IRISH FORESTRY



Vol. V., Nos. 1 and 2. Winter, 1948 Price 3/-

AFFORESTATION

in'

"Since it is certain and demonstrable that all arts and artisans whatsoever must fail and cease if there were no wood in a nation (for he that shall take his pen and begin to set down what art, mystery, or trade belonging anyway to human life could be maintained and exercised without wood will find that I speak no parodox). I say when this shall be well considered, it will appear that we had better be without gold than without timber. —from Evelyn's "Sylva."

REPLANT THOSE FELLED AREAS NOW

Write for our Forest Tree Catalogue issued in September. Over 40 acres of Seedlings and Transplants always in Stock. Seed Catalogue issued in January.

D. MELDRUM & SONS

THE FOREST TREE NURSERIES, FORFAR, SCOTLAND Established 1864.



IRISH FORESTRY

CONTENTS

CONTENTS		Page 1
LIST OF OFFICE BEARERS AND COUNCIL		2
EDITORIAL—BRITISH FORESTRY		3
ORIGINAL ARTICLES :		
Extraction of Conifer Seed at Avondale. A. J. H	anahoe	9
Introducing a New Fountain Brush. Malachy Sh	arkey	17
Monterey Pine as a Forest Tree in Ireland.	Niall	
O Muirgheasa, B.Agr.Sc		20
OBITUARY		26
REVIEWS AND NOTICES :		
Exotic Forests of New Zealand		29
National Forest Parks Guide—Snowdonia		31
Empire Forests and the War		32
Report of the Forestry Commission, 1947		34
Empire Forestry Review		35
Forest of Ae		36
Poplar Planting		37
Report of the Fifth Empire Forestry Conference		38
Forestry Commission Leaflet No. 16-Larch	Canker.	
Leaflet No. 26-The Spruce Bark Beetle		38
OFFICIAL INFORMATION		
Annual General Meeting, Dublin, March 16th, 1	948	40
The Annual Excursion, 1948		47
General Meeting, Sligo, June 2nd, 1948		52
Statement of Accounts		61

SOCIETY OF IRISH FORESTERS

President :

M. O'BEIRNE, Avondale, Rathdrum, Co. Wicklow.

Vice-President :

F. McMAHON, "Wayside," Rathdrum, Co. Wicklow.

Secretary and Treasurer :

T. CLEAR, Albert Agricultural College, Glasnevin, Dublin.

Editor :

T. McEVOY, 104 Lr. Leeson Street, Dublin.

Business Editor :

J. J. MAHER, Aughrim, Co. Wicklow.

Councillors, 1948-49:

D. MANGAN, "Graigue," Richmond Avenue, Dublin.O. V. MOONEY, Hollybrook, Bray, Co. Wicklow.D. M. HAYES, Donadea, Co. Kildare.

1947-48 :

P. RYAN, 168 Kimmage Road West, Dublin. H. M. FITZPATRICK, Kendalstown Hill, Delgany, Co. Wicklow. A. J. HANAHOE, Avondale, Co. Wicklow.

Auditor :

DUNCAN CRAIG, 102-103 Grafton Street, Dublin.

Trustees :

H. M. FITZPATRICK, T. DONOVAN, J. A. K. MELDRUM.

Committees (Convener's name first) :

Editorial: T. McEvoy, J. J. Maher, O. V. Mooney, F. McMahon, A. J. Hanahoe.

Finance : T. Clear, T. McEvoy, J. J. Maher, P. Ryan.

Tree Registration: H. M. FitzPatrick, O. V. Mooney, P. Ryan, D. M. Hayes.

Excursion : T. McEvoy, F. McMahon, H. M. FitzPatrick.

IRISH FORESTRY

VOLUME V.

WINTER, 1948

NUMBERS 1 and 2

BRITISH FORESTRY

Probably one of the most useful functions of the Society's Journal is to keep members abreast of forestry developments in other countries. In this belief it is the intention to devote considerable space in future issues to reviews of forest publications from all parts of the world, to summaries of progress in particular aspects of silvicultural technique and research, and generally to provide an up-to-date forest news service.

As a step in this direction this editorial is given over to some comments on British Forestry which were evoked by attendance at the Commonwealth Forestry Conference held in Britain in June and July, 1947. In view of the essential similarity of the afforestation problem there and here, members will no doubt be interested in comparing methods and results.

In both countries State intervention in forestry can be said to date from the early years of this century but no substantial progress had been made prior to the first World War. The Acland Report of 1917 recommending the setting up of a permanent forest authority — the Forestry Commission—with a definite programme of afforestation applied to Ireland as well as Britain, and a start had actually been made before the Anglo-Irish Treaty of 1921 was ratified. That year marks the parting of the ways, and divergences in policy and methods date from that time.

Our first impression of the English countryside was gained when the Dakota, beginning its descent towards Northolt, pierced a layer of dense cumulus cloud. The country west of Harrow came into view and it was a surprise and a pleasure to see that, by and large, the ravages of war were so insignificant. It was immediately apparent that, even in the neighbourhood of a great metropolis, the hedgerow and park trees and spinneys, which are so much a part of English scenery, had not suffered in a fuel crisis such as we had experienced. The domestic coal ration continued right through the war and labour could not be spared for the tedious conversion of rough timber into firewood blocks. The contrast in the matter of fuel was perhaps best epitomised by the attractive display in an Oxford coal-merchant's window of 6-inch, handy, seasoned. split firewood blocks at a very reasonable price. This at a time when Eire was suffering a fuel scare !

But, if the hand of war passed lightly over the scattered firewood trees, it fell heavily on the commercial woods. The large conifer blocks especially were clear cut and this wholesale clearance was particularly evident in eastern Scotland where once the sombre green of massed Scots Pine was such a scenic feature.

Here again the severe shortage of labour and the scarcity of trained foresters to supervise fellings was evident. Work had to be concentrated as far as possible and maximum output obtained. Whereas in Eire it was possible to arrange, in Forestry Act inspections, to retain marginal screens, shelterbelts and scattered seed trees and to preserve immature stands, in Britain such discrimination was impossible. So desperate was the position that at one stage the very fine Corsican and Scots plantations, established only 20 to 25 years ago by the Forestry Commission in East Anglia, were in danger of the axe. They were finally saved by a compromise which has since been elevated almost to the status of a scientific principle of thinning. This consisted in the complete removal of every third line with normal thinning of the other lines-or variations on this theme. This system had two important advantages; one, that on the flat sandy soils of the Breckland lorries could travel along the newly-made alleys so that extraction was done with great economy in cost and—even more important at the time-in labour; two, the yield in thinnings worked out at 40 per cent. or more of the entire crop, a figure which met the requirements of the Timber Control. When we examined these plantations we found they had made a remarkably rapid recovery from this severe treatment. This was especially true of the better Corsican stands which initially had a high proportion of straight stems. In the poorer Scots stands with many defective stems recovery was slower and the removal of one line in six appears to be the most that can be safely undertaken. While these methods of thinning are not of general application here, they do point to the practicability-and perhaps even the desirability—of heavier grades of thinning than are customary in young stands.

Before leaving East Anglia with its concentration of some 50,000 acres of young pine plantations, a word of praise is due for the excellent fire fighting arrangements and equipment and for the very close utilization of thinnings.

Normally twenty year old pine poles are a drug on the market—poor firewood, not durable enough for fencing, too ugly for rustic work, unfavoured as pit props. But in East Anglia nothing is wasted. Material over 8 inches diameter is classed as saw timber; from $3\frac{1}{2}$ -8 inches diameter is pitwood; from $1\frac{1}{2}$ to $3\frac{1}{2}$ inches is pulpwood. The market for this small size pulpwood holds for all conifer species. The material is sold from a central dump at 50 shillings per ton to a London fibre-board factory which has 300 employees and is dependent on this source of supply for some 75% of its raw material.

The very dry climate of East Anglia with a rainfall of only 20-22 inches, the large blocks of young pines interspersed with heath, and the exceptional war-time risks from incendiaries, troop encampments and other sources combined to force the pace in fire protection. As a result it is now the most advanced forest district in this respect in Britain. There is a net-work of fire-towers and static water tanks; heavy Bren gun carriers, capable of negotiating most obstacles, have been converted into fire engines carrying 300 gallons of water and a rotary pump; Jeeps and lorries rush men and equipment to an outbreak. Tractor-ploughed fire lines break up the forest.

By way of contrast with the heath pine plantations, we saw on the Scottish border a great aggregation of spruce forest. In the counties of Northumberland, Cumberland, Dumfrieshire and Roxburghshire an area of 160,000 acres has been acquired by the Commission and about 50,000 acres have been planted to date. Rainfall on the higher ground reaches a maximum of 75 inches; the peats and heavy clay soils with Molinia as the dominant plant indicate spruce conditions and Sitka dominates the scene. Although these rolling hills are comparatively fertile, the land was held in sheep farms averaging well over a thousand acres each and population is sparse. Compared with Irish conditions acquisition appears to have been easy. In fact the Commission's first worry was to get enough men to work the forest and a housing scheme had to be put into operation from the start. Here were pointed out the sites set aside for seven forest villages of the future and for the town which would serve them with secondary schools and other urban facilities.

Only a very small proportion of the planted area has reached the thinning stage but the construction of a forest road system is well under way. Throughout the entire Border district tractor ploughing is now routine preparation for planting and the results in cheap and rapid establishment have fully justified the method. More of this anon.

Travelling north to Inverness, capital of the Highlands, delegates studied the afforestation of the Culbin sand dunes on the East Scottish coast. The situation is too far north for Maritime Pine but Corsican does well and the crop is very promising. Exposure, of course, is not to be compared with our west coast.

A visit to the Lon Mor experimental forest at the head of Loch Ness served as a review of the progress of afforestation technique in the past quarter century. Back in 1925 this great basin-shaped depression in the Inverness hills was chosen as, if anything, a worse than typical example of Highland bog-Lon Mor is Gaelic for Great Waste. It contains peat-bog with a depth of as much as twelve feet, peat-clad schist ridges and peat-covered moraine. Except for a few Molinia flushes Scirpus, Cross-leaves Heath, Sphagunm and sickly sparse heather (Calluna) covered everything. This was the site chosen for the trial of a wide variety of species and of methods of establishment. In this and in several other research forests were carried out the experiments which to-day form the basis of British afforestation routine. The cost of the Research Branch works out at about 2% of the Commission's expenditure and no outlay has produced fruit more abundantly. No doctrine is as dangerous as that which says that forestry cannot afford research. An industry which has to do with factors of soil, climate and species which are as yet only dimly perceived cannot afford to do without research.

As work proceeded turfing by hand gave way to mechanical preparation by ploughs drawn by caterpillar tractors. Methods are now more or less standardised, but several plough types are in use and further developments in the direction of integrating plough and tractor may be expected. To explain the work : the plough turns out a continuous inverted sod which is pushed about two feet from the edge of the furrow and the ploughing is repeated at five feet intervals. Planting is done cheaply by notching into the upturned sods. The depth of ploughing varies from a few inches up to 18 to 20 inches in extreme cases. It was a revelation to study the beneficial effects of this treatment on the establishment of plantations. Soils very similar to those on which we have "burned our fingers" with Sitka and have had to replace with Contorta are taking Sitka with little initial check. Efficient drainage, aeration and the temporary elimination of competing surface vegetation appear to be the important factors.

This discussion brings into relief the fundamental divergence in the development of afforestation technique in Ireland and Britain. On the other side the forester attempts to improve his soil to take such species as Sitka, Douglas and Scots. Here the tendency is to suit the species to the soil with no more preparation than hand-turfing and draining. The result is probably best reflected in the relative use of *Pinus Contorta* — the last resort of the forester for the poorest soils. This species must form the

bulk of the 20% of "Pines other than Scots and Corsican" which have been used here in recent years. The Forestry Commission on the other hand use only a very small proportion—in 1937 it worked out at less than 2%.

This species has been in use in large-scale afforestation for only 23 years but we have no reason to be dissatisfied with it to date. In fact there is evidence that our stands are more advanced and growing more vigorously than their Scottish counterparts. The Scottish stands are not markedly faster in growth than Scots Pine. Part at least of the explanation seems to be in the choice of strain. This species has an enormously wide range from sea level to nearly 11,000 feet elevation on the Pacific Coast; and there is a corresponding wide variety of "races," some from the higher Sierras being given by some botanists the separate specific title of *Pinus murrayana*. We appear to have been using much seed collected from the lower part of its range and the resulting plants are more vigorous, denser in foliage and more spreading in crown than the mountain types apparently favoured by the Forestry Commission.

To return from this interesting digression to the subject of mechanical ground preparation, it may be remarked that the system is not without its risks—risk of windfall owing to the constriction of the root system into a five-part band, and risk that the promise of rapid early growth may end in stagnation in the thicket or small pole stage. The latter danger is more immediate when a species inherently unsuited to the site is used. The special treatment may cloak temporarily this incompatibility, but when canopy is closed and the crop is making its maximum demands on the soil, it may show up. Obviously the danger lies in overoptimistic selection of species and the method should not be condemned for its potential risks.

The other main point of divergence is in the use of manures in planting on poor peat soils. After many years of trial it has become obvious that the significant mineral deficiency is in phosphate. But the addition of this mineral, usually as basic slag or ground phosphate, does more than make good a deficiency; it sets in motion reactions as yet obscure which cause a break-down of raw peat and which enable the appropriate mycorrhizal associations to be formed. Particularly with Sitka, it eliminates the planting check and enables the crop to overcome competing vegetation and form an early canopy. On marginal spruce types the practice seems fully justified. At the Lon Mor we saw one instance of the remarkable effect of basic slag applied to planted in 1926 on an exposed and very Pinus Contorta, infertile peaty ridge. While the unslagged plants were only about five feet high and making little headway, the slagged plants averaged over twenty feet and were very vigorous. It has been noted that while the effect of phosphates appears to be more or less permanent in the case of pines, this is not so with spruce on the worst peats.

To sum up the results of manurial experiments, we cannot do better than quote the official attitude in the early days: "An ounce of patience is worth a ton of slag." It is now customary to transpose "patience" and "slag" in that statement.

There is one side of the work of forestry in which Irish foresters seem to come out favourably in any comparison. In thinning our foresters gained much experience in the vital war years at a time when their British conferes were hampered by many difficulties. The Commission's staff are only now coming to grips with this problem and appear still somewhat hesitant in their approach. One feels, however, that, as in establishment technique, the excellent work on thinning grades and methods done by the Research Branch will soon bear fruit when the knowledge gained by it is diffused through the service.

One rather disturbing feature of the Commission's afforestation work was the almost universal use of conifers in pure blocks. It is unfortunate, but a fact, that most of the land acquired is not good enough for the commercial production of hardwoods such as oak, ash, chestnut and beech. But it seems a pity that on vast areas of poor soils the magnificent pioneer character of the humble native birch should be neglected. It is too easy to condemn sheep-grazing and moor-burning as the causes of soil deterioration and at the same time plant conifers in the bland and baseless assumption that all forests improve the soil. It is the duty of every generation of foresters to protect and increase the fertility of the soil, and ecological studies point to the birch as the natural and most economical weapon in the fight against raw humus and podsolisation. It was hardly encouraging to have our attention drawn in the caption of a photograph in the Conference Tours Booklet to the girdling of a small group of birch on a moor prepared for turf planting. What of the "silvicultural sream"? It would be ungracious to conclude this brief

It would be ungracious to conclude this brief commentary without paying a tribute to the Forestry Commission. We cannot do better than subscribe again to the Report of the Committee on British Forestry : that we were impressed with the courageous effort being made not only to restore the British woodlands devastated during two world wars, but also to provide for a large part of her anticipated future requirements; and that we considered the Forestry Commission well equipped for the task of completing the afforestation programme which it had recommended. Finally, mention must be made of the excellence of the arrangements, the courtesies extended to us on all sides and he comraderie and warm hospitality of British foresters which will long be remembered by al' overseas delegates.

EXTRACTION OF CONIFER SEED AT AVONDALE, CO. WICKLOW

By A. J. HANAHOE

In most countries to-day the aftermath of war with its consequent depletion of timber supplies has resulted in increased afforestation schemes. As in the case of other crops this brings the question of seed procurement much into the limelight. Unlike numerous other countries Ireland is not in a position to obtain all its seed requirements from home sources. The purpose of this article is, therefore, to explain in some detail what is being done to supplement imported supplies of conifer tree seed. The writer wishes to express his gratitude to Mr. O'Beirne for some practical hints on the collection and storage of cones and to Mr. W. J. Breslin for his yield figures over a period of years. HISTORY OF SEED EXTRACTION.

The early planting enthusiasts relied almost entirely on foreign countries for their seed. They were handicapped to a great extent by having at their disposal only small and scattered blocks of cone-bearing trees. Gradually the progressive increase in conifer planting becams apparent in more abundant cone crops which gave the necessary fillip to the harvesting of home-grown seed.

The erection of the first Irish seed extraction kiln at Avondale in 1930 thus broke new ground in the field of Irish forestry endeavour. As with most new ventures it passed through a testing stage and not until about 1935 do we find it established on a firm footing. From then onwards it dealt with cones from the home and neighbouring forests, the results obtained being a good augury for the future. The increased difficulty of importing seed from 1939 onwards gave the work an added impetus so that we now find it dealing with cones coming from all parts of the country. Its output now represents about 60% of the conifer tree seed requirements of the State Forest Service.

STORAGE OF CONES AWAITING EXTRACTION.

Proper storage conditions from time of collection onwards are the first essential. Preliminary drying is good economy as it enables the cones to be opened more easily in the kiln. When a consignment is received the cones should be spread thinly on a dry airy loft where they can be raked or turned at intervals to prevent mildewing. The loss of weight during storage is considerable. A few simple tests carried out at Avondale may be of interest. In a lot of Scots Pine cones received in December, 1946, the loss of weight after three weeks' storage was as high as 40%. Again in the case of Cupressus Macrocarpa collected in Avondale in November, 1946, the loss was about the same during a fortnight's storage. Whenever possible, however, cones should be allowed to ripen fully on the tree where loss of weight coincides with ripening. They should be collected in dry weather and never dispatched in a wet condition.

TYPE OF KILN (See Elevation).

The kiln at Avondale is a vertical wooden structure with, in the case of Scots Pine, an output in cones of 1 cwt. for each 8-hour day worked. Its full height is $8\frac{1}{2}$ ft., its breadth $7\frac{1}{4}$ ft., the actual dimensions being determined by the size of the room in which the kiln is housed. Its trays or drawers number twelve and are set up in two stacks each of which is reached from the front by opening a door hinged to a central upright. Each stack of drawers has thus an independent door. The topmost drawer is within easy reach of the average man and all drawers are bottomed with wire mesh having 196 meshes to the square inch. This mesh is sufficiently small to hold the seed of practically all the common species. The drawers measure 3 ft. x 2 ft. x 11 ins. and bear a brass holder in front for a seed identification label. They fit snugly into position, resting on wooden cleats, the door providing extra insulation.

PRINCIPLE OF THE KILN.

Under natural conditions most cones open on the tree in dry weather in Spring. As warm dry winds withdraw moisture from the cone-scales, they bend backwards and release the winged seed. In the kiln extraction is also carried out by passing warm dry air over the cones. The air under the lowest drawers is heated by the horizontal flue from the stove and, as hot air is lighter than cold, it rises through the cone-filled drawers. The heated air having a lower relative humidity, its drying power is increased and its heat provides the reserve required for evaporation. As the hot air passes up through successive drawers its moisture content is increased and it becomes gradually cooler. Thus drying conditions are much less severe in the upper drawers. Incidentally, the heat radiated from the stove is not wasted as the air which is drawn from the cellar through the vent surrounding the flue into the kiln is pre-heated so that its relative humidity is lowered and its drying power increased. For this reason doors and windows in the cellar are kept closed and ventilation reduced to the minimum consistent with safe working. METHOD OF WORKING.

The fresh cones, previously screened to remove needles and other foreign matter, are placed in the top drawers. The loaded drawers are then moved downwards each time one is withdrawn underneath. In this way the cones receive the most severe treatment only after most of the moisture has been removed. The empty drawers are again filled with fresh cones and replaced at the top.

HEATING APPARATUS.

The kiln is heated by means of a small closed iron stove in an adjoining cellar with a 4 in. bore iron flue pipe. This pipe runs horizontally through the dividing wall and enters the kiln proper under the bottom drawer. Having passed underneath both sets of drawers it bends vertically and at this point is provided with a soot door for cleaning purposes. It continues upwards along the side of this stack and projects some 6 ft. above the roof in order to create the necessary draught.

FUEL USED.

During the extracting year 1946/47 the stove was operated on various types of wood fuel. Finely split 6 in. blocks of Ash and Birch gave best results but Oak and Beech were also good when fully seasoned. With a small stove it will be understood that a "lively" wood is needed, not a slow-burning one, even though the latter may have a higher calorific value. The daily consumption of the stove was approximately 14 cwt. of blocks. Spent cones were found very useful for kindling but did not prove satisfatory as fuel.

MAXIMUM SAFE TEMPERATURES.

The supply of hot air is controlled at the top of the kiln by means of hinged openings or ventilators, one for each set of drawer stacks. These openings are kept closed until the required temperature is reached and then opened together or singly to regulate it. A Fahrenheit thermometer is used for testing the temperature at frequent intervals. Cones are placed in a single layer in the drawers to ensure the passage of dry air over the surface of each cone. In the case of a large mass, its journey would be impeded and output lowered. Obviously the higher the temperature of the air passing through the kiln the faster



the drying and the greater the output. The limiting factor in this case is the damage to the viability of the seed by excessive temperature. The critical temperature is lower for fresh undried cones than for partly dried ones. Hence the advantage of gradual drying by moving the drawers from top to bottom. The critical temperature varies also for different species-for most species it is 120° F. This final degree of heat is needed for Scots, Mountain, Corsican and Contorta Pines, except towards the end of the season in March and April when the cones have become well dried out. The opening of Pinus insignis, Pinus maritima and Cupressus macrocarpa cones may be effected with a temperature of from 100° — 110° F. while Douglas fir and the Spruces will open with a temperature of from 90°-100° F. Larch is a more difficult species and will not yield all its seed even with temperatures in excess of 120° which may damage the seed. Maceration of the cones is necessary but this method has not yet been followed to any great extent Species like Cupresses lawsoniana and at Avondale. Thuja plicata open readily if placed thinly in an airy loft and need no kilning. The scales of Silver Fir cones fall apart when fully ripe thus freeing the seed. TIME REQUIRED.

At a constant temperature of 120° F. and provided the cones are mature, Scots Pine opens in about 8 hours. Generally speaking most other species take less time but here again maturity and even distribution of heat are important factors.

Occasional agitation of the cones during the drying process is very useful. It helps to liberate some of the winged seed locked between cone scales and also allows the hot air to come in contact with cone surfaces not already touched. REMOVAL FROM THE KILN.

With some species a few small cones generally remain unopened but these are not worth waiting for as their seeds are usually blank or of low germinative power. The contents of the drawers are emptied into a large bin to await shaking which is done at convenient intervals. At this stage care must be taken to avoid mixing lots of the same species which have been collected in different areas. It is here that the identification label on the drawer face serves its purpose. When a change is taking place drawers must be thoroughly cleaned out otherwise one runs the risk of not having seed true to strain or label.

OTHER METHODS OF EXTRACTION.

With small quantities of cones, extraction may take place in the open in dry sunny weather in Spring. An open site, facing south if possible, is selected and a platform of small mesh netting erected 2 feet above the ground. The cones are spread in a thin layer and a canvas is spread underneath or suspended from the netting to catch the seeds. This method of using solar heat has been tried with most species and has given good results late in the season. It is a method which conforms very closely with the work of nature where the cones hang thinly on the tree and have an enormous volume of dry air passing around them. SHAKING.

A revolving box shaker, 4ft. long by $1\frac{3}{8}$ ft. square section, with wooden ends, is used. The sides of the shaker are of wire mesh with holes large enough to release the winged seed but not the cones. A stout wooden frame is needed for support and to withstand the stress of rotation. Lengthwise through the centre of the shaker runs an iron axle supported at both ends and fitted with a handle for turning. One side is fitted with a hinged door. With the shaker working at a speed of 20—30 revolutions per minute the winged seed drops through onto a collecting canvas. Light poles around 3 ins. diameter are placed lengthwise in the shaker to increase the jarring effect on cones which do not give up their seeds readily. A few short timber blocks added to the cones have proved useful with troublesome species.

DETACHING THE WINGS.

The seed of practically all conifers have wings which must be removed for easy handling and sowing. The method in use at Avondale is to place the winged seed on a table covered over with 2 or 3 sheets of coarse sacking and rub by hand until the wings are broken off. Some species, however, cannot be completely deprived of their wings, e.g. Silver Fir and Larch, as the union between seed and wing is too close.

WINNOWING AND FINAL CLEANING.

The common hand-operated corn winnower with wire riddles of varying mesh has given good results. The horizontal air current first separates pieces of cone scales, twigs and any remaining needles. The remaining riddles hold the finer chaff and broken wings and finally the clean seed is directed through a chute into a box on the floor. WEIGHING AND IDENTIFICATION.

The seed is now weighed and packed in small sacks and labelled with its identity number which has now followed it from the cone to the naked seed stage and will accompany it in the nursery and later in the forest. A few years ago a straightforward system of identification was put into use by the Forestry Division. Every forest unit was given a code number. To this number is added the season of collection, Thus the identity number of seed produced from cones collected, say in Cong, during the collecting season October, 1946 to March, 1947 would be HC/93/47, HC standing for home collected; 93 being the code number of Cong Forest and 47 being the year of collection. It is the collecting season that counts not the actual calendar year of cone collection. Again seed held over from one year to another still bears its original number. If this were not so it would be impossible to distinguish in the seedling or transplant stage seed held over for a year or more from that extracted and sown the following Spring.

STORAGE.

Until needed for allocation to the various nurseries the sacks of seed are hung in a cool storehouse. If not to be sown in the next Spring, however, this method is not ideal as the seed is likely to deteriorate. Seed in storage for more than a few months must be kept uniformly dry and should be kept in sealed airtight containers, preferably protected glass jars or carboys. The jars used for holding acid are suitable for the purpose when placed on a concrete floor with the temperature ranging from 40° — 50° F. YIELD OF SEED.

The working of the kiln has shown that the yield of seed from a given quantity of cones depends on several factors. A good seed year is most important while the time of harvesting, method of extraction, size of the cones and number of seeds they contain all have also a definite bearing on the output. The yield per hundred-weight of cones also progressively increases from small to large cones. The base of the cones contain the largest and best seed. The following is the average production of cleaned seed per hundred-weight of cones over a three year period :—

]	lbs.		lbs.
Scots Pine	 	1	European Larch	$1\frac{3}{4}$
Pinus Contorta	 	$2\frac{1}{4}$	Sitka Spruce	11
Pinus Insignis	 	1	Cupressus Lawsoniana	6
Mountain Pine	 	$2\frac{1}{2}$	Cupressus Macrocarpa	7
Maritime Pine	 •••	5	Thuja Plicata	$3\frac{1}{2}$
Japanese Larch	 	2 ·	Silver Fir	15
Douglas Fir	 	31		

DAMAGE BY RODENTS AND FIRE.

Strict measures must be taken to prevent the entry of rats or mice into the kiln or seed store. It is a curious fact that mice have a special liking for Sitka Spruce and Mountain Pine seed and will seek them out in preference to other species stored in the same place. Strict precautions against fire, including cleanliness and the provision of fire extinguishers, is necessary owing to the very inflammable nature of the resinous cones.

QUALITY OF THE SEED OBTAINED.

No amount of care during the different stages of extraction work can ever compensate for defects in the cone before entering the kiln. Viable seed and later a fully stocked seed bed with sound healthy seedlings true to name are the acid tests of previous management. Therefore the choice of seed-bearing tree, time and method of collection, proper storage of the cones and segregation of seed in the kiln have all an important bearing on the result.

WORKING COSTS.

The unit at Avondale is capable of being worked by one man. This includes stoking, filling and removing the drawers, shaking, de-winging, winnowing, weighing and storage. To arrive at the cost per lb. of cleaned seed all operations (including transport costs) from the time the cones are sighted on the mother tree until the seed is fit for storage must be taken into account. Beyond any doubt whatsoever it is much cheaper than imported seed at current prices. The following prices are taken from a current catalogue.

Species		Price	Per	Lb.	
Silver Fir	 	45/-	to	80/-	
European Larch				50/-	
Japanese Larch				45/-	
Sitka Spruce	 			65/-	
Norway Spruce	 			57/6	
Scots Pine	 			45/6	
Douglas Fir				70/-	

On the basis of these prices the output from Avondale kiln in 1946/47 (452 lbs.) represents a value of £1,200.

For comparison the following table gives detailed sample cost of home collected seed for several species and conditions of collection. In no case was the seed picked from felled trees—which is of course the cheapest method.

Species		Co	ntor Pine	rta	(A. p) (A. c)	ver ectin cepl onica	Fir nata, hal-	No Sj	orw: prud	ay ce	5	Scot: Pine	5
Forest of origi	n	F	orth	ı	K	illak	cee	Av	ond	ale	Av	ond	ale
Mother trees		Y	oun tano	g 1	M par	atu: k tı	re cees	4(rid) ý. e tr	o. ees	16 s	3 y. tano	o. 1
Wt. of cones (stones)			6			80			3			30	
Costs Collection Transport Extraction Fuel Overheads	 	£ 2	s. 0 5 7 2 2	d. 0 0 3 6	£ 17 1 11	s. 0 10 2 6 0	d. 0 0 0 9 0	£	s. 18 4 1 1	d. 6 8 1 6	£ 2 1	s. 15 4 12 9 5	d. 6 3 5 0 0
Total cost		2	16	9	30	18	9	1	5	9	5	6	2
Yield of seed (lbs.)			2			158			1			31/2	
Cost per lb.		£ 1	s. 8	d. 5	£ 0	s. 3	d. 11	£ 1	s. 5	а. 9	£	s. 10	d. 4

CONCLUSION.

It will be seen, therefore, that the home collection and extraction of seed is more than justified on the scores of quality and economy. But when we consider in addition that the scarcity of imported seed is one of the chief obstacles preventing an expansion of our planting programmes, the vital role of home collection will be readily appreciated.

We should see to it that no opportunity to collect sound suitable cones is lost. Every such cone wasted means the loss of upwards of one hundred potential forest trees and additional delay in the urgent task of clothing our bare mountains with protective and productive forest.

INTRODUCING A NEW FOUNTAIN BRUSH

By Malachy Sharkey.

In addition to its common use for the preservation of wood and metals, paint is also used by foresters, timbermerchants and others for marking trees. Described here-



under is a Fountain Paint-Brush invented by the writer which should prove of practical value to the forester for marking and numbering. Though originally devised for general painting and marking purposes the model, as illustrated, is specially adapted for forestry use.

This fountain brush carries its own supply of paint, while the flow of paint to the brush fibres can be regulated as desired. The brush consists of a hollow handle to which is connected a detachable brush-head. A channel through the core of the brush-head permits the flow of the paint to brush bristles, the flow of the paint being regulated by a shut-off valve. A detachable cap is affixed to the other end of the hollow handle.

In order that the construction of the brush may be clearly understood it will now be described with reference to the accompanying drawings in which :—

Figure 1 is a longitudinal section through the brush;

Figure 2 is a cross-section through line A-A of Fig. 1. Referring to the drawings, 1 is a hollow tubular handle, one end of which is provided with an external screw-thread 2 for connecting the brush-head casing 3. To the other extremity of the handle is attached a screw-cap 4, which carries a spring controlled plunger, operated by means of a hand-piece 6. By pressing this spring plunger the flow of paint to the brush fibres is started or assisted.

Mounted in the brush-head casing 3 is a timber core 7 around which the bristles 8 are mounted. The timber core is provided with a central channel 9 extending through the core to allow the passage of paint to the bristles.

The device to regulate or completely shut off the paint consists of a threaded pin 10 (Fig. 1 and Fig. 2) screwed into a side channel 11 and across central channel 9 so that the passage of paint through the latter can be regulated as desired.

In the model illustrated the central core is provided with only one channel. In a flat type brush there are a number of such channels. In this case the screw-pin 10 is replaced by a pivoting pin which has a corresponding number of channels at right angles to its length and when in position coinciding with the core channels. By rotating the pin the flow of paint through all the core channels is simultaneously regulated.

The handle is made of light metal or plastic composition, opaque or transparent, while the size of the handle is regulated to the quantity of paint to be carried. The illustrated model holds approximately 1 lb. of paint, sufficient for one day's constant marking. (Actual length of handle is one half longer than that shown in Figure 1—which had to be reduced to permit reproduction on Journal page). In filling the brush the cap 4 is unscrewed from the handle. The brush-head and cap can both be removed to facilitate cleaning. A cover is provided to fit over brush head encasing the bristles and protecting them when the brush is not in use. When the bristles become worn it will be possible to have the brush head re-bristled.

The advantages of this fountain-brush over an ordinary paint brush are many and might be summarized as being similar to those of a fountain pen over a plain pen. Its key characteristics are simplicity of design, ease and speed in working, and economy in use of paint. It is an "ever-ready" labour-saving device eliminating the need for carrying a paint box and thus resulting in greater speed and manipulating ability, as in the case of a person carrying note book, etc. when listing timber.

The brush is specially suitable where a big amount of marking or numbering has to be done over a continuous period. Although it is desirable to empty and clean the brush when laying it up, this is not essential as the shut-off valve and protective cap securely seal the brush, thus preventing oxidation of paint in the brush handle : A finished model has been used in the forest and has proved very satisfactory.

The design has been provisionally accepted in the Irish Patents Office and specifications for a final patent have been lodged in Ireland and Britain.

MONTEREY PINE AS A FOREST TREE IN IRELAND

(With some notes on its growth at Sliabh na mBan Forest)

By NIALL O MUIRGHEASA, B.Agr.Sc.

Monterey Pine (Pine insignis) is one of the loveliest of our exotic conifers. But apart from its beauty, it is, I suggest, a species which it might prove worthwhile to keep under observation here, with a view to deciding on its suitability for large-scale economic use.

It comes from warm California where the climate differs from ours—in so far as the tree is concerned at any rate—in its high minimum winter temperature. One of the fundamental questions, therefore, with regard to the growing of Pinus insignis in Ireland is that of its ability to withstand our winter cold. There have been cases, I believe, where young trees were killed by severe winter frosts. On the other hand there are adequate instances where they survived and have produced great volumes of timber. Many text-books, dealing with insignis, state that it should only be planted in warmer areas. We should not overlook the important fact that such books are frequently conerned mainly with conditions in Great Britain which, as we know, are not quite the same as those in Ireland. While there might be some risk attached to the widespread use of insignis in that country, in Ireland, because of its more insular position and consequently higher minimum winter temperature, the risk should not be nearly so great. If sufficient evidence is forthcoming that this tree can successfully mature under average forest conditions here, then I submit that it should be given a more prominent place in our planting programmes.

We cannot overlook the fact, however, that Pinus insignis is a somewhat difficult tree to establish. Due to its habit of forming a long poorly-furnished tap-root right from the seedling stage, it is difficult to obtain those profusely and compactly rooted transplants, so well liked by tree planters. Because of this, the percentage of failures amongst newly planted crops is often considerable. This drawback should not, of itself, however, bar the use of insignis unless and until thorough investigations have shown it to be unavoidable by any alternative economic method of establishment. In this connection, we should note the Australians' success in transplanting with the roots encased in a narrow tube of galvanised iron which can be used again and again.

We might enumerate the good qualities of Pinus insignis as follows :—

- 1. It is probably the greatest bulk producer and fastest grower of our exotic pines.
- 2. It does not need a highly fertile soil for normal growth.
- 3. If one is to judge by its heavy leaf-fall and the consequent mould formed, it is a soil improving species. Its dense shade is very effective in killing off weeds.
- 4. It is a storm-firm species and indications are that it is also a good wind resister.
 - 5. It will withstand sea-spray.
 - 6. It is a prolific and early seed producer.
 - 7. It has not so far shown itself to be subject to any serious disease.

In contrast to the above, some foresters may hold that it is not worth planting because of the rough quality and low grade of its timber. Admittedly, many of the specimen trees seen in Ireland to-day contain wide-ringed and knotty timber. Being planted solitary or in narrow belts as they generally are, such roughness is only encouraged. In closegrown stands the tendency towards knottiness can be reduced to a minimum or even eliminated altogether by pruning. Annual ring width can also be influenced by silvicultural treatment.

We should not forget that the same species was introduced into New Zealand, Australia and South Africa and proved to be a most profitable tree—not because it was slow growing and productive of very high grade timber, but because it produced large volumes per acre and produced it in record time.

Timber has become so scarce a commodity that the demand tends to be for timber of any workable kind rather than for a particular grade.

Even if high volume production and short rotations were the forester's aim or object when planting, he need have little fear that high quality timber must, in consequence, be absent from the resulting crops. High quality in timber is associated with slow diameter growth and long rotations. The former, he need have little difficulty in obtaining-all too frequently it will occur without any encouragement from him! He may on the other hand induce it in fast-growing stands by retaining a somewhat abnormal number of stems when thinning. The latter arises from his own deliberate decision not to fell. Some crops, despite his best efforts will grow slowly. If these are properly treated they will eventually yield high quality timber. Others which produce relatively low quality timber of saw-size in short rotations may, if the forester thinks fit, be retained for an extra span of years for the sake of the quality increment, which would result. It is not suggested that timber quality in general is independent of species, i.e. that all species would produce timber of equal quality if grown at equal rates. Quality, in the sense in which I use the term here, is related to the most profitable, large-scale, commercial use to which a particular timber can be put — which use in turn is determined ultimately by the inherent characters of the species concerned. That Pinus insignis has inherent properties which render it fit for large-scale commercial utilization is obvious from its extensive use in the Southern Hemisphere.

But to come back to Ireland for indications of goodquality timber production, I may say that amongst the Pinus insignis stems growing at Sliabh na mBan Forest, I noticed a certain diversity of character. One strain is extremely vigorous both in stem and in branch growth. A second strain of less vigorous stems, sub-dominant to the above, also appears present. Between these two types, one finds an occasional stem as vigorous as the first in height growth, but differing remarkably from it in its restricted branch growth —even when surrounded by smaller trees. The stems of the first group are obviously undesirable in a crop. Belonging to a type frequently described as "wolves," they are unmanagable and are destructive of more useful trees. They would have to be removed as early as practicable. The stems of the second group, which are of better shape, would then form the main crop and would yield good quality timber. The third type of stem would be of small importance in first crops. It should be preserved wherever present, however, and seed collected from it would provide higher quality stock for subsequent planting.

THE SLIABH NA mBAN PLOTS.

From the general question of the advisability of more extensive use of Pinus insignis as a timber tree here in Ireland, I will turn to give some notes on how the species is faring on an exposed area at Sliabh na mBan Forest.

At a property known as Killavally there are two plots of Monterey Pine. As yet they are but ten years old, but already they have outpaced all other species growing near them, not only in height growth but even to a greater extent in their volume increment. Many foresters would probably except this from Pinus insignis, were the site lowlying and sheltered. These plots, situated between the 500 ft. and 700 ft. contours, are subjected to considerable exposure. Hence I record the following data regarding them.

POSITION OF PLOTS, ASPECT, SLUPE, ETC.

Compartment 44, Killavally Property, where the plots are situated, lies between the 500 ft. and 700 ft. contours on the lower slopes of Sliabh na mBan Mountain, which face south west and which rise abruptly from the flat flood-plain of the Anner river. These slopes (grade 18-20%) are the first raised land mass in the path of the prevailing winds in a stretch of at least fifteen miles. Exposure, therefore, is moderate to severe.

THE SOIL.

The underlying rock formation would appear to represent a transition from the Old Red Sandstone of the Devonian to the shales of the Silurian series. The soil is derived from boulder till of local origin. It varies in composition from a sand to a silty loam. In depth it also varies greatly, though in general it is ample for tree growth. In profile it shows a clear tendency towards podzolisation. Without going into details, there is a pale ashen coloured leached layer or "horizon" extending 8 ins.—16 ins. below the surface. Beneath this is the familiar rust brown "B" horizon, or layer of accumulation, known in its more advanced stage as "iron pan." In this instance the "B" horizon does not represent a true pan as deposition (or accumulation) has been diffused over a depth of 6 ins—8 ins. Though roots may not find growing conditions too favourable in this horizon, they nevertheless penetrate through it and grow down into the unweathered parent material.

VEGETATION.

The vegetation consists of Ulex Gallii (Dwarf furze). Erica cinerea (Bell heather) Vaccinium myrtillus, various mountain grasses, some briars, and with bracken in inverse ratio to the furze present. The composition is not uniform. There are some areas where the soil is either thin or is hard and sterile in which case Ulex gallii has taken almost complete possession. In the neighbourhood of the plots, however, the more frequent occurrence of grasses and briars indicates a somewhat higher fertility level.

PLANTING DATA.

In 1937, most of the compartment was planted with a mixture of Scots Pine and European Larch. One small square block was planted with Pinus insignis (at 6 ft. x 6 ft.). This block lies approximately on the 500 ft. contour. A belt (half to one chain in width) running from the 500 ft. to the 700 ft. contour along the south east boundary was similarly planted. Outside this belt a row of Beech and Sycamore was put in. The presence of stumps of furze, vaccinium and heather on the now all-but-clean floor under the insignis would indicate that the soil did not vary very greatly from that of adjoining areas. As regards shelter the insignis areas are at least as exposed as the rest of the compartment.

PARTICULARS OF GROWTH.

In general the growth of the crop in the compartment may be described as sub-normal.

The Scots Pine is thin foliaged, showing the effects of exposure. In height it averages 9 ft. (approx.).

The European Larch averages a somewhat greater height growth—being 10-12 feet.

The Beech and Sycamore planted along the south east boundary ranges from 4-7 feet in height.

Some Douglas Fir planted in the compartment immediately below averages 10-12 feet and is thin crowned—again an indication of exposure.

The Pinus insignis itself had apparently to make something of a struggle in its early years, against competing vegetation, or against some other unfavourable biological or physical factor. An examination of the branch whorls shows that vigorous growth did not commence until the third to the fifth year after planting. Height growth for these early years was not much better than that of the Scots Pine—being only 9 ins—12 ins. per annum. When vigorous growth did commence, however, long leaders averaging 20 ins.—24 ins. (and frequently reaching 3 feet) were produced. Despite the retarded growth in the early years, the Pinus insignis plots, now averaging 15 ft. in height and with frequent stems and groups of stems reaching 20 ft., stand well over the surrounding crops. The floor beneath them is almost clear of vegetation and the lower whorls of branches are dying off.

SAMPLE MEASUREMENT.

Since "brushing" has not so far been carried out, I could not readily measure all the stem Quarter Girths. In order to get some idea of the average girth dimensions, I did measure some random stems in that part of the long plot reaching up to the 700 ft. contour. 19 stems gave an average quarter girth at breast height of $3\frac{1}{4}$ — $3\frac{1}{2}$ ins. with variations between 2 ins. and $5\frac{3}{4}$ ins. The largest Scots Pine stems on adjoining similar ground were from $1\frac{1}{4}$ ins.— $1\frac{1}{2}$ ins. Qr. girth.

I do not wish to give the impression that all the Pinus insignis crop did equally well. There are occasional groups of trees which are just as small as the nearby Scots Pine or European Larch. These trees are small, not because of persistently retarded growth, but because they took longer than their fellows to overcome whatever initial adverse conditions the site presented. They are now "pulling out" and are qute healthy-looking. There is little doubt that in the next few years they will have left the Scots Pine and Larch behind and take their places in the insignis canopy.

SUMMARY :

- 1. The case for more widespread use of Monterey Pine (Pinus insignis) is discussed.
- 2. An account is given of the growth of the species in an exposed area at Sliabh na mBan Forest, including a comparison with other species of equal age growing on similar ground.

OBITUARY

PATRICK BARRY, 1887–1948

The death on July 24, 1948, of Patrick Barry came as a shock to his colleagues in the Forestry Service. Although he had been ailing since Easter, few realised that his illness might prove fatal and the news of his passing was a heavy blow to his numerous friends and a grave loss to Irish Forestry.

He was the first to take the Forestry Course at Avondale which he entered in 1908. In 1913 he became foreman in the embryo Forest Service. The first World War interrupted his forestry career but by 1920 he had reached the rank of Grade I Forester and was appointed Junior Inspector in 1934. When the District Officer posts were established in 1937 he was an obvious choice and was placed in charge of the Portlaoighise District. When the expansion of the Service necessitated a strengthening of headquarters technical staff his ability and experience again told and he was transferred to Dublin in 1939. He was in charge of Nurseries and Supplies and also acted as Divisional Inspector before his appointment to the Chief Inspectorship, which came in January, 1947.

During his term as Forester he had charge of the important centres of Mountrath, Glen of Imaal, Dundrum and Emo. In all these outstanding crops are a living tribute to his knowledge and efficiency in the work of afforestation. In nursery technique, too, he lead the way. His practical approach to all problems, and the standard of careful, economical work and attention to detail which he established impressed all and left their mark on the many foresters who trained under him at Emo.

In the various posts assigned to him he came to have an unequalled knowledge of forestry personnel and, even in later years when his work confined him to the office, he kept in touch with both the official and private lives of almost every member of the staff. He had that rare capacity for maintaining strict discipline and yet retaining the warmest regard and friendship of his subordinates. Even when he castigated most severely one felt that he was actuated solely by zeal and an underlying feeling of sincere friendship. It is hardly surprising that those trained by him confidently turned to him in after years for advice and guidance.

A widely-read man with a great fund of general knowledge, he was noted for his vigorous and colourful utterances on a wide range of subjects. He had a deep knowledge of human nature and a reputation for his shrewd assessment of character. The memory of this strong personality with the kindly heart will remain green for many a year.

JOSEPH FARRELLY, 1890—1948

We regret to record the death on 6th November, 1948, of Joseph Farrelly, State Forester at Virginia Forest.

He took his training in forestry at Dundrum from 1911 to 1912 and at Avondale up to 1914. Having had previous experience in private nurseries, his skill in propagating rare species was availed of even at this stage. On completion of his training he took an appointment on the Humewood estate in West Wicklow managing the woodland and gardens. In 1916 he was gardener in the Botanic Gardens, Glasnevin, but left to start a nursery of his own. In 1919 he returned to the State service as Forest Foreman, working at Glendalough and Avondale Forests. He was later engaged. by Kildare County Council on its Forestry Scheme and laid down the large Bracknagh plantation near Athy. From 1922 to 1924 he served in the newly-formed Free State Army but soon returned to the outdoor life as gardener in Watson's Nurseries, Killiney. In 1927 he emigrated to U.S.A. where he became foreman in a 600 acre nursery in New Jersey and later worked with the Pacific Lumber Company in California. An unfortunate street accident in America resulted in a broken leg which caused permanent lameness. Undaunted by this mishap we find him in 1935 returning to the Irish Forestry Service, serving as Forester at Ballymahon, Athlone and finally, Virginia, where he died "in harness

He was an active member of the Volunteers from their inception and took part in their organisation in County Wicklow, particularly in the Rathdrum district. He was in close touch with the leaders in Dublin.

Owing to a retiring disposition and his late re-entry into the Service he was not widely known and his varied career will come as a surprise to many of his colleagues. His love of country and of the forest were outstanding, and in later years he never allowed his physical disability to interfere with his duties. In fact he spent most of his spare time in the woods and earned a reputation in the skilled handling of hardwood plantations.

A widower, he leaves four young children unprovided for as his formal State Service was insufficient to qualify for pension or gratuity.

DAN CORBOY

It was with feelings of genuine sorrow that many members heard of the death of Dan Corboy which occurred in June last at the early age of 38.

A native of Redmondstown, Clonmel, Mr. Corboy began his forestry training at Emo Park in 1933 and completed his course at the Forestry School, Avondale, being one of the first group of trainees to occupy the School on its re-opening in 1935. He served as Officer in Charge of the State Forest lands at Donade, Co. Kildare, before he was placed in charge of Bree, Forth and Curracloe Forests in Co. Wexford in 1940. In 1942 he was transferred to take over the newlyopened centre at Killanne at which place he remained until his death.

Mr. Corboy was an observant forester, practical in outlook, conscientious and painstaking in the discharge of his duties. He was always courteous to the public and straight as a die in his dealings with every man.

He loved the Irish countryside, particularly that very beautiful place on the banks of the Anner where he was born. He was a keen fisherman and was interested in ornithology and bee-keeping. He liked sketching with the pencil and was very appreciative of art, poetry and music.

With his kindly nature, his never-failing consideration for others, his ability to talk interestingly on a wide range of subjects, his slick witticisms, he always proved to be a delightful companion.

He corresponded with many far-flung friends and those who were privileged to receive letters rom him were always struck by the charmingly conversational way they were written.

CAPT. LAURENCE TRANT

While in press we regret to hear of the unexpected death of one of our most valued Associate members, Capt. Trant, of Dovea, Thurles.

An obituary notice will appear in our next issue.

REVIEWS

EXOTIC FORESTS OF NEW ZEALAND

By F. W. FOSTER

An article in the April number of Irish Forestry by Mr. T. Clear raises various questions regarding the Forest Policy of Eire during the last 40 years, and suggests that all is not well with that enterprise. Most schemes which have been in progress for nearly half a century are in danger of failing to keep up to their early promises, and possibly a little shake up may do them a bit of good. But when Mr. Clear complains that this particular policy has been modified he does not bring forward any fact to prove it. His complaint that progress in developing the policy has. been slow is another matter, and an article in a previous number of the Journal gave certain reasons to account for this during the early stages of the work. When, however, Mr. Clear advocates the annual planting programme being increased to 20,000 acres, and to land being acquired worth ± 10 per acre or so, one is tempted to question whether all the implications involved have been considered. The progress of the past has developed under the pressure of various economic conditions which apply to many other industries. than timber production.

Many points Mr. Clear has brought to the front have also been considered and reviewed in a country some thousands. of miles from Eire, but where a similar forest policy was inaugurated about the same time, namely New Zealand, and in which conclusions which do not exactly coincide with those of Mr. Clear have been reached. A paper written for the Empire Forestry Conference of 1947, by Mr. F. W. Foster, İnspector in charge of the Management Division of the New Zealand State Forest Service, was published almost simultaneously with that of Mr. Clear under the title of "Exotic Forests of New Zealand." But while Mr. Clear'spaper amounts to a criticism of what has **not** been done, that of Mr. Foster is concerned with the actual work of the past in his country. It is proposed in this review to deal with the two papers in the one article, and focus attention on those features in which both countries have been running on parallel lines as regards acreage, objects in view, methods employed in planting, silvicultural treatment, and the general result of the policy pursued in the one case, and possible results of that advocated in the other.

The chief differences found in the conditions outlined are due to climate, species grown, and economic conditions of a temporary or permanent nature, but these do not greatly affect the general principles nor the conclusions to be drawn from them.

The acreage involved in both countries is approximately the same, about 800,000 acres, and the objects in view are to supply the respective countries with softwood timber in sufficient quantities for economic purposes. Climatic conditions enable the annual yield per acre to be more than doubled in New Zealand and the population to be supported in little more than half the area of Eire. But this is aptly balanced by the much greater quantity of timber used in house construction in the former. If this factor is allowed for, the annual consumption per head is about double in the one country to that in the other, namely 10 against 20 cubic The methods employed are much the same in both feet. countries. Seed is sown in prepared nurseries and the seedlings planted out at two or three years old in pits or by notching. Thinning and pruning are recognised as necessary operations, and carried out as far as possible and in general there is little difference in the methods of raising timber crops. The class of timber produced is chiefly pine in New Zealand and pine and spruce in Eire, and the species in the former is almost entirely Pinus insignis, a tree which makes a phenomenal growth in that country.

The New Zealand programme of afforestation has passed through various stages, and fluctuated to an even greater extent than that of Eire. Starting under the auspices of the Land Department about 1900 it continued its career under rather uncertain forms of administration until 1923, when the present Forest Department was set up within a year or two of the Forestry Commission in Great Britain. But the existence of 2 to 3 million acres of land absolutely unutilized in the young Dominion afforded scope for planting on a scale which was impossible in the more thickly populated rural areas of Great Britain and Ireland. This fact was seized by New Zealand politicians as a splendid opening for large scale production of softwood timber, and was taken full advantage of within a few years of the Department being set up. According to Mr. Foster, about 40,000 acres were planted between 1900 and 1923, and, in spite of the above facts, he regards this as a rather fine achievement. According to Mr. Clear a similar result in Eire has been a dismal failure. After the Forest Department was set up in 1923 the rate of planting in New Zealand averaged about 30,000 acres between 1923 and 1936. From 1937 the annual rate was then reduced under a new policy to 2,500 acres, practically the same as in the initial stages of the work. Mr. Foster then goes on to consider the result of these planting fluctuations and sumarizes them under 10 heads, the chief of which are : abnormal age-classes, faulty and inadequate stocking, neglect of thinning and pruning operations, and a general falling behind in all cultural work, which has rendered the existing stock on the ground very much inferior in quality to what it might have been. Labour problems have had a great deal to do with this, and the writer emphazises the fact that had the labour available been employed in tending a smaller acreage, instead of on an inflated planting programme in the extravagent manner outlined, far better results would have been achieved with less expense.

This is all contrary to Mr. Clear's ideas. It is often taken for granted that the achievements in planting which are published and announced from time to time are the final words on the subject, rather than a preliminary note on one out of many stages of the work. Mr. Clear's article can be regarded as a praiseworthy endeavour to speed up operations in this country, but he overlooks the fact that the remedies he advocates may not always lead to the pace being accelerated in the easy manner suggested, but rather timber production in Eire must bear some relation to the whole of its mechanism. When he suggests planting land of a more fertile character it must not be forgotten that timber production in Eire mus bear some relation to the ancient industry of agriculture, and the value of the latter to the country as a whole. Afforestation canno be considered as a problem divorced from other industries.

To wind up this review it might be advisable to quote Mr. Foster's last paragraph in his report.

"If no other lesson is available, it is that orthodoxy in forestry is fundamental to success. Extensive forestry, which so characterised the New Zealand effort, has been a failure. What intensive forestry has been carried out has been a success. If it is possible to reduce the mistakes to a simple formula, it is that of maldistribution of age-class combined with lack of silvicultural tending. If the latter factor could be omitted from the formula, the former one would to some extent cancel out, for in many stands quality increment would accrue during financial overmaturity. Had small planting programmes been strictly adhered to, and all moneys surplus to this requirement been applied to every other feature of forestry work, including seed collection, nursery work, pruning, etc., there is little doubt that New Zealand would now possess an infinitely more valuable forest estate at a fraction of the cost."

The moral is obvious.

A.C.F.

Snowdonia. National Forest Park Guides. His Majesty's Stationery Office. Price 2/6 net.

Many members will, no doubt, be aware that the

Council has decided on the venue for the next Annual Excursion and that we will make our first over-sea venture to the forests of Wales. For this reason this guide to the region of Snowdonia is of more interest to our members than the one to the National Forest Park of Argyllshire already reviewed. It is compiled on the same lines as the companion volume. The size is convenient for the pocket, the letterpress is most readable and the whole is illustrated by some excellent photographs. The maps are hand drawn shetches and show on a small scale the approaches to the park and on a larger scale the plantations, roads, railways, youth hostels, camp sites and so on. They are embellished with many quaint pictures including one of a large ship from Dublin heading into a quiet inadequate harbour—a hint, perhaps, to our Society.

The chapters were written by recognised authorities under the editorship of H. L. Edlin of the Forestry Commission. There are chapters on history, antiquities, geology and national history as well as on the forests and plantations, the mountains and lakes and the roads and pathways of the park. Every aspect of the mountain forest region is treated and it would seem that provision has been made for every possible class of visitor from studious scouts to romantically minded explorers, or mere hikers out for a breath of fresh air.

There is a section on Welsh Place Names by Professor Williams which contains a key to their pronunciation. This last is a help to the non-Welsh but not sufficient to prevent some ghastly renderings of the strange words.

H.M.F.

Empire Forests and the War. His Majesty's Stationery Office. 1/-.

Statistics prepared for the fifth British Empire Forestry Conference, Great Britain. June 1947.

This publication is a summary of the statistics supplied to the Empire Forestry Conference by the participating forest authorities. It presents in broad outline the forestry position before and during the war. Countries presenting statements include South Africa, Canada, Great Britain, Ireland, Burma, India, Australia, New Zealand.

We are particularly interested in the figures supplied by the Irish forest authority since these are the first figures published which tell in some detail the effects of the recent war on the forestry situation in the country. They are :

TABLE 1.

FOREST AREA (square miles)

Forest as

	Total	Softwood	Hardwood	Mixed	percentage of total area
Eire	345	88	90	167	1
N. Ireland	94	14	36	44	2

TABLE 2.

Gives the Volume and Increment of Standing Timber in 1938 in millions of cubic feet.

	Volume	of Standing	Timber	Annual	Gross In	crement
	Total	Softwood	Hardwood	Total	Softwood	Hardwood
Eire	119.8	71.4	48.4	4.1	2.4	1.7
N. Ireland	43.0	14.0	29.0	3.5	0.9	2.6

TABLE 3.

OUTPUT OF TIMBER. Million cubic feet.

Eire Average 1934-38 1939 1940 1941 1942 1943 1944 1945 1.9 1.9 4.1 8.4 8.8 8.6 6.2 6.6

The estimated total volume of timber felled from 1938 to 1945 is thus 46.5 million cubic feet out of a total volume of 119.8 million given as standing in 1938. This figure does not include the exceptionally heavy fellings for fuel in 1946 and 1947 and it thus seems likely that more than half the country's timber capital was felled in the 10 years 1938 to 1948.

The next table of general interest is No. 8 which gives Annual Imports and Exports of wood and wood products.

	Average 1934-38		1945	
	Gross Imports		Gross Imports	
	Million cu. ft.	£000	Million cu.ft.	£000
Eire	28.0	2,704.7	2.7	1,715

This table shows that while the average cubic foot of wood products imported cost the country less than 2/- in the years 1934-38 the cost was nearly 13/- in 1945. There were say, some 50 million cu. ft. felled in Ireland during the war years. This timber if it could have been imported would have cost the country at 1945 rates over £30,000,000. As things were it was impossible to get it at any price. This then gives, in some measure this generation's indebtedness to its forests.

It has often been said with regard to the financing of reafforestation schemes that the present generation should not be called on to pay the cost of growing of timber for the next generation. The figures quoted above show that this generation has had more than its share of the forest wealth of the country and is morally bound to replace this borrowed capital. Foresters in particular should see that these obligations to posterity are fully met and the authorities should spare no effort in making good the devastation of the past decade.

T.C.

Report of Forestry Commissioners for 1947. His Majesty's Stationery Office. Price 1/3.

It is not easy to present in summary form and with adequate statistics the annual report of a forest department and at the same time produce a document which is readable and attractive to the layman. This report is factual rather than digestible.

On Forest policy it is recorded that the British Government asked the Commission to prepare for large-scale action in afforestation and arranged to replenish the Forestry Fund by some £20 million during the five years, 1946-50. This is expected to provide for the planting of 365,000 acres by State action and by assistance to private owners. The Government accepted the Dedication Scheme prepared by the Commission.

Felling licences issued covered 55 million cubic feet so that the drain on timber reserves remained heavy. In view of rising labour costs controlled maximum prices of standing timber were increased 25%.

State planting is to work up from an annual rate of 30,000 to 87,000 acres in the five-year period, making a total of 280,000 acres. Land acquisition is to work up from 121,000 to 235,000 acres per annum giving a total of 926,000 acres in five years. It is interesting to record that the first year's planting actually reached 26,356 acres in spite of the exceptional winter. On the other hand acquisition lagged behind and only 22,322 acres were acquired in the year. Private planting amounted to 3,659 acres under State aid schemes and suffered from labour and plant scarcity.

In research it is stated that some progress has been made towards solving the problem of raising plants suitable for planting out at an age of one or two years. In view of the high cost and scarcity of plants this line of research is particularly important.

Of the total of 1,440,500 acres in the Commission's hands 55,200 were acquired plantations, 478,900 were planted by them and there remained 346,400 acres of plantable land on hands. The remaining 560,000 acres included unplantable, nursery and agricultural land.

The area thinned—13,800 acres—is surprisingly low.

"The number of men employed stood close to 14,000 at the end of the year.

Preparatory work and planting seem to work out at about £15 per acre and this does not include the cost of plants or fencing materials. This high cost is not explained.

As an indication of species to be used in future planting the figures for seed imported are revealing. These include 1,674 lbs. of Douglas fir, 3,136 of Norway spruce, close on 5,000 of Sitka and only 9 of Pinus contorta. Again only 62,000 contorta out of a total of 54 million plants were used in planting and beating up during the year. The Irish figures for the use of this species must be far higher, illustrating one of the most marked differences between practice in the two countries. Sitka at 21 million plants used is easily their most important species.

Incidentially the Commissioners seem to have made a happy choice in the naming of their forests, apparently avoiding the inappropriate association of ideas inseparable from the use of the names of towns.

T. MacE.

Empire Forestry Review, Vol. 27, No. 1 (1948). Price 7/6.

This publication, issued twice a year, contains a wide selection of original articles and a Review and Abstract section which enables the forester to keep in touch with the latest advances and "spot" publications of special interest to himself.

In this issue J. J. Macgregor reviews two previous contributions by Taylor and Hiley dealing with the function of compound interest in forestry. We think Hiley puts the position in a nut-shell : "Thus compound interest is not a shrine at which we worship, but a useful method of working which allows a more correct assessment than would otherwise be possible of the relative merits of alternative policies." Taylor's parting shot—" the imponderables also remain with us "—is a timely warning against attaching too much importance to the results of actual calculations; but does not invalidate the use of such methods.

Irish readers will be interested in Dr. M. L. Anderson's "Impressions of Forestry in Finland." As might be expected he manages as the result of an eleven day visit to give us an excellent overall picture of Finnish forestry, illustrated with many facts and figures.

Finland has $53\frac{1}{2}$ million arces of forest employing one third of the population. There are few species of importance,

percentage by area being Norway spruce 52, Scots pine 28, birch 17, alders $1\frac{1}{4}$, aspen $\frac{1}{4}$. The birch, especially *Betula verrucosa*, produces trees of fine stem form and is highly prized for its timber.

Although the forest is almost all natural in origin, heavily stocked stands are scarce due to heavy thinning methods. An area of mixed spruce, pine and birch, in which there had been no fellings since 1907, and where the trees vary from 60 to 230 years old, had an estimated volume of 6,950 Hoppus feet, which is exceptional. Regeneration is almost entirely by self-seeding methods but, owing to the long intervals between seed-years, seeding fellings must be carefully timed. It is worth noting that, apart from its timber value, birch is fully appreciated as a soil improver and nurse. Heavy thinnings are the rule.

The average volmue per acre over-bark is about 700 Hoppus feet and the average increment per acre only about 21 Hoppus feet.

There are over 24 million acres of swamp and a special branch of the State service deals with its reclamation. The better types when drained seed over naturally and produce very satisfactory forest.

In management, which is intensive, the excellent principle of devotion of responsibility is in force.

Extraction is carried out over the snow in winter and transport is by floating, road and rail. Sawmilling and other industrial uses are, of course, highly developed.

In education, the University course to supply forest officers lasts three to four years and includes two periods of thorough practical work in successive summers. The superintendent of the forest training school is responsible for 67,000 acres of State forest which is available for demonstration and implementing working plans. At one of the experimental forests seven races of *Pinus murrayana* were undergoing trial.

T. MacE.

Forest of Ae. His Majesty's Stationery Office. Price 6d.

This 12-page booklet, written in clear non-technical English and excellently illustrated and produced, is apparently the first of a series designed to interest the general public in the work of the Forestry Commission by introducing it to the individual forests.

The Forest of Ae in the Southern Uplands of Scotland

is a typical forest with no striking historical associations or scenic features, yet this account is extremely interesting. It is a young forest, the oldest plantations being only 20 years old and it is almost entirely on land previously used for sheep-grazing. Of a total acreage of 10,683 acres, over 3,000 have so far been planted and 4,500 remain to be planted; 250 acres of better land are reserved for agriculture and the remainder is too poor or too high-lying for planting.

The forest opened in 1927 with 16 men in employment. This had increased to 27 at the beginning of the war and it is estimated that there will be work for at least 90 men by 1960. This figure of one full-time permanent worker for every 80-90 acres of productive forest on mountain land is of great interest and indicates the high labour-content of forestry as compared with hill sheep-farming. The housing of the workers has been tackled from the start and ten new houses have been erected. If one can judge from photographs these houses are of attractive appearance and reasonable size.

The erection of isolated workers' houses has not proved satisfactory and plans are now in being for the creation of a complete new forest village of 80 workers' houses, as well as sawmills, shops, school, playing field, church, village hall and an inn.

To return to the forest proper, the species used are mostly Norway and Sitka spruces, with some Scots pine and the two larches. 400 acres is the most that has so far been planted in a season but it is expected that much larger areas will soon be tackled with tractor ploughs. Thinnings yielding pit-props have begun and forest road construction is now necessary.

The close similarity between this typical Scottish forest and some of our mountain forests, especially in Wicklow, needs no stressing and points to the necessity of a comprehensive development plan covering land use, labour supply, social amenities and communications as well as planting, as soon as a decision to afforest a large block is taken.

T. McE.

NOTICES:

Poplar Planting; Forestry Commission Leaflet No. 27. His Majesty's Stationery Office. Price 2d.

This 14-page "leaflet" is well up to the high standard of recent Forestry Commission publications and provides in handy form much useful information on the cultivation of a neglected but valuable genus. The keen demand for poplar timber for match-splints during the war should focus attention on these fast growing trees, especially as to their use on farms and estates. Unfortunately the State forests contain only a small proportion of land suitable for poplars, the ideal type being alluvial valley bottoms.

Information is given under such headings as Choice of Site, Choice of Variety, Raising Plants, Planting, Diseases. Yield and Utilization. Attention is especially directed to spacing and thinning — points in which poplars differ radically from the usual species. As extreme light-demanders, intolerant of competition, an initial spacing even of 12 feet each way demands very early thinning and a spacing of 18 to 20 feet is recommended.

No planter should be without this leaflet.

Report of Fifth British Empire Forestry Conference. His Majesty's Stationery Office. Price 1/-.

This summary report describes briefly the work of the Conference and contains the Resolutions and Committee Reports on such subjects as Land Use, Management, Silviculture, Forest Products Research and Education. Representing as it does the combined wisdom and experience of so many forest authorities, it should be studied by all who have to do with the formulation and administration of forest policy. It would be impossible to summarise its conclusions adequately here but a few points may be noted.

In silviculture the most noteworthy advance was reported from South Africa where remarkable results were obtained by wide spacing and very heavy thinning in pine plantations. It is hoped to deal fully with this subject in a later issue. It was insisted that research was a necessary corollary to efficient forest management.

There was general agreement on the necessity in every country of a supreme land use authority with adequate forest representation in order to implement with full governmental authority a policy based on land use surveys.

T. McE.

Forestry Commission Leaflet No. 16. Larch Canker. 2d.

Forestry Commission Leaflet No. 26. The Spruce Bark Beetle. 2d.

The leaflet on Larch Canker, now appearing in revised form, deals in a practical way with this troublesome disease. The emphasis is on preventive measures—the use of homecollected or Scottish seed, avoidance of planting sites subject to unseasonable frost, careful planting and cleaning, and heavy thinning. Heavy opening-out and underplanting with species such as Douglas fir, Tsuga heterophylla and Abies grandis is recommended for badly cankered pole plantations.

The spruce bark beetle, Ips typographus, a most destructive pest of Continental spruce forests, has been imported into Britain in round timber from Germany since 1946, and the second leaflet deals with this and related species which in spite of precautions might become established in British woodlands.



REPORT OF ANNUAL GENERAL MEETING

The Sixth Annual General Meeting of the Society was held by kind permission of the Royal Irish Academy at its headquarters at 19 Dawson Street, Dublin, on Tuesday, March 16th, 1948, at 7.45 p.m. The decision of the Council to delay this meeting until Spring was justified by an excellent attendance both of town and country members. Mr. J. A. K. Meldrum, the outgoing President, was in the chair.

The minutes of the previous year's meeting having been taken as read and duly signed, the Secretary read the Council's Report for 1947.

Council Report for 1947

Meetings

The Council met on five occasions during the year. The first meeting was held in February in Dublin and was attended by 8 members. The second meeting was also held in Dublin on 21st April. There were 9 members present. The Council next met in June in Portlaoighise on the occasion of the Annual Excursion and the attendance was 5. The two further meetings were held in Dublin, in September and December and there were 5 and 7 members present.

Membership

During the year 12 Associate members and 3 Grade II members were enrolled. We lost through lapsing, resigna-tions and deaths four Associate members, one Grade 1 member and three Grade II members. There are now 88 Associate, 29 Grade I and 66 Grade II members. Our Associate membership continues to expand satisfactorily. Our technical membership, on the other hand, remains static or tends to fall. There is a notable falling off in the number of applications from technical foresters and this is indeed to be regretted. The Society was founded by foresters and cannot thrive unless it continues to win their support. The Council has given a great deal of consideration to this problem. Many of our foundation members had fallen away and, but for the growing number of Associates joining our ranks the Society would be in a bad way. The Council feel that the difficulties experienced by foresters in attending the functions of the Society during the emergency may have resulted in many losing interest. In order to encourage old members to rejoin the Council has decided that any member in arrears who has not received any benefits from the Society in the way of Journals, etc. can rejoin by paying the current subscription. We look forward to a greatly increased technical membership in the present year and ask everyone to do all possible to enlist support for the Society. In view of the growing strength of our Associate membership the Council decided at a meeting that the time had come to give them a greater say in the affairs of the Society. A subcommittee was set up to deal with this question. The Resolutions listed to appear on the agenda of the Sixth Annual General Meeting are the outcome.

Finance

The abstract of Accounts for 1947 has been sent out to all members. Our income from all sources amounted to $\pounds 155$ 19s. 0d., our outgoings to $\pounds 79$ 0s. 5d. Our Society has a credit balance on hands of $\pounds 188$ 13s. 4d. We must, when viewing this healthy credit balance, remember that we received $\pounds 30$ in donations and further that the bill for $\pounds 48$ 11s. 7d. for Vol. IV, No. 1 of the Journal was not received in time to be included in the account for 1947.

Journal

Two issues of the Journal, Vol. III, No. 2 and Vol. IV, No. 1 were published during the period under review. The standard of the Journal is being maintained and the Editor is to be congratulated on its production. The cost of printing has risen sharply and the cost of producing two issues of the Journal yearly promises to be a heavy burden on the Society. It will be necessary to try to offset increasing costs by increased sales of Journals and advertising space, and better still by increasing our membership.

Excursion

A very successful three-day excursion was held in Portlaoighise district in June, 1947. Visits were paid to the State properties in Emo, Garryhinch, Durrow, Baunreagh, to the gardens of the Jesuit Fathers at Emo and to the estate of Lord de Vesci at Abbeyleix. An enjoyable forestry film show was put on for members by the Portlaoighise Branch of the Irish Film Society.

Another successful "local" excursion was held in the Botanic Gardens, Glasnevin, on Saturday, 18th October. Mr. T. Walsh, Curator of the Gardens, welcomed the members and conducted the party round. The excursion included a visit to the Augustine Henry Forest Tree Herbarium, and Mrs. A. Henry gave members an account of the work of compilation, etc.

The Council wish to express their appreciation of the kindness of the Minister for Lands and of private owners for permitting the Society to inspect their woods. Special thanks are due to the forestry officials concerned for their assistance in connection with the Portlaoighise excursion and to Mr. J. Brown of De Vesci estate for his help and guidance on the occasion of the visit to Abbeyleix.

Library Scheme

The arrangements made for the loan of books from the Central Students' Library continue in operation. The demand for books has fallen off considerably however and the Secretary is anxious to discover the reason. A list of suitable books is being prepared for circulation and it should encourage members to make use of the facilities offered by this scheme.

Tree Registration

There is little progress to report under this heading and the Council again appeals to members to send in information about remarkable and rare trees.

On the motion of Mr. T. McCarthy seconded by Mr. Denny Deasy, the Report was adopted.

Abstract of Accounts

The Secretary dealt with the Abstract of Accounts and its adoption proposed by Mr. McNamara and seconded by Mr. McGlynn, was carried unanimously. The meeting then heard the President's address.

PRESIDENT'S ADDRESS

Ladies and Gentlemen,

It is customary for the outgoing President to deliver a valedictory address reviewing matters during the past year which may have some bearing on Forestry.

Two noteworthy events occurred during the year under review. Last month saw a change of Government in this country. Our new rulers are pledged to a programme of economy in public expenditure so we may expect the economy axe to be wielded in various directions. It is to be hoped that the importance to this country of having adequate resources of timber within its own borders will not be overlooked. If this be realised it is to be hoped that much needed afforestation will not be unduly curbed through lack of sufficient funds.

The other outstanding event was the fifth Commonwealth Forestry Conference which was held in London from the 16th June to the 19th July last year.

Discussions at this Conference covered all aspects of forestry and forestry problems. Many of the conclusions reached, and of the Resolutions adopted, merit close attention in this country though it does not follow that all of the courses recommended would necessarily be possible of adoption.

There is not sufficient time at my disposal to recount all the recommendations that were made so I shall confine myself to those which have particular application to conditions here.

Referring to Land Utilisation and Forest Policy it was stated: "The soil is man's major form of capital and improper land use and erosion strike at the very roots of man's economic structure, resulting in loss of water, timber, fuel, grazing and food itself." It was stressed that forest policy had often been looked upon as the policy of a Department whereas it should be regarded as an integral part of the general land policy of Governments. The study of soil conservation, mainly in the field, has clearly shown that soil erosion and degradation are far more widespread than generally supposed. Unless steps are taken to prevent the destruction of forests and faulty methods of agriculture and pasturage, the disastrous effects of land deterioration will be aggravated and become increasingly difficult to check.

In this country there is a widespread tendency of agriculture to encroach upon the forest and to monopolise the marginal types of land which can more profitably be utilised for the growing of timber and should be so used in the national interest.

There is a very close parallel between the devastation of the forests in Great Britain and in this country as a result of two world wars. Two thirds of the timber standing in 1939, equivalent to 45 to 50 years normal annual increment, were felled between 1939 and 1945, mainly in private forests. It should now be clear to all that this nation can no longer afford to neglect woodlands or to allow land suited for timber growing to be left lying relatively unproductive.

The technique of afforestation and rehabilitation of woodlands has greatly improved in Great Britain in the past twenty-five years and the delegates to the Conference were given an opportunity of seeing what had been done in those fields of endeavour. Planting in sods upturned by ploughs has largely replaced notch planting or pitting-and-planting with satisfactory results. Beating-up had been overdone in the past but is now being carried out more intelligently. It is still necessary to weed systematically until the plants are well established but costs have been very considerably reduced as a result of the new planting methods adopted. Much that has been done in Great Britain could be copied here with great advantage.

Discussions on Forest Practice centred mainly, as may be expected, on the subject of spacing and thinning. One of the South African delegates startled the Conference by describing how that country had broken away from the European tradition of close spacing and gradual opening of the canopy. The species chosen were the rapid growing exotics, Pinus radiata and Pinus patula. Wide spacing and heavy, early and repeated thinning, especially on poor sites, combined with pruning in the still vigorous crown are essential. The rule for thinning was to limit the number of stems per acre to the quotient of a predetermined constant divided by the average height of the trees in feet. This seems to herald the advent of the mathematician into the realm of the sylviculturist. The method may be worthy of trial here on a limited scale on better class sites with such fast growing species as Douglas Fir and Sitka Spruce. Although there was a great deal of disagreement with this procedure which has proved successful in South Africa, yet there was a concensus of agreement on the growing of species in mixture in order to improve the soil and it would appear that the practice of growing timber in pure blocks is largely being discarded.

To turn to home matters it is very gratifying to note that imports of softwoods are now being received in fair quantities though not yet on the scale of the pre-war years. These imports are most welcome as they relieve the strain on our sorely tried woods. It is a matter for satisfaction to see that our native softwoods which were being consumed a a rate of more than 250,000 cubic feet standing per month are now being used at not more than 25,000 to 40,000 cubic feet standing per month.

The fuel crisis of a year ago precipitated an inordinately heavy cutting of hardwoods and it is to be feared that much timber of commercial quality was sacrificed in this way. Now that coal imports are once more being resumed on a considerable scale our woods may look for some relief.

This Society will always be interested in the activities of other bodies who have trees as their main object of interest Although not allied to afforestation but nevertheless devoted to the growth of trees, it is gratifying to see the progress made by the Irish Roadside Tree Association. The beautifying of our roads by planting suitable trees is a form of activity which should commend itself to a Forestry Society. They are particularly to be congratulated on their recent publication "Roadside Trees in Town and Country" which has been circulated to members of this Society. I trust I shall not be accused of abusing my position to state on your behalf that they carry our good wishes with them.

And now I must thank you for the confidence you reposed in me by electing me your President a year ago. I have greatly appreciated the honour and will conclude by wishing my successor, Mr. O'Beirne, a successful period of office.

Election of Council

The meeting formally confirmed the election of the new Council, as given on page 2. The incoming President, Mr. O'Beirne, then took the chair and paid a well-deserved tribute to his predecessor.

Excursion, 1948

Mr. McEvoy proposed that the annual excursion be held in the Sligo district, an area of remarkable natural beauty, most unusual geological and topographical features. The proposition was seconded by Mr. McMahon and accepted unanimously.

Mrs. Henry's Gift

The motion "that the best thanks of the Society are due to Mrs. A. Henry for her very generous gift of £25 to the Society for the promotion of popular forestry education" was proposed by Mr. O'Beirne. He referred to Mrs. Henry's long and close association with her distinguished husband in his life-work and he was certain that both their names would go down in forest history. By her work on the Augustine Henry Herbarium Irish forestry was heavily in her debt and this latest contribution increased that debt. Mr. Mooney in seconding the motion recalled that last year he had the honour of proposing Mrs. Henry for honorary membership and felt the difficulty of dealing adequately with her numerous helps to foresters and forestry. The motion was adopted with prolonged acclamation.

Amendment in Constitution and Rules

Mr. FitzPatrick proposed on behalf of the Council a group

of motions amending the Constitution and Rules. He recalled that our Constitution was based on that of a professional foresters' society in Great Britain where two types of societies exist. Our Society was a compromise between these two types, having both technical and associate members in almost equal proportions. The time had now come when we should allow our Associates a say in the government of the Society.

The effect of the amendments was to give Associates the right to nominate and vote in Council elections and to have two representatives on the Council. The motions were as follows :—

Article VII: Omit "Technical" in paragraph 2. Omit last paragraph in its entirety.

Article X: Omit "Technical" right through paragraph on top of page 4.

Article XIV : Omit "Technical " right through.

Article XI: At the end of first paragraph after "Grade II" add "and two Associate members."

Change paragraph 2 to read : Each of the eight elected members shall hold office for two years after election and the senior Associate member shall retire at 31st December each year but shall be eligible for re-election.

Rule 4 : Omit "Technical" all through.

Rule 12 : Omit "Technical."

Mr. Mangan seconded these motions which were adopted unanimously.

Mr. FitzPatrick then proposed two further motions sponsored by the Council :

I. To facilitate the work of Committees of Council, Rule 13 to be revised as follows: In paragraph 3 delete the clause "but with power to co-opt service."

Insert after paragraph 4 a paragraph to read as follows : "All Committees shall have power to co-opt from time to time as they deem necessary any members of the Society whose special knowledge would be of service." II. To allow for greater freedom in making arrangements for the Annual General Meeting, the first sentence in Article XIII be revised to read: "The Annual General Meeting of the Society shall be held in the early part of the year, on a date and at a place to be determined by the Council."

Both these resolutions, also seconded by Mr. Mangan, were carried. These Constitutional changes will require to be confirmed at the next Annual General Meeting before becoming effective.

There being no other private business, the meeting proceeded to the showing of a group of 16 mm. films of forestry interest. The first dealt with a large-scale highly-mechanised nursery of the U.S. Forest Service. This was followed by a British film "New Crop" which dealt with the establishment of new plantations and their protection. Films on forest fires in U.S.A. and on shelterbelts in the American "dust bowl" added to the variety and had a most appreciative audience.

At the conclusion of this show the President, Mr. O'Beirne thanked the Dublin Film Society for providing operators and equipment and the Royal Irish Academy for the use of the hall.

REPORT OF THE ANNUAL EXCURSION, SLIGO, 1st, 2nd and 3rd JUNE, 1948

By T. McEVOY*

The choice of Sligo district for the fifth Annual Excursion was justified by a record attendance, the party exceeding forty with several new faces in evidence. We were fortunate in that the notorious Sligo weather merely threatened by day and reserved its downpours for the hours of darkness. Thanks to this circumstance, the hospitality of the private woodland owners and the excellent organisation of the local State forestry staff, we are able to report a highly successful outing which was enjoyed by all present.

* The Editor regrets that a more complete account of the Annual Excursion is not available.

Tuesday, 1st June.

The first day was devoted to a tour of Sligo State forest which brought us on a circuit of beautiful Lough Gill. The party assembled at Corkran's Mall, Sligo, and drove by car to Hazelwood. At the entrance to the Forest the President, Mr. O'Beirne, welcomed the members and thanked the Minister for Lands for the privilege of viewing the State Forest. Mr. Ager, Divisional Inspector, welcomed the Society on behalf of the Minister and mentioned that the Director very much regretted he could not be present. He introduced the local staff, Mr. McCormack, District Officer; Mr. Maloney, his assistant, and Mr. Kerrigan, Forrester.

The Convener, Mr. McEvoy, then outlined the history of Hazelwood. Up to the 10th century it had been the stronghold of the famous Sligo clan, the O'Connors whose descendant, Madame O'Connor Don, still lived on the shore of Lough Gill at Holywell. It passed through many hands in the unsettled period following until it fell to the Welsh family of Wynne early in the 18th century. They held it up to 1939 when the estate passed to the Land Commission, the agricultural land being divided into small farms and the woodland falling to the Forestry Division. Most of the woodlands were the result of Owen Wynne's enthusiasm for planting between the years 1785 and 1843. The manuscript records of his plantings in his own hand were now in the possession of our Vice-President, Mr. McMahon. Since the forest was opened some 700 acres of new plantation had been laid down.

Hazelwood itself is lowland limestone ground with soils varying from deep fertile drift to mild alkaline peat. Discussion centred on what species were most suitable for these types, on the management of hardwood-conifer mixtures as exemplified by the young crops, and on the advisability of retaining scattered matured trees for shelter for the new crop. It was generally agreed that, on the rare occasions when fertile limestone drift soils at low elevations came into the foresters' hands, they should be used for the most exacting hardwoods. Yet when hardwood groups of ash and oak were planted in a matrix of conifers (N.S. etc.) it was difficult to advise the ruthless sacrifice of a very promising conifer for the benefit of a hardwood which was not yet thrusting upwards with the desired vigour. The evidence of recent severe frost damage on species such as oak, silver fir, and spruce turned the discussion to ways and means of combatting spring frosts and to the question of shelter in general. On this subject Mr. Clear was able to point to an example of the unwitting creation of a frosthollow by the blocking of a hollow by the rapid growth of an alder crop. Much doubt was cast on the effectiveness of scattered mature trees as frost shelter while the difficulty of removing such trees after the crop was esablished was stressed.

We were fortunate to witness a sight in Hazelwood which must be rare, if not unique, in these islands. Over an area of some ten acres on the site of a mixed wood we saw general regeneration of Douglas fir from occasional mature trees and also groups of natural Macrocarpa and European Silver fir. These varied in height from 4 to 12 feet and it was considered that they were sufficiently close to form a pure final crop.

At Holywell, which we visited by kind permission of Madame O'Connor, we inspected Arbutus in its most northerly natural habitat in Europe on the limestone cliffs, and we also had a fine panoramic view of Lough Gill, with historic Church Island in the foreground and Yeats' Lake Isle of Inishfree to the west.

Continuing the circuit of the lake, we lunched excellently at Dromahaire and spent the afternoon between Slish Wood and Doonee. Slish is one of the remnants of the natural sessile oak forest on the acid metamorphic rocks of this district. It is notable for the presence of aspen and whitebeam along the lake shore. At about 500 feet elevation the oakwood gives way to climax peat over bare glaciated gneiss. Much of the area has been cleared and replanted since acquisition.

Wednesday, 2nd June

The second day was given over to private forestry and members were very appreciative of the opportunity to visit Lady Gore-Booth's woods at Lisadell and Lady Mountbatten's plantations at Mullaghmore.

At Lisadell we were received by Lady Gore-Booth and were conducted around this fine estate by her two daughters. Members were very interested in the walled gardens with their profusion of flowers and tender plants within a few yards of the Atlantic, and in the house with its historic associations.

The numerous extensive plantations running into thousands of acres were at once a revelation and an object lesson. The entire estate is within a mile of the open Atlantic and the exposure is, of course, very severe. On the other hand the soils derived from a colcareous sandstone are good forest subjects. In the plantations over 30 years, the usual mixture of the older conifers occur—Scots pine, larch, silver, Norway spruce, etc., but with an occasional ANNUAL EXCURSION



Union Wood, Ballisodare, June 3rd, 1948. Excursion Convener addresses members on geology and soils.



Excursion Group at Lisadell, June 2nd, 1948.

50

Sitka. These latter proved so outstanding that practically all the younger plantations are pure Sitka and of uniformly good growth suffering remarkably little from the sea wind. There was one small plot of Abies grandis, but it was remarkably good. Japanese larch was also doing well. This estate provides valuable evidence of the suitability of the western American conifers in our western counties where mild winters, constant wind and high rainfall are the significant climatic factors.

On our departure from Lisadell Mr. O'Beirne expressed our hearty thanks for the warm welcome and the facilities accorded us.

The afternoon was spent at Mullaghmore, a windswept narrow peninsula with rolling sand dunes which threatened to engulf the green fields early in the 19th century. This danger was met by Lord Palmerston, the then landlord, who fixed the dunes by planting marram grass. It was he also who built the quay but his efforts to make Mullaghmore a fashionable seaside resort failed.

Inspired by the work in the Landes, he established the dune plantations which range in age from 70 to 100 years. Maritime pine is the principal species but Austrian and Corsican pine and sycamore were also used in the inner plantations. The use of sea-buckthorn and Robinia are evidence of the care and skill used, the former providing an excellent fringe and the latter providing nitrogen by its rootnodules—a plant food which is often lacking in sand. Further details of these plantations will be found in Mr. O'Beirne's note on "Afforestation of Sand Dunes."

This was, I think, the only example of successful sand dune afforestation with Maritime pine on our west coast and members noted with regret the rapid destruction due mainly to the increase in the rabbit population. By their close grazing and burrowing they are undoing the work of a century to such an extent that the plantations may soon disappear entirely and moving sand may again become a menace.

The President thanked Mr. J. W. Bracken, the agent, for showing us around and asked him to convey our thanks to Lady Mountbatten.

At Cliffoney, on the way back to Sligo, Capt. Hamilton acted as guide when we inspected a prehistoric stone structure believed to date from 2000 B.C.

Thursday, 3rd June

In the forenoon the Union Wood Property of Collooney State Forest was visited. Up to 1941 this formed part of the estate of the Coopers of Markree Castle nearby. The name evidently refers to large-scale planting dating from 1800 but the sessile oak on the rocky slopes appears to be native and subjected to the usual coppicing treatment. Collooney was one of the last centres of the iron-smelting industry with wood charcoal carried on by the Coote family who also operated in Leix.

Features of this wood on metamorphic rocks were fine specimens of Silver and Douglas fir, some of the latter reaching 136 feet in height and with a fine length of clean stem. The symmetrical crowns of these Douglas, showing no evidence of wind pressure, were admired. Methods of trapping pine weevil, which are especially troublesome in our western forests, were also studied. The party climbed to the summit of Union Rock from which vantage point a fine panoramic view of the entire district was obtained. With this fresh in their minds, the Convener explained the inter-relation of topography, geology, climate and soils of the areas seen, pointing to the exaraordinary contrast between the flat tableland with precipitous escarpments of the Upper Limestones in Belbulben and the irregular jagged outline of the hard, heavily-glaciated gneisses of the Ox Mountains.

In the afternoon the remarkable topography of the Upper Limestones was seen at close quarters in the beautiful "Swiss Valley" of Glencar, a deep narrow rift complete with lake and waterfalls. For the forester this area provided a difficult problem in road construction on steep unstable slopes. The skill shown by the forest staff in road construction and in spanning ravines with concrete bridges was admired.

Before leaving Glencar at the end of the excursion both the President and Convener paid tribute to the officials, Messrs. Ager, McCormack, Moloney, Kerrigan, Madden and Moore for the excellence of the arrangements and their unfailing help and courtesy throughout.

GENERAL MEETING, SLIGO, 2nd JUNE

During the Annual Excursion a well-attended General Meeting of the Society was held in the Imperial Hotel, Sligo, at 8.30 p.m. on 2nd June, 1948. Mr. McEvoy, Excursion Convener, presided.

Mr. O'Beirne read the paper on "Afforestation of Sand Dunes," the text of which follows :—

AFFORESTATION OF SAND DUNES

"Along exposed lowlying coasts, the ocean is constantly washing up large quantities of sand which, when dried, is blown about by the winds forming a series of irregular hills, known as "Sand Dunes." The sand from these dunes is constantly shifting inland by the force of the gales, invading and destroying arable land at a rate varying with the wind direction and exposure, but 14 ft. per year is not uncommon.

"So great was the destruction being caused to good land about the middle of the eighteenth century that many Governments in Europe undertook costly experiments in the fixing and afforestation of these sand dunes and a great measure of success was achieved by Germany, Holland, Denmark and France. Vast areas were fixed and afforested but it was in France that the greatest work of reclamation was undertaken.

"At the beginning of the 19th century the vast tract of country known as the Landes, lying between Bordeaux and Bayonne, 160 miles in length and extending inland for 60 miles, was covered by drifting sand dunes rising to the height of 250 feet in places, with malaria-infested lagoons here and there. The whole area was a poor, unhealthy desert waste and the sands continued to devastate the country inland, covering farms, houses, trees. So the French Government at the time were obliged to allocate large funds in their effort to cope with the problem.

"The first step in this work was the erection of a great sand hill, called a "littoral dune" along the sea coast about 100 yards in from the high water mark. This was accomplished, not by engineers, but by foresters, availing of the forces of nature. It is well known that shifting sand tends to accumulate around obstacles in its path. So a palisade composed of planks 6 ft. x 6 ins. x 1 in. was first erected along the coast. The planks were pointed at one end, driven three feet into the sand, a space of an inch being left between them to enable sufficient sand to pass through to cover the back of the planks. As these planks became covered by the sand freshly blown up from the sea they were pulled up by levers a further three feet and a second fence started a short distance further inland to give width to the dune to prevent the sand escaping inland. So the work was carried on year by year until a "littoral dune" 60 feet high was built up. This was "fixed" by the planting of marram grass (Psamma This grass has long creeping roots which help to Arenaria). bind the particles of sand together and thus prevent its being shifted by the winds. In addition, when the marram is bound by drifting sand it is able to adjust itself to the new soil level.



"The area behind the littoral dune was then taken in hand and gradually dealt with by the sowing of a mixture of the following seeds per acre :—

> 9 lbs. Maritime Pine (Pinus Pinaster), 8 lbs. Broom (Sarothamnus (Cytisus) scoparius), 3½ lbs. Marram Grass (Psamma arenaria).

"After sowing, the ground was covered by branches of conifers or other trees, heather, broom or seaweed when available, to keep the sands from shifting while the seeds were germinating. The seedlings came up together and soon formed a covering which permanently fixed the sands. In this way the greatest forest in Western Europe was established, at an average cost of £15 per acre, covering an area of a million and a half acres.

"The area is now prosperous and healthy with towns and villages and numerous industries. The trees are tapped, and large quantities of resin collected in cans hung on the trees. From this resin, turpentine, varnish and other products are obtained and the timber is used for pit props, railway sleepers, boards, etc. Before felling the trees are bled to death and this extraction of the resin is said to improve the timber for many purposes.

"The more exposed part of the forest is worked on the Selection System so that the ground is never completely uncovered, and the trees are naturally regenerated, supplemented by sowing of seed where necessary. At the Southern warmer end of the forest *Quercus Suber* (Cork Oak) was used with the Maritime Pine, and was found very profitable for the production of commercial cork.

"In the case of the sand dunes on the coasts of Germany, Holland and Denmark, the "littoral dune" was first erected and itself and the sand on the leeward side were fixed by the planting of marram grass and the ground then covered by heather, broom and branches of trees and as soon as the sands were fixed trees were introduced by planting. Corsican, Austrian and Mountain pines were used as well as Maritime pine and the cost per acre of the whole work was as high as £40 per acre. Although the initial cost appeared great, it was outweighed by the benefits of rendering unproductive land productive and by the saving of the good land from the encroachment of shifting sand, not to mention the aesthetic benefits.

"In this country although we have plenty of sand dunes around our coasts we have no evidence that the Government undertook any such schemes in those far-off days. Lord Palmerston, however, who had an estate at Mullaghmore in Co. Sligo, which contained a large area of sand dunes, seeing

what was being done on the Continent, had some sacks of Maritime pine seeds sent over and sown in the sands at Mullaghmore. No preparation of the ground appears to have been done except fencing but marram grass had been introduced earlier and the sand was partly fixed. A forest of 200 acres of Maritime pine was established. I visited the forest in 1909 and found that most of the trees were then about 70 years old and varied in height from 30 to 62 feet with breast high girths from 3 ft. to 5 ft. 3 in. and with about 300 trees per acre. The trees on the first hundred yards of the exposed side were badly broken but the damage decreased and the height growth increased further inland. Some (Hippophae Rhamnoides), Escallonias, Box Seabuckthorn and a few Scots pines were mixed here and there with the Maritime pine.

"At the time of my visit the estate had passed to a Mr. Ashley whose steward, Mr. Bracken, took considerable interest in the sowing of Maritime pine seeds and had considerable success on cutaway bog on another part of the estate a few miles inland. The seeds were sown on prepared spots of a square foot, four feet apart. Some of these trees were up to 20 feet high and appeared to be doing well except in swampy places where they looked yellow.

"Much of the old Maritime pine was cut down and sold during the first Great War and a recent visit revealed that much of the ground where the old trees stood had reverted to shifting sand and the place is infested with rabbits which prevent any natural regeneration of trees. On the Southern side of the estate a few acres of the original Maritime pine remain. A number of specimens measured showed an average girth at breast height of 77 inches and height of 70 feet.

"The Land Commission since its formation has expended considerable sums in the fixing of sands around our coasts and in recent years the Forestry Division carried out some planting of sand dunes, but much still remains to be done and it is hoped that efforts in that respect will be intensified."

DISCUSSION.

The paper was received with keen interest and was the subject of a lively discussion to which many members contributed.

Mr. McCormack referred to the failure of an attempt to secure regeneration at Mullaghmore about 15 years ago when an area was fenced against rabbits. He suggested that the trouble lay in the retention of the seed in the Maritime cones. On this point Mr. Clear mentioned that when Maritime pine bushwood with cones attached is spread on sand dunes the cones open in the heat reflected by the sand. Mr. Galvin emphasised that heavy seed of this type does not travel far and the parent trees might be too old for the production of good seed. Certainly cone-bearing at Mullaghmore has decreased in recent years.

Mr. McEvoy summed up the discussion and referred to the afforestation of the Culbin sands on the East Scottish coast by the Forestry Commission. There the sands are thatched with conifer tops before planting and it was considered that this was beneficial not only in keeping the sand from moving but in protecting the surface from extremes of temperature and in providing a certain amount of humus. He regretted having to close so interesting a discussion and congratulated Mr. O'Beirne on standing up to such a searching barrage of questions. It was now time to call on Mr. FitzPatrick to open the second part of the night's programme.

DISCUSSION ON PRIVATE FORESTRY

The discussion was opened by Mr. FitzPatrick who said that it was usual in Ireland to lay all the blame for the poor state of our woods on the shoulders of the Government. In his view the private owners who were in possession of the bulk of these woods should not escape criticism. Forty years ago, when the last comprehensive examination of forest resources was made by a Departmental Commission, the private owners were allotted the planting of half a million acres of bare land and the regeneration of a quarter million acres of existing woodlands in the scheme then drawn up for the whole country. They had fallen down badly in that task. It is true that circumstances were against them, but one wonders how many made serious effort to make use of the very real advantages which they enjoyed, of which the principal ones were ownership of the land and the tradition and knowledge of tree planting on their estates.

Lack of interest on the part of owners was largely to blame. They did not care for tree planting or woodland management and gradually the knowledge accumulated over more than a hundred years of successful estate forestry was lost. In some cases excess sentimentality about treesmeant that owners would not consent to the felling of a single tree and as, they indicated their overmature woodsand congested plantations, they announced with pride that they "loved their trees."

Some of the blame could, however, fairly be apportioned to the State, the nurserymen and the sawmillers. The State for many years left private landowners in uncertainty as to the ultimate fate of their properties under the Land Acts. Rates, taxes and death duties pressed heavily on the wooded estate and there was little income left to spend on improvements. Nurserymens' charges for planting stock were sometimes excessive and were not encouraging to an owner anxious to re-afforest. Sawmillers, too, did not always treat the private owner fairly. With high costs of establishment, high rates and taxes and finally a low return for the product, the practice of forestry went out of favour with the average owner who showed little inclination or ability to fight for his rights.

What remedies can be suggested? Owners can join this Society and re-awaken their interest and re-learn what they have forgotten about trees. They can co-operate in buying and selling and in the use of labour-saving machines and they can make further use of the State schemes of grants and technical advice. The State might help by easing the restrictive parts of the Forestry Act which tends to set people against trees, as restriction, like compulsion, always does, and instead encourage owners by instruction and advice. People such as nurserymen could help by setting up as contractors to carry out schemes of planting and other woodland operations on private lands at reasonable rates.

At the conclusion of Mr. FitzPatrick's remarks the Chairman declared the subject open for general discussion. The speeches maintained a very high level both as practical contributions and as oratorical efforts and all aspects of the problem were covered by private landowners, State and private foresters, timber merchants, nurserymen, etc.

Capt. Hamilton referred to the very inadequate compensation for timber commandeered in the first war. He also complained of the quality of Irish nursery stock as compared with Scottish plants.

Mr. Galvin considered that this unfavourable comparison was based on an exception and claimed that Irish plants were well up to standard and had even competed successfully in the Scottish market. His firm had been in the nursery business for 150 years. His experience was that the irregularity of the demand hindered the trade and they were dependent on the County Council schemes to keep going.

Mr. O'Carroll thought that prices of $\pounds 12$ a thousand for Sitka and $\pounds 17$ 10s. for beech too high and complained that plants were too big leaving the nurseries.

Mr. Morehead said that in Britain the Dedication Scheme for private woodland was the result of agreed policy between the State and the private owner. He asked if any definite forest policy had been accepted here and insisted that such a policy was necessary as a logical basis of cooperation. He also considered that control of silviculture was necessary. Mr. Chisholm agreed with Mr. Crammond on the necessity of a trained forester on the large estate. The land steward's training was very different and he was not equipped to look after the woods. The estate forester had a different problem and required a wide practical experience and a University training, and he had usually to run a sawmill. Speaking of the attempt to combine game and timber in the objects of management he stated that he had worked on an estate where 10,000 pheasant were reared without interfering with the work of the woodsmen up to the day of the "shoot."

Mr. Clear, in an important contribution, said that the surest way to improve private forestry was to make it more remunerative. The war-time standing timber prices had been fixed too low and were not adjusted as other prices rose. It was up to the State service to create and foster markets. There was a general lack of skill in the handling of private woods and State forestry officers should instruct owners in the value of their property and in the art of thinning, etc. A flying-corps of experienced forestry workers would be an advantage and there was room for co-operation between owners.

Mr. Langley, speaking as a small owner, complained of the difficulty in getting plants and suggested de-rating of forest land as an encouragement to plant.

Mr. FitzPatrick replying to points raised said that 33 million plants were required to fulfil emergency replanting conditions and suggested that owners should order their requirements 2-3 years in advance. He agreed that the absence of a defined forest policy was unsatisfactory. An agronomic survey designating forest and agricultural land was a necessary first step.

Mr. Crammond mentioned that there were now very few foresters on private estates and that without foresters, efficient management was impossible.

Capt. Trant, speaking as a private owner, said that the average owner was untrained in forestry and our Society, which was insufficiently known, could do much to help them gain a knowledge of woodland management.

Mr. Bogue had the advantage of seeing the problem from all angles having been both a State and a private forester and also a timber merchant. Enumerating some of the reasons for the present unsatisfactory position, he mentioned the loss of many young owners in the first world war; the competing interests of land steward, gamekeeper and forester in which the latter usually fared worst; the division of estates by the Land Commission with the result that the demense left to the landlord was uneconomic and the timber had to be cleared to cover expenses and death duties.

VISIT TO BROWNHALL, CO. DONEGAL

Members attending the Annual Excursion in Sligo were very kindly invited by our oldest member, Capt. J. S. Hamilton, to visit his place at Brownhall, Co. Donegal, on Friday, 2nd June. Many had other engagements and could not wait over an extra day but the following party were able to avail of the invitation : Mrs. Keane, Miss Grey, Mrs. McEvoy, Capt. Ryan, Messrs. Langley, O'Carroll, Chisholm, Mangan, Galvin, McEvoy. In spite of very heavy rain the party had a most interesting and enjoyable day and brought away a very pleasant memory of Hamilton hospitality.

Early records of this estate are meagre but a written record dating from about 1700 states that "the House is approached by a fine avenue of lime trees" so that planting must have begun very early. This lime avenue is still in being and adds much to the beauty of the curved avenue. There are many fine old trees, the tallest being a Silver Fir 112 ft. high and 12 ft. 6 ins. girth at breast height. There are many fine old specimen beeches—green, purple, and copper. One of the latter was particularly admired for its straight stem clear of branches for 60 feet and girth of 9 ft. 2 inches. Douglas firs reach girths of 13 ft. 6 ins. with timber heights over 60 feet, and an oak with timber height of 40 feet has a girth of 12 ft. 4 ins.

Captain Hamilton himself is a keen planter and has many excellent young plantations to his credit. Between 1920 and 1939, he planted approximately 65,000 trees-over 20,000 Sitka, 13,000 Japanese Larch, 8,400 Douglas, 5,575 Norway as well as Scots Pine, Thuya Plicata (gigantea), Common Silver, Poplars and Willows. He has had remarkable growth of Sitka and Japanese Larch especially. From a well-stocked Sitka wood planted in 1923 he obtained from a pole removed in thinnings a 9-inch board 16 feet long. This crop would certainly fall in Quality Class I of the British Yield Tables. Yet it is growing on what was a very poor grazing field. Japanese Larch has given poles 45 ft. long at 20 years and is exceptionally straight. Douglas also grows very fast but except when there is a deep well-drained rooting medium it tends to blow over. Like most planters. he has had little success with Common Silver which once grew so well on the estate.

Amongst other attractions of the visit were the limestone caves with stalactites and stalagmites which Miss Hamilton lit by magnesium flare, and the many family heirlooms in the House itself. Mrs. Hamilton entertained the guests to lunch and tea.

946	Income			Expenditure £ s. d. £ s. d
an. 1	To Balance from last Accound In Secretary's hands At Bank on Current A/C At Bank on Deposit A/C	nt £ s. d. 8 13 1 2 53 1 8 2 50 0 0	£ s. d.	By Stationery and Printing
ec. 31	 J. Subscriptions received 1 1st Grade Technical, 1 23 1st Grade Technical, 1 13 2nd Grade Technical, 1 36 2nd Grade Technical, 1 	946 1 0 0 947 23 0 0 946 6 10 0 947 18 0 0		"," Excursion Expenses 5 0 "," Excursion Expenses 15 0 "," Secretary's Honorarium 15 0 In Secretary's hands 5 13 At Bank on Current A/C 182 19 188 13
	 4 2nd Grade Technical, J 1 Associate, 1945 8 Associate, 1946 69 Associate, 1947 2 Associate, 1948 1 Associate (on A/C), 1 	$\begin{array}{cccccccccccccccccccccccccccccccccccc$		
,, ,,	 Journals sold, Donations received fr Mrs. A. Henry (a) for Excursion (b) for Forestry P 		$\begin{array}{cccc} 110 \ 15 & 0 \\ 13 & 8 & 8 \end{array}$	
"	motion Fund " Deposit Interest	25 0 0	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	
			£267 13 9	£267 13

COVER PHOTOGRAPH

The Cover photograph of this issue was taken in the native oakwoods at Curraghmore, Co. Waterford. It shows the irregular branch system with "knee" bends of a fine sessile oak tree some 250 years old.

BACK NUMBERS

The following is a complete list of back numbers of IRISH FORESTRY, all of which are obtainable, post free, from the Secretary :—

Volume	I	Number	1	(1943)		
Volume	I	Number	2	(1944)) D/-	•
Volume	II	Number	1	(1945)		
Volume	II	Number	2	(1945)		
Volume	III	Number	1	(1946)	2/	
Volume	III	Number	2	(1946)	(5/-	
Volume	IV	Number	1	(1947)		
Volume	IV	Number	2	(1948)	/	



Native Timber Merchants Invited Ena McAINSH & CO., LTD. **3 Wilton Terrace DUBLIN**, **C.18 Telegrams:** Telephone: HOMEWOOD, DUBLIN DUBLIN 61412

THE DUBLIN PRESS 28/29 Upper O'Connell Street DUBLIN

1. 3¹⁴.



TESTED IN THE FORESTS OF THE WORLD



J. CLUBLEY ARMSTRONG DANARM, ABFORD HOUSE, WILTON ROAD, LONDON, S.W.1 Agents for Eire, R. Broderick &Sons Ltd., 43 Dame Street, Dublin

and the second s