8	—	125	18	133	18	23	41	82	47	—	21	—	—	—	222
Rheola, Glamorgan ..	—	—	87	—	87	—	30	64	10	146	—	—	—	8	—	250
Rothbury, Northumberland ..	—	—	—	56	—	56	—	4	—	3	—	162	—	—	—	177
Selby, Yorks ..	—	—	251	—	251	—	25	174	84	—	—	—	—	—	—	283
Shobden, Hereford ..	—	—	315	—	315	—	869	73	7	—	—	—	—	—	—	449
Swaffham, Norfolk ..	315	—	—	—	315	—	—	21	9	120	—	—	—	—	—	150
Thorntwaite, Cumberland ..	93	—	—	—	93	—	—	—	85	—	—	—	—	—	—	85
Vaughan, Merioneth ..	—	—	90	50	90	50	—	—	—	—	—	—	—	—	—	33
Westhay, Northants ..	—	—	77	5	143	5	—	—	69	30	—	21	—	12	—	249
Wigmore, Hereford ..	66	—	44	—	44	—	3	138	—	—	—	12	—	—	—	3
Wokingham, Berks ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Totals—	2,346	70	2,770	451	5,116	521	—	—	—	—	—	—	—	—	—	—
Planted ..	528	32	2,344	56	762	88	—	—	—	—	—	—	—	—	—	—
Direct sowing ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Grand Total ..	2,874	102	3,004	507	5,878	609	4,428	2,081	1,735	1,700	226	488	124	293	—	11,055

Plantations. Year ended 30th September, 1923—Scotland.

Plantations. Year ended 30th September, 1923—Scotland.

Forest.	Area planted (acres).				Species planted, including beeing up (thousands).								Total.		
	Aforested.		Re-afforested.		Total.	Scots and Cor-sican Pine.	Eur. and Jan. Larch.	Douglas Fir.	Norway and Sitka Spruce.	Oak.	Ash.	Beech.		Others.	
	Coni-fers.	Broad-leaved.	Coni-fers.	Broad-leaved.											
Achnashellach, Ross	377	2	—	—	377	2	178	127	24	290	—	—	—	1	290
Auchenines, Kirkcudbright	133	—	—	—	133	—	154	—	—	54	—	—	—	1	209
Borgie, Sutherland	102	—	—	—	102	—	64	1	—	109	—	—	—	2	176
Craigmyle, Aberdeen	32	—	—	—	32	—	18	84	—	6	—	—	—	—	108
Culbin, Elgin	401	4	—	—	401	4	562	—	12	2	—	—	—	8	593
Drummond Hill, Perth	400	—	—	—	400	—	166	920	43	120	—	—	—	2	651
Edensmuir, Fife	94	—	—	—	94	—	165	11	—	—	—	—	—	—	176
Glenbranter, Argyle	417	15	—	—	417	15	—	10	7	683	—	—	—	15	715
Glenduror, Argyle	146	5	—	—	146	5	—	16	20	232	—	—	—	10	278
Glen Righ, Inverness	81	—	—	—	81	—	—	1	20	99	—	—	—	2	122
Glenrees, Peebles	35	—	—	—	35	—	57	63	19	10	—	—	—	1	150
Inchnacdoch, Inverness	298	—	—	—	298	—	45	11	12	455	—	—	—	—	523
Kirkhill, Aberdeen	99	5	—	—	99	5	—	52	18	68	—	6	—	—	144
Monaghty, Elgin	201	11	—	—	201	11	—	67	51	157	—	—	—	5	287
Montreathmont, Forfar	126	4	—	—	126	4	82	16	8	97	—	—	—	1	209
Newcastleton, Roxburgh	147	—	—	—	147	—	—	15	—	229	—	—	—	1	245
New Galloway, Kirkcudbright	46	—	—	—	46	—	8	12	21	73	—	—	—	35	149
Port Clair, Inverness	158	—	—	—	158	—	—	21	139	87	—	—	—	—	247
Ratagan, Ross	104	—	—	—	104	—	—	71	14	48	—	—	—	—	133
Slattadale, Ross	99	1	—	—	99	1	—	56	—	120	—	—	—	—	176
South Laggan, Inverness	117	—	—	—	117	—	—	41	—	130	—	—	—	—	171
Tentsmuir, Fife	348	—	—	—	348	—	636	10	2	13	—	—	—	2	663
Totals—	3,847	47	—	—	3,847	47	—	—	—	—	—	—	—	—	—
Planted	114	—	—	—	114	—	—	—	—	—	—	—	—	—	—
Direct Sowings	3,961	47	—	—	3,961	47	2,135	1,014	410	3,082	—	18	86	—	6,745
Grand Total	3,961	47	—	—	3,961	47	2,135	1,014	410	3,082	—	18	86	—	6,745

SUMMARY.

England & Wales	2,874	102	3,004	507	5,878	609	4,428	2,061	1,735	1,700	488	124	293	11,055
Scotland	3,961	47	—	—	3,961	47	2,135	1,014	410	3,082	—	18	86	6,745
Total Great Britain	6,835	149	3,004	507	9,839	656	6,563	3,075	2,145	4,782	488	142	378	17,800

Plantations. Crown Woods under the Technical Supervision of the Forestry Commissioners. Year ended 30th September, 1923.

Forest.	Area planted (acres).				Species planted, including beating up (thousands).											
	Afforested.		Re-afforested.		Total.		Scots. and Cor- sican Pine.	Eur. & Jap. Larch.	Douglass Fir.	Norway and Sibka Spruce.	Oak.	Ash.	Beech.	Others.	Total.	
	Coni- fers.	Broad- leaved.	Coni- fers.	Broad- leaved.	Coni- fers.	Broad- leaved.										
Alice Holt, Hants ...	—	—	6	21	6	21	14	1	—	—	—	—	—	—	—	—
Bere, Hants ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Chopwell, Durham ...	—	—	59	—	59	—	60	12	2	—	49	—	—	—	—	123
Dean Forest, Glos.* ...	12	21	189	40	201	61	40	134	119	24	157	11	86	56	—	627
Delamere, Cheshire ...	—	—	53	—	53	—	137	—	—	—	—	—	—	—	—	137
Dymock, Glos. ...	—	—	20	1	20	1	—	15	13	—	5	2	—	—	—	35
Fisher, Surrey ...	—	—	—	41	—	41	—	—	—	—	—	5	—	18	—	23
Hafod Fawr, Merioneth ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hazelboro N Hants. ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Inverliever, Argyle ...	189	—	—	—	189	—	2	30	8	—	259	—	—	—	—	299
New Forest, Hants ...	—	—	259	33	259	33	62	143	171	179	93	—	—	6	—	654
Parkhurst, I. of Wight ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Salcey, Northants ...	—	—	2	85	2	85	—	8	—	48	8	39	—	4	—	107
Tintern, Monmouth ...	61	—	36	—	97	—	122	66	99	—	39	—	18	—	—	344
Woolmer, Hants ...	—	—	52	—	52	—	—	—	—	—	—	—	—	—	—	—
Totals—	262	21	624	206	886	227	—	—	—	—	—	—	—	—	—	—
Planted ...	—	—	52	15	52	15	—	—	—	—	—	—	—	—	—	—
Direct Sowing ...	—	—	—	—	—	—	437	409	412	280	610	57	105	86	—	2,396
Grand Total	262	21	676	221	938	242	—	—	—	—	—	—	—	—	—	—

* Includes Abbotswood, High Meadow and Hope Wood.

The figures relative to areas and species stated in the tables on pp. 16-17 are exclusive of 1,180 acres planted in the Crown Woods which came under the technical supervision of the Commissioners and are shown separately on p. 18.

Nurseries.—The total area under nurseries at 30 September, 1923, was 441 acres stocked with 133 million seedlings and 43 million transplants. Comparative figures for the three years 1921-1923 are given in the following table.

Nurseries.

Year ending 30th September.	Country.	Seed Sown (lbs.)			Stock of Plants at 30th September (thousands).						Area (Acres).
					Transplants.			Seedlings.			
		Coniferous.	Broad-leaved.	Total.	Coniferous.	Broad-leaved.	Total.	Coniferous.	Broad-leaved.	Total.	
1923...	England and Wales.	8,178	11,702	19,880	22,665	1,480	24,145	69,029	3,586	72,615	272
	Scotland ...	3,044	3,309	6,353	18,881	173	19,054	59,362	1,225	60,587	169
	Total, Great Britain.	11,222	15,011	26,233	41,546	1,653	43,199	128,391	4,811	133,202	441
1922...	England and Wales.	4,553	33,669	38,222	21,012	2,412	23,424	62,455	8,391	65,846	126
	Scotland ...	3,269	19	3,288	19,150	199	19,349	65,607	224	65,831	181
	Ireland ... (to 31st March, 1922.)	—	—	—	2,381	7	2,388	6,090	25	6,115	38
	Total, United Kingdom.	7,822	33,688	41,510	42,543	2,618	45,161	134,152	3,640	137,792	345
1921...	England and Wales.	3,984	3,776	7,760	13,751	2,630	16,381	36,382	2,732	39,114	324
	Scotland ...	3,048	1,675	4,723	13,065	—	13,065	52,415	1,520	53,935	248
	Ireland ...	606	2	608	8,738	20	3,758	17,580	316	17,896	35
	Total, United Kingdom.	7,638	5,453	13,091	30,554	2,650	33,204	106,377	4,568	110,945	607

Supply of Seed.—Larch, Norway spruce, Corsican pine, Scots pine, Beech and Oak yielded abundant crops in the Autumn of 1922, while Douglas fir, Japanese larch and Chestnut failed entirely. The Commissioners, however, had carried over from the previous year sufficient stocks of Douglas fir seed to meet their own requirements, and, to a great extent, those of seed merchants and private individuals. The Sitka spruce crop was a complete failure in British Columbia but it is understood to have been fairly good in the United States; no seed of this species was purchased as sufficient supplies were in storage.

In addition to Douglas fir and Sitka spruce, large supplies of larch, Norway spruce, Corsican pine and Scots pine seed were stored in air-tight glass carboys and in all cases were found to have lost but little of their germinative capacity when tested in the Spring of 1923.

Sales of seed to nurserymen and private individuals in this country and to Dominion Governments amounted to 2,677 lbs.

Mr. Charles Lathrop Pack, President of the American Tree Association, presented 468 lbs. of Sitka spruce seed to the Commissioners, who desire to take this opportunity of recording their appreciation of his very generous gift.

**Sub-head F, Advances for Afforestation Purposes :
Expenditure, £37,505.**

Of the total expenditure, £6,543 was in respect of overhead and supervisory charges, £921 was in respect of a proceeds-sharing scheme in Aberdeenshire, while the remainder, viz., £30,041, was in respect of grants for planting, preparation for planting and scrub clearing for the relief of unemployment. The grants are dealt with further on page 28.

Sub-head G, Education : Expenditure, £11,792.

Details of expenditure and income are given in Table G below.

Table G.—Analysis of Education.

Year ending 30th September.	Expenditure (Table IIa, Col. (6)).							Income (Table IIa, Col. (12)).			Net Expenditure.	
	Superior Supervision and Overhead Charges.	Apprentices' Schools.					Grants to Institutions.	Total.	Labour of Apprentices.	Other.		Total.
		Salaries and Expenses of Instructors.	Purchases and Rent of Land and Buildings.	Allowances to Apprentices.	Stores and Equipment.	Fuel and Light and Sundry Expenses.						
	£	£	£	£	£	£	£	£	£	£	£	
1920 ...	3,432 537	1,343	2,033	1,417	425	605	—	21,544 2,277	—	103	199	21,344 2,277
1921 ...		449	—	—	—	—	—		—	—		
		8,493	2,479	2,468	982	1,625	1,242		—	96		
		1,291	—	—	—	—	—			—		
1922 ...	1,092 138	2,793 462	127	3,157	411	2,513	2,264	12,357 600	—	1,396 80	1,896 80	10,961 520
1923 ...	1,617	1,614	311	4,202	163	1,287	2,598	11,792	1,258	252	1,510	10,282
Total	6,141 675	9,243 2,202	4,950	11,244	1,981	6,030	6,104	45,693 2,877	1,258	1,847 80	3,105 80	42,588 2,757

Note.—The figures in *italics* relate to Ireland.

Apprentices' Schools : Expenditure, Gross £7,577 ; Net £6,319.
—The demand for trained men varies with a number of factors of which the most important is the rate at which the Commissioners' own planting programme is expanding. For the

moment the annual planting programme remains steady and it was decided during the year to close one of the three schools, namely that at Chopwell. The present schools in operation are Parkend (Forest of Dean) and Beaufort (Inverness-shire). Forty-five men received training at these schools during the year. The men, three in number, at Chopwell who had completed their first year of training were transferred to Parkend to finish their course.

Grants to Universities and Colleges: Expenditure, £2,598.—The following Universities and Colleges were in receipt of grants during the year:—Oxford University; Cambridge University; University College of North Wales, Bangor; Armstrong College, University of Durham; North of Scotland College of Agriculture.

The various Universities provide degree and diploma courses in forestry. Forestry courses are also available for students who are studying allied subjects such as Agriculture and Estate Management.

The number of students who were studying forestry for degree and diploma examinations was 112. The forestry courses associated with Agriculture and Estate Management were attended by 136 students. The number of forestry degrees granted during the year was 41, while 48 candidates gained forestry diplomas.

Sub-head H, Research and Experiment: Gross Expenditure, £5,125; Net, £5,115.

Details of expenditure are stated in Table H below:—

Table H.—Analysis of Research and Experiment.

Year ending 30 Sept.	Expenditure (Table IIa, Column (7)).						Income (Table IIa, Col. (14)).	Net Expenditure.
	Superior Supervision and Overhead Charges.	Salaries and Expenses.	Instruments, Stores, etc.	Labour, Seed and Sundry Expenses.	Grants to Institutions.	Total.		
1920 ...	£	£	£	£	£	£	£	£
1921 ...	3,380	4,078	30	137	—	15,472	—	15,472
1922 ...	556	5,983	169	945	750	6,646	567	6,079
1923 ...	625	4,463	75	983	569	6,646	567	6,079
Total...	4,561	2,981	168	843	508	5,125	10	5,115
	4,561	17,505	442	2,908	1,827	27,243	577	26,666

Research and experimental work, as a whole, has progressed steadily.

Production.—During the year 21 new permanent plots were established, 14 being in England and seven in Scotland. In addition, re-measurements were carried out on 12 plots, one in England and 11 in Scotland. The first thinnings of these Scottish plots, which were established in 1920, were in the nature of preparatory thinnings, and at this second measurement the strength of the heavy thinnings has been increased to the required standards. Re-measurements have now been made on 32 plots.

The total number of permanent plots is now 143, 82 being in England and 61 in Scotland. The details are as follows:—

Species.	No. of Plots.
European larch	33
Japanese larch	18
Scots pine ...	18
Corsican pine	10
Norway spruce	16
Sitka spruce	7
Mixed Scots pine and Norway spruce ...	1
Douglas fir...	29
Thuya gigantea	2
Abies grandis ...	1
Tsuga heterophylla	1
Weymouth pine ...	1
Broadleaved	6
Total	143

Once again the Commissioners are indebted to private land-owners for their co-operation in this work, all the new plots having been laid down on privately-owned estates.

Nursery and Plantation.—Numerous specially-designed experiments, each with a direct bearing upon the efficiency and cost of practical nursery operations, have been carried out during the past year.

Useful information has been obtained regarding the best seasons for the collection of tree seed, the treatment of the seed before sowing, depth, density and season of sowing, care and protection of seedlings, transplanting and improvement of nursery soils.

In the plantation series of experiments a number of new plantations were formed to test the suitability of various species, single or in mixture, on different sites and exposures. Plants

varying in age and size have been used, and different seasons and methods of planting have been adopted, in order that the relative efficiency of each may be compared. Some of the experimental plantations laid down in previous years will shortly provide a useful field for the study of root forms and growth activities of important species planted by different methods on areas previously subjected to varying forms of surface and soil preparation.

Entomological.—Work on insect pests continues to expand. Measures for the control of pine weevil, which were adopted after careful preliminary research and experiment, are working very satisfactorily.

Investigations regarding the Oak Leaf Roller Moth and other insects of economic importance are in active progress.

Botanical.—Mr. Hiley has been engaged on botanical problems arising out of the nursery experimental work. Mycological work is being carried out by Dr. M. Wilson, whose investigations into diseases of nursery stock have already indicated methods of prevention.

Ecological research is a subject of joint investigation by Messrs. E. V. Laing, G. K. Fraser and L. S. Watt. Peat problems are receiving special attention.

An investigation into the hybrid larch was delayed owing to the almost complete absence of flowers on the Japanese larch, which prevented any attempt at artificial crossing with the European larch. Next season promises to be more favourable and the work will be proceeded with.

Sub-head J, Agency and Advisory Services: Gross Expenditure, £19,569; Net, £19,530.

Of the total expenditure, £1,421 incurred in respect of Ireland consisted mainly of repayment to the Development Fund of receipts from Irish properties originally acquired by advances from that Fund. As regards Great Britain, the chief item of expenditure was £15,224 expended in the Crown Woods on unemployment relief work.

Sub-head K, Special Services: Gross Expenditure, £16,273; Net, £16,261.

Details of expenditure in connection with special services are stated in Table K below. The largest single item is £9,446, being the amount paid to the Irish Governments as their share of the Forestry Fund at the time of transfers of services. Relief of unemployment, £4,599, represents the "uneconomic" cost of work done under Sub-head E (Forestry Operations) in connection with unemployment relief schemes.

Table K.—Analysis of Special Services.

Year ending 30th September.	Expenditure (Table IIa, Col. (9)).							Income (Table IIa, Col. (16)).	Net Expen- diture.
	Superior Supervision and Overhead Charges.	Consulta- tive Com- mittee's Expenses.	Publi- cations.	Special Enquir- ies.	Relief of Un- employ- ment.*	Pay- ment of Irish Shares.†	Total.		
	£	£	£	£	£	£	£	£	£
1920	3,766 727	37 5	319 —	218 —	— —	— —	5,401 761	— 26	5,401 735
1921									
1922	2,188 2	92 6	479 —	576 —	10,160 —	— —	13,495 8	252 —	13,243 8
1923	1,372 —	65 —	122 —	669 —	4,599 —	— 9,446	6,827 9,446	12 —	6,815 9,446
Total	7,326 729	305 40	1,579 —	1,754 —	14,759 —	— 9,446	25,723 10,215	264 26	25,459 10,189

Notes.

* See Note 3 to Table IIa.

† Amount paid over to Irish Free State and to Government of Northern Ireland, being portion of Forestry Fund allocated to Ireland but unspent at date of transfer of Services. The figures in *italics* relate to Ireland.

Publications.—The publications issued by the Commissioners during the year ended 30th September, 1923, were as follows:—

Leaflet No. 10.—*Defoliation of Oak.* The Green Tortrix Moth: its life history and control measures.

Leaflet No. 11.—*Larch-shoot Moths.*

Leaflet No. 12.—*Income Tax and Death Duties on Woodlands.*

Bulletin No. 5.—*Poplars.*

Third Annual Report of the Forestry Commissioners, being the Report for the year ending 30th September, 1922.

Exhibits at Agricultural Shows.—Under the auspices of the Commissioners forestry exhibits were staged at the Shows of the Royal Agricultural Society at Newcastle, the Bath and West Society at Swansea, and the Highland and Agricultural Society at Inverness.

Census of British Woodlands.—In England and Wales four counties in which an experimental census was carried out have been completed and progress has been made with the survey of further 18 counties. The Valuation Office of the Inland Revenue Department has again been good enough to co-operate in the work. In Scotland statistics have been collected in respect of 255 parishes in 12 counties. Field work in connection with the survey of the remaining area is well advanced.

A summary of the statistics relative to those counties for which the census figures are complete is given below.

County.	Area of Woodlands.								Felled as percentage of Total Area of Woodlands.	Area of Woodlands as percentage of Total Area of County.
	Conifers.	Mixed.	Hardwoods.	Cop-pice.	Scrub.	Felled.	Uneco-nomic	Total.		
Hertford ...	Acres. 1,207	Acres. 2,420	Acres. 5,495	Acres. 12,086	Acres. 420	Acres. 1,824	Acres. 2,459	Acres. 25,911	7.0	6.4
Suffolk ...	7,985	5,685	8,401	10,711	977	2,872	1,802	38,433	7.5	4.1
Brecon ...	2,490	1,217	5,604	2,974	7,869	7,388	609	28,151	26.2	6.0
Montgomery	6,385	2,394	7,092	455	4,754	11,558	503	33,141	34.9	6.5
	18,067	11,716	26,592	26,226	14,020	23,642	5,373	125,636	18.8	5.4
Elgin ...	29,074	1,417	2,655	—	3,134	12,628	890	49,798	25.4	16.3
Linlithgow ...	768	105	1,082	—	379	1,070	1,056	4,460	24.0	5.6
Peebles ...	6,028	1,106	298	—	75	2,577	1,946	12,030	21.5	5.4
Stirling ...	2,984	1,439	1,325	3,201	2,015	3,149	1,974	16,087	19.6	5.6
Ayr ...	8,501	2,371	3,270	—	2,414	7,090	7,308	30,954	22.9	4.3
Clackmannan	1,379	126	415	—	43	1,270	211	3,444	37.4	9.9
Kinross ...	284	182	11	—	593	1,466	1,672	4,208	34.9	8.0
Roxburgh ...	7,109	1,827	2,335	3	599	3,140	3,737	18,750	16.8	4.4
	56,127	8,573	11,391	3,204	9,252	32,390	18,794	139,731	23.2	6.6

Enquiry into Softwood Resources.—A commencement was made during the year with an enquiry into the timber resources of the world having regard more particularly to the supply of softwoods.

A Report on the forest resources of Europe and a tabular statement showing the position so far as ascertainable in respect of each European country were completed and presented to the Empire Forestry Conference. From the compiled data it would appear that the annual consumption of softwoods in Europe greatly exceeds the annual forest growth.

Advantage was taken of the presence of representatives of the Commission in North America at the Empire Forestry Conference to obtain first-hand information on the forests and timber supply position both in Canada and the United States.

Consultative Committees.

The Consultative Committees for England and for Wales held two meetings during the year. The following subjects were considered and suggestions thereon forwarded to the Commission :—

Utilisation of home-grown timber.

Selection and laboratory testing of specimens of the newer exotic conifers.

Grants for afforestation schemes in relief of unemployment.

Progress of State planting and Census of woodlands.

Forestry data on Ordnance Survey Maps.

The Delegation for Great Britain to the Empire Forestry Conference included Lieut.-Col. G. L. Courthope and Sir James Calder.

The Commissioners regret to report the death of Major William Murray, a member of the Scottish Committee.

On the 25th March, 1923, the membership of the Committees was reconstituted under Section 1 (3) of the Forestry (Consultative Committees) Order, 1920; prior to that date the following changes took place:—

Resignations (a) from the English Committee: Lord Henry Cavendish-Bentinck, M.P.; J. H. Green, Esq.; Sir Edward Holt, Bart., C.B.E.; Sir Lawrence Weaver, K.B.E.; and Colonel J. W. Weston, M.P.; and (b) from the Welsh Committee: T. W. David, Esq.

Appointments (a) to the English Committee: H. L. French, Esq., C.B., O.B.E., and Brigadier-General H. G. J. de Lotbinière, D.S.O.; and (b) to the Scottish Committee: James Whitton, Esq.

The undermentioned were appointed or reappointed Members of the respective Committees as from the 25th March, 1923:—

England.

Lieut.-Col. G. L. Courthope, M.C., M.P. (*Chairman*).
 Colonel The Earl of Chichester, O.B.E. (*Vice-Chairman*).
 P. Barker, Esq.
 E. Callaway, Esq.
 W. Cundiff, Esq.
 M. C. Duchesne, Esq.
 H. L. French, Esq., C.B., O.B.E.
 E. C. Horton, Esq., O.B.E.
 Brigadier-Gen. H. G. J. de Lotbinière, D.S.O.
 A. Luttrell, Esq.
 Hugh Morrison, Esq.
 Major The Hon. Harold Pearson.
 Colonel B. J. Petre.
 T. Roberts, Esq.
 Sir William Schlich, F.R.S., K.C.I.E.
 W. R. Smith, Esq., M.P.
 Major S. Strang Steel, M.P.
 Christopher H. Turnor, Esq.
 J. W. Watt, Esq.
 Lieut.-Col. G. C. H. Wheler, M. P.
 Leslie S. Wood, Esq., F.S.I.
Secretary: H. A. Pritchard, Esq., O.B.E.

Scotland.

Sir Hugh Shaw Stewart, Bart., C.B. (*Chairman*).
 Brigadier-Gen. Stirling of Keir (*Vice-Chairman*).
 Right Hon. William Adamson, M.P.
 F. R. S. Balfour, Esq.
 William Black, Esq.
 Gilbert Brown, Esq.

Sir James C. Calder, C.B.E.
 Sir Isaac Connell, S.S.C.
 Robert Galloway, Esq., S.S.C.
 Sir John Gladstone, Bart.
 Sir Robert Greig, M.C., LL.D.
 J. H. Milne Home, Esq.
 George Leven, Esq.
 Sir Robert Lorimer.
 H. L. Macdonald, Esq.
 Sir Kenneth J. Mackenzie, Bart.
 J. T. McLaren, Esq.
 J. Matson, Esq., C.B.E.
 Donald Munro, Esq., O.B.E.
 Alexander Robson, Esq.
 James Scott, Esq., S.S.C.
 Professor W. W. Smith.
 Lieut.-Colonel The Earl of Stair, D.S.O.
 James Whitton, Esq.
 James Wight, Esq.
Secretary : G. R. Ditchburn, Esq.

Wales.

Right Hon. Lord Kenyon, K.C.V.O. (*Chairman*).
 Colonel F. D. W. Drummond, C.B.E., D.L. (*Vice-Chairman*).
 G. B. Bovill, Esq.
 Captain R. R. Conway, R.N., C.M.G.
 Lieut.-Colonel J. R. Davidson, C.M.G.
 Colonel David Davies, M.P.
 Captain J. D. D. Evans.
 G. A. Humphreys, Esq.
 C. Bryner Jones, Esq., C.B.E.
 John Jones, Esq.
 Lieut.-Colonel W. N. Jones, J.P.
 Colonel Charles Venables Llewellyn.
 F. J. Matthews, Esq.
 J. M. Naylor, Esq.
 Right Hon. The Earl of Powis, D.L., J.P.
 L. R. Pym, Esq.
 Right Hon. Thomas Richards.
 D. C. Roberts, Esq.
 J. Roberts, Esq.
 Major-General A. E. Sandbach, C.B., D.S.O.
 J. I. Storrar, Esq.
 C. D. Thompson, Esq., J.P.
 Right Hon. Lord Tredegar.
 R. W. Treseder, Esq.
 Colonel Sir H. L. Watkin Williams-Wynn, Bart., C.B.
 Percy Wilkinson, Esq.
Secretary : H. A. Pritchard, Esq., O.B.E.

Unemployment Relief.

The scale on which forestry schemes can be put in hand in relief of unemployment depends not merely on the amount of money made available for the purpose, but also on the preparatory notice given. It was not until the planting season 1922-23 was well advanced that the Forestry Commissioners were authorised to proceed with their proposals. The schemes were similar in character to those undertaken during the previous season.

(1) Operations on the Commission's Properties.

Work in the form of an acceleration of the normal programme was carried out at 49 different centres. The normal planting programme was advanced by 750 acres, and a considerable amount of work in preparation for subsequent planting was carried out, such as draining, fencing, scrub clearing and formation of roads.

It is estimated that employment equivalent to 13,700 man-weeks was given, in addition to the work provided by the normal programme.

(2) Operations in the Crown Woods.

Work was carried out at eight centres, the three largest being Tintern Woods, Dean Forest and New Forest. At Tintern, 6,525 yards of new roads were constructed and 7,075 yards of old roads were repaired, in addition to cleaning of rides, etc., at a total cost of £6,727. The work at the Dean was a continuation of the construction of new roads carried out during the previous season, and the expenditure amounted to £4,208. The sum of £2,545 was expended at the New Forest on road-making, drainage and scrub clearing.

The remaining operations were small individually and consisted of forestal operations, cleaning of rides and drainage.

The work commenced in January, 1923, and approximately 10,000 man-weeks' employment was provided.

(3) Operations on Properties belonging to Corporate Bodies and Private Individuals.

Expenditure took the form of Grants for *planting* (up to £4 10s. per acre to corporate bodies and up to £3 per acre to private individuals), *preparation of ground* to be planted subsequently (up to £3 per acre in each case), and *scrub clearing* in preparation for planting (up to £2 per acre and in special cases one-third of the net cost with a limit of £4 per acre to corporate bodies, and up to £2 per acre to private individuals).

The area brought under treatment is shown in the following table :—

—	England and Wales.	Scotland.	Total.
No. of Schemes	225	153	378
	Acres.	Acres.	Acres.
Planting	2,490	3,658	6,148
Preparation of Ground	1,680	4,395	6,075
Scrub clearing	752	1,263	2,015

The amount of the grants under these schemes was £35,986, but not all of the grants had been paid by 30th September, 1923.

It is estimated that this work provided approximately 58,000 man-weeks' employment.

The British Empire Forestry Conference (Canada, 1923), and the Imperial Economic Conference.

The Second British Empire Forestry Conference was held in Canada during the summer of 1923 under the auspices of the Dominion and Provincial Governments. Great Britain was represented by Lord Lovat (who presided over the Conference), Mr. R. L. Robinson, Dr. Borthwick (Research Officer), Mr. Fraser Story (Intelligence Officer), Dr. Munro (Entomologist), Sir James Calder, Professor Troup and Lieut.-Colonel G. J. Courthope, M.P., Chairman of the Empire Forestry Association.

On the return of the British delegates in October the Commissioners brought the Resolutions of the Conference before the Imperial Economic Conference then sitting in London. The resolutions were very sympathetically received, and the following resolution adopted :—

“ The Imperial Economic Conference accepts generally the resolutions of the Empire Forestry Conference (Canada, 1923), and recommends them to the respective Governments of the Empire for favourable consideration.”

Since this was the first occasion on which forest affairs were considered of sufficient importance to merit the attention of an Imperial Economic Conference, the Commissioners reproduce below their explanatory Memorandum, which also serves to illustrate the main features of the Canadian Conference.

MEMORANDUM BY THE FORESTRY COMMISSION.

IMPERIAL ECONOMIC CONFERENCE : FORESTRY.

1. In continuation of the introductory Memorandum* on forestry submitted in April last, the Forestry Commissioners beg to present the following statement with reference to the recommendations of the Empire Forestry Conference which has been held in Canada in the interval.

* A brief note indicating the importance of the Empire's forests, the trade in forest products, the state of the forests, the proposals of the Empire Forestry Conference of 1920, and foreshadowing a further report on the 1923 Conference.

2. The Conference was attended by representatives of Great Britain, India, all the Dominions and most of the important non-self-governing Colonies. Ample opportunities were afforded by the Canadian Federal and Provincial Governments for the inspection of Canadian forest resources and for discussion. The resolutions of the Conference explain in broad outline the work and findings of the Conference. It is proposed here to elaborate those subjects which are of general Empire interest, bringing to bear as well certain relevant information which the British representatives collected in a subsequent tour of the forests of the United States. These subjects are:—

- (i) Forest Policy.
- (ii) Softwood Resources.
- (iii) Empire Trade in Forest Products.
- (iv) Investigation into Forest Products.
- (v) Forestry Education (Central Institution).

Forest Policy.

3. Industry requires as raw material ever-increasing quantities of forest products. The increase is due not only to growth of population, but also to the greater *per capita* consumption. Thus in the United Kingdom the amount of wood and timber used per head of population trebled during the 60 years before the war and was still increasing steadily. Coniferous timbers (or softwoods) are required for structural purposes and for pulp for paper; broad-leaved timbers (or hardwoods) for special purposes and, to a minor extent, for pulp; and, finally, miscellaneous products (minor forest products), gums, resins, tannins, fibres, &c., for various purposes. Detailed figures for all these materials are not yet available, but the following figures indicate the magnitude of the current trade in timber, wood manufactures and pulp.

TRADE IN TIMBER, WOOD MANUFACTURES AND PULP OF WOOD, 1922.

	Imports.		Exports (including Re-exports).	
	From Empire Source.	From Foreign Sources.	To Empire Destinations.	To Foreign Destinations.
	£	£	£	£
United Kingdom	6,523,000	43,145,000	1,234,000	1,375,000
Canada	102,000	3,524,000	3,969,000	21,439,000
Commonwealth of Australia	1,070,000	1,920,000	1,246,000	72,000
New Zealand	590,000	123,000	484,000	1,000
Union of South Africa	793,000	1,439,000	23,000	29,000
Newfoundland	18,000	9,000	121,000	2,000
India	830,000	864,000	411,000	161,000
Colonies and Protectorates*	456,000	1,052,000	361,000	439,000
	10,382,000	52,076,000	7,849,000	23,518,000
	62,458,000		31,367,000	

* Exclusive of British Guiana, British Honduras and certain of the smaller Colonies for which no recent information is available.

It will be observed that 83 per cent. of the imports were from foreign sources and 75 per cent. of the exports to foreign destinations.

In 1922, Empire imports of the most important minor forest products amounted to approximately £8,000,000 and exports to £11,000,000.

4. It is a matter of elementary prudence for every country which is developing on the lines of Western civilisation to ensure that materials of first-rate importance to industry shall be readily available at all times. The aim of the forest policy is to ensure continuity of supplies on a scale sufficient to meet prospective demands. Resolution No. 1* of the Forestry Conference reaffirms what may be called the fundamental creed of foresters.

* *Resolution No. 1.*—Believing them to be well-founded, this Conference reaffirms Resolutions 1, 2 and 3 of the 1920 Conference, which emphasise the great importance of each part of the Empire laying down a definite forest policy, surveying its resources of timber, and ensuring that certain elements of stability are secured in the constitution of forest policy. Those resolutions are as follows:—

1. *Forest Policy.*—“ In view of the great importance to the Empire as a whole, as well as to each of its component parts, of producing a sustained yield of all classes of timber, of encouraging the most economical utilisation of timber and other forest products, and of maintaining and improving climatic conditions in the interests of agriculture and water supply, each of the Governments of the Empire should lay down a definite forest policy to be administered by a properly constituted and adequate forest service.
2. *Survey of Resources.*—“ The foundation of a stable forest policy for the Empire and for its component parts must be the collection, co-ordination and dissemination of facts as to the existing state of the forests and the current and prospective demands on them.
3. *Constitution and Status.*—“ In order to attain continuity in the development of forest resources it is desirable that certain elements of stability be secured in the constitution of the forest policy. This may be done by the following measures:—
 - (1) The definition (where this has not been done already) of forest policy in a Forestry Act or Ordinance;
 - (2) The reservation for the purpose of economic management and development of forest land under conditions which prevent the alienation of any which is primarily suitable for forests except for reasons consistent with the maintenance of the forest policy as a whole;
 - (3) The assurance to the forest authority of funds sufficient to carry out the accepted policy for a series of years;
 - (4) The grant to members of the forestry service of the status of civil servants with due provision for pension;
 - (5) The appointment as the chief officers of the forestry service of persons having a high standard of training in forestry, their selection and promotion being by merit alone.
 - (6) The establishment in each of the larger parts of the Empire and for the Colonies not possessing responsible Government collectively, of an officer or officers, having special duties of advising as to forest policy and surveying its execution.”

The Commissioners believe that the future well-being of the whole Empire and its individual parts depends in no small measure on the effective incorporation of this creed into accepted political economy, and they recommend it to the Imperial Economic Conference in that sense.

Softwood Supplies.

5. Of the total quantity of wood and timber used in the trade and commerce of the world probably at least 80 per cent. is softwood.

The great softwood forests are situated in the Northern Hemisphere, in Europe, Siberia and in North America. In round figures Europe is estimated to have 240 million acres of *merchantable* softwood forests; the area in Siberia is unknown, but the major portion is very difficult of access and unlikely to be of commercial value in the near future; the United States has 225 million acres (exclusive of Alaska), and Canada 234 million acres. Outside of Canada the Empire contains no large body of softwoods, which is surplus to present—to say nothing of prospective—requirements. As regards the Empire, the main lines of export of forest produce from the northern softwood forests are as follows:—From Northern Europe to Britain, South Africa, Australia and India; from Eastern Canada to the United States and Britain; from the Southern United States to Britain, and from Western Canada to the Orient, India and Australia, to the United States and Britain.

6. The position as regards permanence of supplies from these softwood regions is far from satisfactory. As regards the European exporting countries, in Sweden and Finland only is the annual growth equal to the annual cut. Little authentic information is available with regard to the great northern Russian softwood forests, which cover some 210,000,000 acres. The merchantable area is roughly 40,000,000 acres, but it is believed that the pre-war cut exceeded considerably the growth. The withdrawal of so large a body of timber from commerce emphasises the importance of every country maintaining reserves of its own.

In the North American softwood forests the inroads by felling, fire and insects are very great; in the Canadian forests at the best they balance the growth, while in the United States it is estimated that they are 4·8 times as great for all classes of softwoods and 8·6 times as great for saw-timber. The position of the United States is in fact of supreme importance in considering this question of the Empire's softwoods supply.

Starting with 820,000,000 acres of softwood and hardwood forest, the United States have now approximately 470,000,000 acres of nominal forest. Of the latter area, 138,000,000 acres

THE FLORA OF BERKSHIRE

H. J. M. Bowen, M.A., D.PHIL.

Announcing the publication on 1 May 1968 of a new Flora of Berkshire.

Size $7\frac{1}{4} \times 4\frac{7}{8}$ inches, approximately 400 pages and 57 pages of maps. Bound in cloth. Full-coloured dust-jacket. Price 45/- (or 35/- if ordered before 1 March 1968).

The last Flora of Berkshire was published in 1897 and has long been out of print. The present work lists not only the Seed Plants, but also the Ferns, Mosses (edited by Dr E. W. Jones), Fungi (edited by Dr F. B. Hora) and Lichens which occur in the county, with localities for the uncommon species. There are chapters on Geology and Soils, Fresh Water Habitats, Climate, Prehistoric Botany, Ecology and Land Use, and Geographical Relationships, together with indexes of localities and Genera. Finally there are 57 pages of maps showing the distribution of 570 species on a 5 km \times 5 km grid scale, with an indication of their abundances.

If you are interested in local plants, and want to know where to find them, this book will tell you where to search. Alternatively, if you find a rare plant, and want to know if it has been seen in the county before, this Flora will tell you.

Please send me a copy of **The Flora of Berkshire**.
I enclose a Cheque/Postal Order for forty-five shillings (or
thirty-five shillings if ordered before 1 March 1968), and this
address label.

Orders should be sent to:
Dr H. J. M. Bowen, 20 Winchester Road, Oxford

Name

Address

LILIACEAE

Fritillaria L.

F. meleagris L. *Snake's-head, Fritillary.*

Native. Damp meadows. Locally frequent by the Upper Thames, Cole and Loddon, rarely elsewhere as a garden escape. 11.

Inglesham, about 1000 plants!; Broadleaze Farm!; Grafton Lock, in quantity, GAM; Bagley Wood, 1940, EWJ; Sandford Lock, 1780, FB also 1850, J. H. WILSON, HBB and 1963, RCP!, once abundant but now nearly extinct; Thrupp, 1949, RC; Burghfield Bridge, JEL; Stanford End, 1885 and 1949, HBB! (about half a million plants in 1965); Swallowfield, by R. Blackwater, JO; Arborfield, LT, rare; Garden escapes seen at Frilford!; Mayos Farm, Wootton; East Hendred!; and Streatley, DLE; [East Hagbourne Mill, destroyed 1920; St Patrick's Stream, Hennerton and Maidenhead, FB]. This plant is still ruthlessly picked, but is in greater danger of extermination by ploughing and intensive grazing than by picking.

Erythronium L.

E. dens-canis L.

Alien. 20 plants in old plantation, Frilford, 1965!.

Tulipa L.

T. sylvestris L. *Wild Tulip.*

Introduced. Plantations, parks and near villages. Local, rare and often sterile. 5.

Kintbury, FB; Balsdon and Winding Wood, LMW; West Challow, SB; Childrey Rectory!; Between Wantage and Kingston Lisle, 1955, HBO; Charlton, 1963; Kingston Bagpuize, ABF and 1966, GAM; Bessels Leigh, FB and 1963!; [Boars Hill, Marcham and Kennington, FB; Marlston Park, 1892, GCD, HBO].

T. gesnerana L. *Garden Tulip.*

Alien. Frilford pit, 1955!, HBJMB.

Gagea Salisb.

G. lutea (L.) Ker-Gawl. *Yellow Star of Bethlehem.*

Native. Damp woods on calcareous soils. Very local and rare. 2.

Cumnor, 1856, HBO and 1964!; Above South Hinksey, 1880, HBO and 1953!; [Inkpen and Marley Wood, FB; Cothill, Wytham and Hawkridge, ABF].

Ornithogalum L.

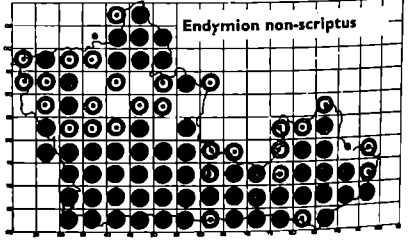
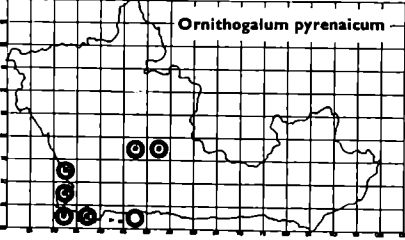
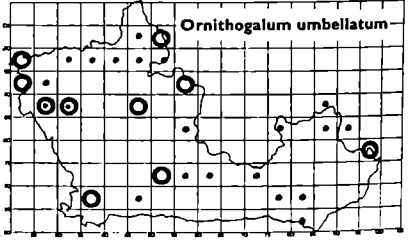
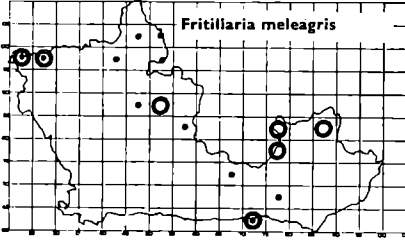
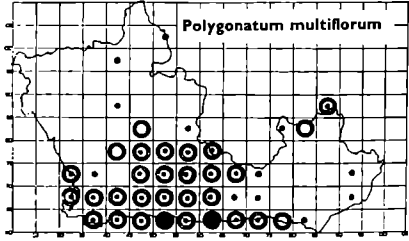
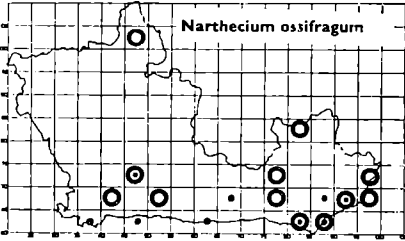
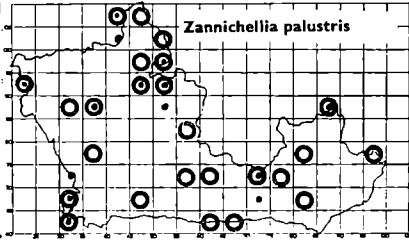
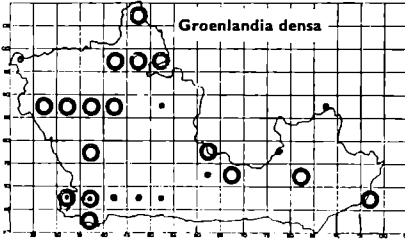
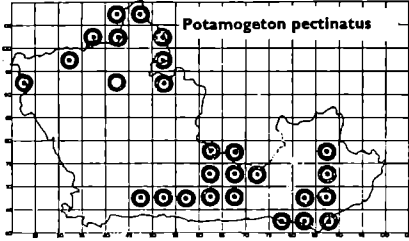
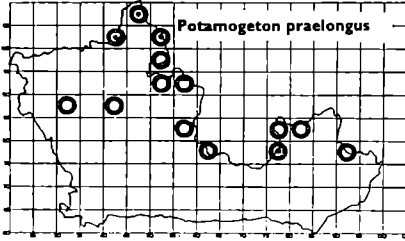
O. umbellatum L. *Star of Bethlehem.*

Native or colonist. Cornfields and grassy waste places. Local and rare. 21.

Whitehorse Hill!; Faringdon pit!; Buckland; Longworth!; Frilford, TBR!; Cothill!; Bessels Leigh!; Lower Radley, RCP; Donnington Castle, TBR; Stanford Dingley!; Streatley, DLE; Sulham, 1933, HBR; Leighton Park, JO; Arborfield; Park Place, VNP; Wellington College, GFCH; Easthampstead Park; Cookham and Cookham Dean, FA; Boulter's Lock, FA; [Watchfield, Kintbury, Shillingford, Bucklebury and Windsor, FB; Rowstock, ABF.]

O. nutans L. *Drooping Star of Bethlehem.*

Introduced. Plantations and parks, rare. 3.



are virgin forest, 250,000,000 acres are second growth, of which a very small proportion only is cared for systematically, and upwards of 81,000,000 acres are so devastated as to produce nothing until replanted. The great industries of the States are mainly in the east and the Atlantic forests have been depleted to meet their requirements. The procedure has been to work out one forest region and then to turn to the next most convenient region. The new region is attacked first on a small scale, the large export mill follows, production reaches its peak in a few years, remains steady for a few years more and then falls rapidly. After a small mill has completed the cleaning-up process, production is practically at an end and sometimes insufficient for local requirements. First the New England and then the Lake State Forests were worked out. In ten to fifteen years the Southern Forests, which now supply rather more than one-third of the total consumption of United States softwood timber will have reached the same stage of depletion. Lumber is now being transported by rail 2,750 miles from the Pacific Forests and 1,200 miles from the Southern Forests to the Eastern manufacturing centres.

This systematic depletion of the forests of the Eastern United States has been met by the increasing importation of forest products from Canada. The table below shows how the United States have displaced the United Kingdom in the Canadian export market :—

AVERAGE ANNUAL EXPORTS OF WOOD, WOOD PRODUCTS AND
PAPER FROM CANADA.

Values (\$) in 1,000's.

Destination.	2 years, 1891-92.	5 years, 1893-97.	5 years, 1898-1902.	4½ years, 1903-07.	5 years, 1908-12.	5 years, 1913-17.	5 years, 1918-22.
United Kingdom .	10,703	12,410	13,505	16,744	13,411	14,542	22,538
United States of America.	12,265	14,388	11,012	21,916	33,807	54,697	149,137
Other countries ...	1,417	1,679	1,952	4,313	5,957	5,754	18,196
Total... ..	24,385	28,477	26,469	42,973	53,175	74,993	189,871

Well-informed American opinion views the position with misgiving and anticipates that it may be necessary for the United States in due course to come into the European market for timber as they have already done to a small degree for pulp.

Such briefly are the grounds on which the Forestry Conference was led to pass the Resolution No. 2, that it was incumbent on every part of the Empire to conserve and augment its own resources of growing coniferous timber.

Hardwoods and Minor Forest Products.

7. *Hardwoods.*—The position differs materially from the softwood position. At present the demand is relatively small while the Empire possesses in its tropical and sub-tropical parts, huge resources for which no adequate uses have yet been found. There are, however, distinct signs of a change. The United States are using up their hardwoods at $3\frac{1}{2}$ times the rate of growth, there is an increasing tendency in certain districts to use hardwood sleepers in place of pine. The Madison Forest Products Laboratory is impressed with the situation and is turning its attention to the examination of tropical woods.

It is only reasonable to conclude that with the depletion of the softwoods and the better class temperate hardwoods, more and more recourse will be had to tropical woods, both because of their intrinsic merits and as substitutes for softwoods. There is undoubtedly within the Empire a large field awaiting development, but a considerable amount of systematic pioneer work is required first in taking stock of resources, and secondly in testing and bringing into commercial use timbers which are at present little known. The two should obviously proceed hand in hand.

Minor Forest Products.

So far as is known there is no special anxiety as to the future supply of the very numerous articles of commerce falling into this category. On the other hand British industries have shown a remarkable capacity to absorb new materials with distinctive properties, such as rubber, copra and palm oil, which were originally minor forest products.

The evidence produced at the Forestry Conference was to the effect that there was considerable room for development in the production of minor forest products, and it was agreed that the subject should be especially considered at the next Conference.

Empire Trade.

8. *Softwoods.*—As regards the trade in softwoods it does not appear that the main currents can be so deflected that the Empire can be made self-supporting. The indications rather are that one of them, the Canadian-United States current, is likely to increase until in due course there remains practically no surplus for export from North America. This statement is made on the basis of the present trend of development, which may be worth explaining in further detail.

As pointed out already in paragraph 6 the depletion of the forests of the Eastern States has rendered it necessary for the industries to seek fresh sources of supply, which the Eastern Canadian forests by reason of their accessibility have naturally provided. As regards timber the American consumer is less fastidious than the British, being content to buy $\frac{1}{8}$ inch boarding

as inch and to accept more defective material. A large proportion of the output of the saw-mills is of small dimensions, suitable chiefly for house building, and does not find so ready a market in Britain. As regards pulp-wood the United States pulp mills have found it desirable to import round about 1,000,000 cords in order to keep going or to conserve their own inadequate resources in growing wood. As regards pulp and paper, Canada exported in 1922 approximately 1,200,000 tons to the United States. These processes have resulted in the influx of American capital into the Canadian forests and with it a close understanding of trade requirements.

So much for the present trend of development : if on the other hand Canada could devote to systematic timber production the enormous area of land suited to nothing else, she could produce sufficient soft woods to meet not only the needs of the markets of the United States, but also the normal requirements of the Empire markets.

In spite of the permanent character of the main trade currents a number of examples were quoted at the Forestry Conference showing that with a better system of Trade Intelligence an increase in the Empire trade in softwoods might be secured. For example, fruit is carried from the West Indies and from South Africa to Canada in Swedish boxes ; timber is imported by Japan from British Columbia to be sawn up and re-exported as boxes to the Malay States ; Douglas fir timber similar to that growing in British Columbia is imported into Australia from Washington and Oregon.

Hardwoods and Minor Forest Products.—As regards hardwoods and minor forest products the markets to a considerable extent have yet to be developed. This subject is dealt with below under the heading, " Forest Products Investigation."

PROPOSALS FOR ACTION.

9. The Commissioners, on behalf of the Forestry Conference, venture to bring to the notice of the Imperial Economic Conference Resolutions Nos. 1 and 2 of the Forestry Conference, dealing respectively with Forest Policy and Softwood Resources and to suggest that both are of such importance as to warrant the attention and support of the Imperial Economic Conference.

Action in respect of both resolutions would then rest with the individual Governments of the Empire.

They have also the honour to submit the following proposals which call for co-operative action :—

- (a) A systematic survey of the forest resources of the Empire.
- (b) Forest products investigation.
- (c) An improved system of commercial intelligence.
- (d) An Empire Forestry Bureau.
- (e) A Central Training Institution (Forestry) at Oxford University.

Certain of these proposals, viz., the Survey of Resources, Forest Products Investigation and the Training Institute are purely forestry questions; those relating to Commercial Intelligence and the Forestry Bureau are involved in wider questions which are already before the Economic Conference.

10. *Survey of Resources.*—Most of the Delegates to the Forestry Conference were able to report that under the stimulus of the first Empire Forestry Conference (1920) a beginning is being made with this work, but it is desired to emphasise the importance of accelerating progress and aligning the results of the survey with the investigations to be conducted at the Forest Products Laboratories of the Empire.

11. *Investigations into Forest Products.*—It is clear that a great deal more attention could be paid with advantage to those great forest resources which have either remained undeveloped or imperfectly utilised. It is a problem which is common to all parts of the Empire and calls for concerted as well as individual action.

The Forestry Conference, in discussing this question, had before them reports on the work being done in Great Britain, Canada, India (Dehra Dun), Australia, South Africa and other parts of the Empire and in the United States. There was complete unanimity in the view that the lead set by the United States of concentrating investigations at a Forest Products Laboratory was sound, and Resolution No. 7* emphasised the necessity of setting up such a laboratory for Great Britain and those non-self-governing parts of the Empire which have no laboratories of their own.

Subsequently, Lord Lovat and other delegates to the Conference visited the United States laboratory at Madison and were able to confirm at first hand the wisdom of the resolution. The Madison Laboratory is probably one of the most successful of its kind in the world, and owes its success to the following, among other reasons:—

- (a) That it is under the direct charge of a responsible officer who has been given a reasonably free hand to concentrate on the work.
- (b) That the laboratory has gathered up, co-ordinated and expanded the scattered work already in progress.

In the words of Colonel Graves, late Head of the United States Forest Service, "We made no progress until we got the work under one roof and organised it."

* *Resolution No. 7.*—This Conference notes with pleasure the steps taken in Great Britain to form a Forest Products Research Board, but urges that the scope of the Board's work be extended considerably so that, in addition to fundamental research, it may undertake investigations leading to the application of the results of research to commercial practice, in accordance with the methods which have been found profitable in the United States of America, Canada, and India. This Conference further urges that immediate steps be taken to establish in Great Britain a well-equipped Forest Products Laboratory.

- (c) While keeping fundamental research well in the foreground, it has reached out into the commercial world inspiring it with the value of investigational methods and learning in return the nature of the problems with which the industry was confronted. In this way the confidence (and gradually the financial help) of commercial men has been obtained.

The experiences, so far as they go, of the existing Empire laboratories are confirmatory.

The setting up of the laboratory in the first instance is a matter for co-operation between the Colonial Office, as representing the non-self-governing parts of the Empire, the Department of Scientific and Industrial Research and the Forestry Commissioners. But the proposed laboratory ought to render wider Empire services than those connected with home and colonial forest produce. By co-ordinating its operations with those of the laboratories at Montreal, Dehra Dun and elsewhere, it should be possible to cover the whole field of work very effectively, to secure uniformity in methods and to prevent overlapping. By this means a very desirable stimulus could be given to the more systematic investigation and utilisation of our very valuable forest resources.

12. *Commercial Intelligence and the Empire Forestry Bureau.*

—The Commissioners observe that the subject of Commercial Intelligence is before the Economic Conference, and they have, therefore, no comments to make except that the subject of Forest Products should receive adequate attention in the scheme which will doubtless be evolved, and that it will be necessary for the proposed Forest Products Laboratory to be kept in the closest possible touch with the Forest Products side of the work of the Commercial Intelligence organisation.

The proposal to form an Empire Forestry Bureau originated at the First Empire Forestry Conference (1920), and was reconsidered at the Second Conference (1923). The recent proposals with regard to the reorganisation of the Imperial Institute (I.E.C. (23)-13), were not then known, and the Second Forestry Conference considered it advisable, in view of the current financial stringency, to distribute the work of the Bureau, so far as possible, between the Empire Forestry Association and a Standing Committee (Resolutions 5 and 6).*

* *Resolution No. 5.*—This Conference welcomes the incorporation by Royal Charter of the Empire Forestry Association, under the Presidency of H.R.H. The Prince of Wales, and commends its work to all interested in the forests of the Empire. This Conference considers that the Empire Forestry Journal, issued periodically by the Association, should be the medium for the publication of official and technical information; that, pending the formation of an Empire Forestry Bureau, this information

The paper submitted by the Department of Scientific and Industrial Research (I.E.C. (23)-16, paragraph 35) points out that a place should be reserved for the Forestry Bureau in the reorganised Imperial Institute, and the Commissioners would support that proposal.

13. *Central Training Institute.*—The development of technical Education and Research in forest matters has not kept pace with requirements. There has been a dispersal of effort, with the result that at no place in the Empire is it possible adequately to train technical officers and research workers. This is a serious hindrance to forest development and was emphasised in Resolution No. 4* of the Forestry Conference. The debates on the subject showed clearly the desire of overseas forest officers to have in close proximity to the Continent of Europe a centre from which to study the result of the old-established systems of silviculture and methods of research.

The proposal to set up forthwith at Oxford a central Institution for post-graduate training and research is founded partly on that need, but it is hoped that in due course other parts of the Empire will establish similar institutions for the development of special

should be collected and prepared by the Standing Committee on Empire Forestry (see Resolution No. 6), assisted by technical correspondents in all the Forest Departments of the Empire.

This Conference endorses the recommendations of the Committee appointed to consider this subject (Appendix B).

Resolution No. 6.—With a view to maintaining continuity of action in respect to meetings of the British Empire Forestry Conference, this Conference recommends the establishment of a Standing Committee which should consist of:

- The Chairman of the Empire Forestry Conference;
- The Technical Commissioner of the British Forestry Commission;
- The Head of the Proposed Central Institution for Education;
- One representative from each of the following:
 - Colonial Office,
 - India Office,
 - The unit of Empire in which the last Conference was held,
 - The unit of Empire in which the next Conference will be held,

- A member of the Council of the British Empire Forestry Association who has had experience in Colonial Administration, with power to add to their number.

* *Resolution No. 4.*—This Conference strongly endorses the view held by the 1920 Conference that a Central Institution for post-graduate and specialised training in forestry, combined with research, is essential to the proper development of the forest resources of the Empire, and regrets that owing to abnormal financial conditions the setting up of such an institution has had to be postponed. This Conference approves the report of its Committee appointed to inquire into this subject (Appendix A) and urges the departments concerned to take immediate steps to inaugurate a Central Institution for forestry training and research at Oxford University, so that, if possible, it may begin to function at the opening of the next academic year, i.e., in October, 1924.

subjects. Canada, for example, for forest engineering ; India for tropical forestry. The main cost of the Institution will fall, in the first instance, on the Forestry Commission and the Colonial Governments, but it is believed that the Dominion Governments and the Government of India may find it of practical value and worthy of some measure of financial support.

(Signed) LOVAT (*Chairman*).
 F. D. ACLAND.
 CLINTON.
 L. FORESTIER-WALKER
 T. B. PONSONBY.
 R. L. ROBINSON.
 W. STEUART-FOTHRINGHAM.
 J. STIRLING-MAXWELL.

A. G. HERBERT (*Secretary*).
 22, Grosvenor Gardens, S.W.

May, 1924.

APPENDIX.

Imports of Timber, Wood Manufactures and Pulp of Wood.

The total value of imports of unmanufactured timber, manufactured timber and pulp wood during 1923 amounted to £62,448,000 against £49,669,000 in 1922, £40,533,000 on the average of the five years 1914-18 and £34,314,000 on the average of 1909-13.

As regards quantities, imports of unmanufactured timber in 1923 amounted to 9,820,000 loads which was nearly 23 per cent. above the 1922 import and 96 per cent. of the pre-war import. Imports of pulp of wood amounted to 1,133,000 tons which is a record figure and 32 per cent. above the pre-war amount.

Description.	Quantities (thousands).				Value (thousands).			
	Average 1909-13.	Average 1914-18.	1922.	1923.	Average 1909-13.	Average 1914-18.	1922.	1923.
TIMBER.								
Hewn-Hard—	Loads.	Loads.	Loads.	Loads.	£	£	£	£
Mahogany	—	—	43	48	—	—	688	698
Walnut	—	—	1	56	—	—	23	740
Oak... ..	—	—	15		—	—	184	
Teak	—	—	7		—	—	211	
Other sorts	—	—	19		—	—	270	
Hewn-Soft (Fir, pine, spruce, etc.)	542	129	155	250	1,353	583	849	1,143
Sawn-Hard—								
Mahogany	—	—	21	26	—	—	409	528
Walnut	—	—	5	283	—	—	126	5,238
Oak	—	—	93		—	—	1,404	
Teak	—	—	13		—	—	343	
Other sorts	—	—	151		—	—	1,858	
Sawn-Soft—								
Deal and Planks ...	—	—	2,578	4,671	—	—	13,004	26,622
Boards	—	—	930		—	—	5,063	
Other sorts	—	—	492		—	—	2,882	
Planed or Dressed—								
Floorings	—	—	278	427	—	—	1,889	3,066
Matchings	—	—	67		—	—	419	
Other sorts	—	—	36		—	—	284	
Other Descriptions—								
Pitprops	2,944	1,673	2,812	3,677	3,510	4,425	5,486	7,685
Staves	161	71	75	84	795	648	738	564
Sleepers	—	130	212	294	—	602	1,114	1,340
Veneers and panel wood.	—	—	1	2	—	—	53	90
Not elsewhere speci- fied.	6,557*	3,550*	1	2	21,903*	24,362*	24	23
Total unmanufactured timber.	10,204	5,553	8,010	9,820	27,561	30,620	37,321	47,737
WOOD MANUFACTURES.								
Furniture and cabinet ware.	—	—	—	—	416	115	476	539
Builders' woodwork (window frames, doors, etc.)	—	—	—	—	180	62	235	377
Chip boxes	—	—	—	—	—	—	4	3,663
Tool handles	—	—	—	—	—	—	133	
Domestic wood-work (bread platters, trays, etc.)	—	—	—	—	—	—	236	
Not elsewhere speci- fied.	—	—	—	—	2,099	1,821	2,725	
Total manufactured timber.	—	—	—	—	2,695	1,998	3,809	4,584
PULP OF WOOD.								
Pulp of wood	Tons. 859	Tons. 682	Tons. 925	Tons 1,133	4,058	7,915	8,539	10,127

* These figures apply mainly to sawn softwoods. It is not possible to differentiate according to the various categories enumerated above owing to a change in the Board of Trade classification for 1920 onwards.